Stony Brook University

Exploring Fertility Expectations

A Dissertation Presented

by

Miranda Annette Moore

to

The Graduate School

in Partial Fulfillment of the

Requirements

For the Degree of

Doctor in Philosophy

in

Economics

Stony Brook University

December 2010

Stony Brook University

The Graduate School

Miranda Annette Moore

We, the dissertation committee for the above candidate for the

Doctor in Philosophy degree, hereby recommend

acceptance of this dissertation.

Debra Sabatini Dwyer - Dissertation Advisor
Affiliated Professor, Economics Department
Chair, Departments of Health Care Policy and Management

Mark R. Montgomery - Chairperson of Defense
Professor of Economics

John Arthur Rizzo - Dissertation Co-Advisor
Professor of Economics, Cardiology and Preventive Medicine
Departments of Economics and Medicine

Anja Decressin - Outside Committee Member
Economist
U.S. Department of Labor, Employee Benefits Security Administration

This dissertation is accepted by the Graduate School

Lawrence Martin
Dean of the Graduate School

Abstract of the Dissertation

Exploring Fertility Expectations

by

Miranda Annette Moore

Doctor in Philosophy

in

Economics

Stony Brook University

2010

The past few decades have seen an incredible increase in the use of panel data to answer micro level questions in a variety of settings. This new longitudinal data has allowed economists to empirically explore many theoretical economic models. One area that has not been as extensively explored is the economics of fertility expectations. This paper uses data from the National Longitudinal Survey of Youth 1979 (NLSY79) to explore the fertility expectations of a cohort of women who were 14 to 21 years old in 1979.

We begin by investigating the impact of changes in the woman's socioeconomic status on the probability that she changes her fertility expectations. While the majority of our predictions are supported by our analysis, divorcing or separating from a spouse yield contradictory results. We also found counterintuitive impacts of losing self health insurance purchased through any source other than a current employer and losing health insurance for a child.

We continue by analyzing which factors influence fertility expectation. We find that the majority of the observable variables representing a woman's background characteristics and her

current socioeconomic status (marital status and education) have significant effect on her fertility expectations, both in statistical significance and magnitude. Additionally these effects are largely consistent with generally held beliefs.

Next we test whether women are operating under a model of pure rationality or a model of rationality with learning. We fail to accept that the model the NLSY79 women use to form their fertility expectations is consistent with the rational expectations (RE) hypothesis. Our results provide support for the theory that women form their fertility expectations under a model of rationality with learning. Although our results are mostly consistent with our predictions, experiencing a change in the source of your own or your child's health insurance yields contradictory results. Understanding how women form and change their fertility expectations is important for many aspects of economics. Demographers who use fertility expectations to make future population predictions and economists who model a woman's simultaneous or sequential decisions of how many children to have and the quantity of market labor to supply will benefit from a better understanding of the fertility expectations of women.

Contents

List of Tables **vii**

List of Figures **ix**

Acknowledgements **x**

1 Introduction **1**

2 Fertility Expectations Literature Review **4**

3 Static Conceptual Model **9**

4 Comparative Statics - Testable Assumptions **12**

5 Appropriate Analytical Sample **21**

6 Data **23**

7 Econometric Specification Issues **32**

8 The Evolution of Fertility Expectations **38**

8.1 Summary Statistics and Econometric Model 38

8.2 Results 40

9 Determinants of Fertility Expectations **44**

9.1 Summary Statistics and Econometric Model 44

9.2 Results 48

10 Testing Models of Fertility Expectations: Pure Rationality Versus Learning **55**

10.1 Rational Expectations and Learning Literature Review 56

10.2 Rational Expectations Theoretical Model 58

10.3 Learning Theoretical Models 59

10.4 Summary Statistics and Econometric Specifications 62

10.5 Rational Expectations Results 64

10.6 ALA Learning Results 66

10.7 AD Simple Continuous Ratio Results 70

10.8 AD Continuous Ratio Stages Results 73

11 Conclusion **78**

Bibliography **80**

Data Appendix **84**

Fertility Variables 84

Health Variables 85

Employment Variables 85

Location Variables 86

Other Socioeconomic Variables 87

Change Variables 87

List of Tables

1 Background Summary Statistics 89
2 Summary Statistics, 1979 91
3 Final Summary Statistics 94
4 Distribution of Actual Fertility and Fertility Expectation, by year, entire sample . 96
5 Distribution of Actual Fertility and Fertility Expectation, by year, completed fertility sample 97
6 Fertility Evolution Regression Summary Statistics 99
7 Fertility Evolution Regression Results: Logit 101
8 Fertility Evolution Regression Results: OLS 104
9 Summary Statistics of Pooled Sample for Logit Regression of Fertility Determinants 106
10 Determinants of Fertility Regression Results for the Five Continuous Ratio Stages 108
11 Determinants of Fertility Regression Results: OLS, Cumulative Logit, Continuous Ratio 113
12 Summary Statistics for Rational Expectations Regressions 117
13 Summary Statistics for ALA Regressions 119
14 Summary Statistics for AD Regressions 121
15 RE Test Regression Results: OLS, Cumulative Logit, Continuous Ratio 123
16 RE Regression Results: Continuous Ratio Stages 127
17 ALA Test Regression Results: OLS, Cumulative Logit, Continuous Ratio 132
18 Continuous Ratio Stages ALA Results 136

19 AD Test Regression Results: OLS, Cumulative Logit, Continuous Ratio 141
20 Continuous Ratio Stages AD Results 145

List of Figures

1 Average Children Expected and Born by Year 98

Acknowledgements

There are many individuals who have helped me throughout my time in Stony Brook, to whom I remain forever indebted. Without their help and support the completion of this thesis would not have been possible. First and foremost, I would like to thank my advisor Debra S. Dwyer for her constant support and encouragement throughout this research. Although she relocated to the West Campus of Stony Brook at the end of my third year, she remained loyal to all of her current economic students and amazingly continued to provide me with invaluable help for five years. I believe her support was a large factor in my receiving a teaching assistantship in the Economics Department my third year. Without her unwavering support I would certainly not have passed my defense. It was her belief in my work that made my time here in Stony Brook one of the most productive and fulfilling of my life. I hope we will work together in the future so that I can continue to learn from her not only as a professor but also as a friend.

Debra Dwyer was also instrumental in my receiving a student internship at the United States Department of Labor, Employee Benefit Security Administration, Office of Policy and Research. I am grateful to the Office of Policy and Research for giving me the opportunity to gain professional experience in government service. Joe Piacentini and Anja Decressin have taught me so much in the past three year – probably more than I even know. I will always be grateful for their unwavering support and encouragement as I struggled to finish my dissertation while working full time. My colleagues at the Office of Policy and Research also provided invaluable support for me throughout the past three and a half years. Lynn Johnson was 'in the trenches' with me and I cannot say I would have made it without her propping me up along my journey. I hope we always stay in touch.

I am also grateful to my committee members John A. Rizzo, Mark R. Montgomery, and Anja Decressin; their guidance formed and enriched my thesis in untold ways. They also suggested many avenues for future research. What I learned from them is invaluable and I hope we will continue to interact in the future.

One of the best things about my time in Stony Brook was the opportunity it gave me to meet some of the most wonderful people whom I have the privilege to call friends. I would never have made it through my first year classes without the help of my officemate Victor Kim, who patiently helped me to understand the weekly Microeconomics homework that seemed incomprehensible at the time. So many of the students and I commiserated over the difficult Ph.D. process: Anna Nesterenko, Jie Chen, Mir Ali, Partha Bhattacharyya, and most of the other graduate students. The friendship of all of my colleagues means a lot to me and I hope we manage to stay in touch throughout the years.

I cannot thank my family enough, especially my parents, for their endless loving support and encouragement. Even though she was obviously clueless about my ramblings, my mom has listened to me talk for untold hours over the years. My extended family may have never quite understood what a Ph.D. entails, but they were always proud of my accomplishments. I remember one of my uncles asking me how I would reach my patients on the operating table when I am so short – for some reason he thought I was studying to be a surgeon. For the past two years, Dave has also been 'in the trenches' with me: he has been there day and night as I have tried to find time for us and our relationship in my hectic schedule of working fulltime and completing a dissertation. He finally told me, "Concentrate on your dissertation. Take a leave of absence and finish." I would not have finished this December if it were not for his support and encouragement. I also cannot forget all of the technical support that Dave provided.

I love you all and could never thank you enough.

Chapter 1

Introduction

The new longitudinal data sets of the past few decades have allowed economists to test and validate many econometric models that were previously only theories. Within the social sciences (specifically economics, demography, sociology, and psychology) more accurate empirical tests of dynamic models of decision-making processes associated with fertility planning and outcomes have become possible. Over the years models of the factors that influence the fertility decisions of families have evolved predominantly with the use of data at the macro level, with little input from micro level data.

Fertility has been extensively studied throughout the social sciences. Chapter 2 presents a summary of the existing economic literature on fertility expectations. The simple model of utility maximization we assume that women use a when forming their fertility decisions is presented in Chapter 3. Our predictions over the relationship between the woman's fertility expectations and her background and socioeconomic status variables are explored in Chapter 4. Chapter 5 discusses how we categorize women according to the level of uncertainty they face in their fertility decisions.

The National Longitudinal Survey of Youth, 1979 (NLSY79) provides a rare opportunity to directly analyze the fertility expectations of individual women over their lifecycle for the first time. Chapter 6 explores the data available in the NLSY79 and how our analytical sample differ from the categories of women we exclude from the analysis. The Data Appendix provides details

of the construction of variables used in our analysis. All tables and figures are displayed at the end.

Turning our attention to the multivariate analysis, Chapter 8 investigates which factors influence the probability a woman changes her fertility expectations between interviews. We focus our attention on changes in the woman's socioeconomic status between interview t and $t + 1$ to find that although our predictions are generally upheld, several socioeconomic status changes have counterintuitive effects. One such finding is that the odds of a woman expecting more children in period $t + 1$ decrease in response to gaining health insurance for a child and increase in response to losing health insurance for a child. Another surprising effect of changes in the source of health insurance is that the odds of women expecting fewer children decrease when she loses her own health insurance purchased through any source other than a current employer.

Next we examine the determinants of fertility expectations in Chapter 9. We find support for many of the generally held beliefs about the interaction between a woman's background and current socioeconomic status and the number of children she expects. As a woman has more children, her total number of children expected also increases. The results indicate that women are more likely to expect a higher number of children if they have a larger number of siblings, lived with both biological parents at age 14, have parents with higher educations, pursue a higher education level, engage in market labor, reside in an urban area, or reside in either the Northcentral or Western region of the United States. Although Hispanic and black women are more likely to expect to have at least one child than white women, they are less likely to expect a higher number of children.

Our results encourage us to take a second look at the underlying model women use in forming their fertility expectations and focus Chapter 10 on testing both the pure rational expectations model and models which incorporate learning with rationality. We test the Rational Expectations (RE) hypothesis, which is one of the most influential hypotheses in economics, and the hypotheses underlying our models of learning. We fail to accept the model of pure rationality and the aspiration level adaptation based learning model and determine that the learning model with the attainment discrepancy model as its framework is the best fit for describing how women form

their fertility expectations. Interestingly, we find that women who obtained new health insurance for a child have lower odds of expecting the next number of children than women whose child kept the same health insurance source between interviews. Additionally, women who lost their child's health insurance, from any source, or lost their own health insurance, purchased through any source other than a current employer, have higher odds of expecting at least one more child.

A better understanding of fertility expectations of women has the potential to influence many aspects of economics, including how demographers use fertility expectations to make future population predictions and how economists model a woman's simultaneous or sequential decisions of how many children to have and the quantity of market labor to supply. We present concluding remarks in Chapter 11.

Chapter 2

Fertility Expectations Literature Review

Social scientists have long been interested in decisions regarding fertility, both the decision making of the individual and the decision-making of the 'household.' As early as 1965 Freedman et al. (1965) studied how family size expectations change, with research following by Schoen et al. (1997), Miller and Pasta (1995), and Hirsch et al. (1981) (among others). Economists such as Coombs (1979), Thomson et al. (1990), Morgan and Chen (1992), Schoen et al. (1999), and Joyce et al. (2002) have investigated the predicative qualities of measures of intentions. The next step that economists took in their investigations of fertility expectations was to analyze the determinants of differences between fertility expectations and outcomes, see Coombs (1979), Freedman et al. (1980), Hendershot and Placek (1981), Thornton et al. (1984), Thomson et al. (1990), and Thomson (1997).

Many economists have formulated conceptual models of fertility expectations formation. Wunderink (1995) reviews and augments the current theoretical models explaining how the number and timing of births could be considered an economic decision. Due to the advent of reliable contraceptives, the authors hypothesize that the number of children a family chooses to have should be considered an endogenous variable in economic models. Therefore, they present a static economic model that incorporates family size and discuss what they view as the 'costs' and 'benefits' of children in the context of a household maximization model. The authors state that the 'childbearing decision is taken under risks' and concludes that the dynamic aspect of

family planning cannot be explained in a static model. While exploring the household's decision over the timing of births, the authors conclude that the short-term and long-term consequences of the timing of births vary and must be investigated separately. In our analysis we take into account many of the factors the authors introduce. However, the authors are not advancing a specific econometric model for use in analyzing micro-level data.

Using data from the NLSY79 Trent (1994) investigates the relative effects of family, parental, and individual characteristics of childless, never-married teenagers on fertility, marriage, and nonmarital fertility expectations within the next five years. They focus on the role of the family in establishing these expectations and examine how these expectations differ across race/ethnic groups. Black teens are found to expect teenage childbearing at twice the rate of white teens, to expect to marry within the next five years at almost twice the rate of white teens, and to expect to have a child outside of marriage at a rate that is over twice the rate for white teens. While this paper advances our understand of what influences a teenager to give birth to a child or to have a child out of wedlock, it does not address what influences a woman's decision over how many children to give birth to in her lifetime. The later is important in predicting the demographics of the United States over the next decades.

The NLSY79 survey was used by Hayford (2009) to study patterns of fertility evolution. They focus on women ages 18 to 40 and use group-based trajectory analysis to define four common patterns of fertility evolution. The first group of women identified by the authors, comprising 67 percent of the sample, expects roughly two children throughout their lives and generally meets their expectations; 26.2 percent of the women in the first group have obtained a college degree by 2002, the last year of analysis, and 10.5 percent never marry. The second group of women, consisting of 12 percent of the sample, expects more children than average at young ages and increase their expectations over time. On average the women in the second group gave birth to four children, 16.3 percent obtained a college degree, and one tenth remains single. Sixteen percent of their sample expects an average of two children while young women, decrease their fertility expectations over time to an average of 0.5 children by age 40, and give birth to an average of 0.6 children. Almost one third of the women in this third group graduated from

college and 21.7 percent never married. The final group of women expects fewer than average children when young and decreases their expectations over time until they expect to have no children in their early 30s. This overwhelming majority of this group remains childless, 31.7 percent graduate from college, and 37.9 percent never marry.

These group characteristics are consistent with the author's hypothesis that not marrying is correlated with fertility expectations that decline over time and show that women who marry do not necessarily expect more children over time. The authors express surprise that the correlation between education, in particular obtaining a college degree, and fertility expectations trajectories is minimal, as there is a strong negative relationship between college education and fertility outcomes. While this work advances scientists' understanding of how groups of women with similar fertility expectation and outcome patters differ from each other, the analysis cannot be used to predict how many children an average women with specific characteristics would expect to have or to predict future fertility.

Heiland et al. (2002) use data from a West German panel that consisted of two surveys fielded in 1988 and 1994/95 to investigate if an individual's total desired fertility changes between the interviews and the determinants of the individual's total desired fertility. They find that up to half of the individuals changed their fertility intentions between the two surveys. The authors also find that the influence of the woman's background on the number of children she desires weakens as she ages, suggesting that women obtain new information over their lives which they use to analyze the costs of benefits of having children. Although Heiland et al.'s results lend support for studying the evolution of fertility expectations; they do not investigate the relationship between changes in the woman's socioeconomic status and changes in her fertility. The authors are also working with only two waves of data, which are collected six years apart. Our analysis focuses on smaller intervals between interviews and we have more years of data.

Namboodiri (1974) investigates the factors that differentiate women who expect to have no additional children from women who expect to have at least one more child using data from the 1965 U.S. National Fertility Study. Taking a sample of women from the study who stated they physically could have more children, are currently married and living with their husband, the

authors look at women of different birth parities to determine the influence of socioeconomic and demographic variables on the woman's decision to have additional children. The authors use discriminant-function analysis, a type of multiple regression analysis that treats group membership as the dependent variable, to determine the extent to which women who expect to have no more children differ from women who expect to have at least one more child.

Women who expect to have at least one more child are older, married later, have husbands with lower educations and higher income, are less likely to be Catholic, are better educated in the parity group 0 to 1, and are less educated in higher parity groups than women who do not expect to have another child. The discriminant-function analysis reveals that the older the wife, the more likely she is to expect no additional children; the older the wife was when she got married, the more likely she is to expect at least one more child; the impact of the wife's education varies with parity; the husband's economic status affects the decision to have another child only after parity 4; and after having 2 children, the wife identifying as Catholics increases her likelihood to expect to have at least one more child. The authors find that the factors determining the family's propensity to grow differ by parity levels and that only after couples attain a higher parity do the social and economic variables separate women into groups which expect no additional child or expect at least one more child. They conclude that family growth dynamics should be analyzed as a sequential process.

Bumpass and Westoff (1969) uses longitudinal data from the Princeton Fertility Study to study how well fertility desires predict completed fertility. The sample analyzed consists of 814 white, married women living in large United States metropolitan areas interviewed three times – in 1957 six months after the birth of their second child, in 1960, and between 1963 and 1967 during the year the authors designated as the woman's completed fertility year.[1] Completed fertility was measured by the woman's stated desired number of children at the final interview of

[1]The initial sample consisted of 1,165 women; however, only 814 women were still in the survey for the final interview. The authors estimated the woman's completed fertility year based on her age, duration of marriage, and additional births desired.

the study. Only 41 percent of the women had given birth to exactly the number of children they desired at the initial interview and 14 percent gave birth to either two children more than they initially desired or two children less than then initially desired. The authors found that education was positively related to the proportion of the sampled women who gave birth to fewer children than they initially desired and negatively associated with the proportion that exceeded their initial fertility intentions. The husband's initial fertility desires had a correlation of 0.64 with the wife's initial fertility desires and a correlation of 0.49 with completed fertility. The interval between the woman's marriage and the birth of her second child was found to have a correlation of -0.47 with the wife's completed fertility, -0.36 with the wife's initial fertility desires, and -0.31 with the husband's initial family size desires. Overall the authors conclude that a wife's desired number of children after the birth of her second child predicts well her final family size.

Chapter 3

Static Conceptual Model

In general, economists have not focused on modeling the factors which influence an individual's expectations for children. Economists assume that individuals are rational and, as such, apply a basic rational mathematical framework of utility maximization subject to constraints to model an individual's decision making. The individual obtains utility from the consumption of market goods, C, and the consumption of leisure time, L. Pecuniary, family income I_F, and nonpecuniary, total available time T, constraints are also placed on the individual. The one-period static conceptual model that the individual faces is:[1]

$$Max\, U(C, L) \tag{3.1}$$

subject to

$$I_F = wH + I_S + N \tag{3.2}$$

and

[1] As this is a one-period model, there are no savings.

$$T = H + T_F + L, \tag{3.3}$$

which gives

$$I_F = w(T - T_F - L) + I_S + N. \tag{3.4}$$

Here w is the individual's wage rate, H is the number of hours the individual spends in wage earning activities, I_S is the wage income of the individual's spouse, N is the individual's non-wage family income, and T_F is the amount of time the individual invests in family activities. The utility function is increasing in both C and L. In addition, the individual's family income is divided among the individual's consumption for themselves (C), their spouse's consumption for themselves (C_S), and the family's joint household consumption (C_F - including purchases for any children in the family), $I_F = C + C_S + C_F$. Thus,

$$\begin{aligned} C + C_S + C_F &= w(T - T_F - L) + I_S + N \\ C &= w(T - T_F - L) + I_S + N - C_S - C_F, \end{aligned} \tag{3.5}$$

and

$$\textit{Max}\, U(w(T - T_F - L) + I_S + N - C_S - C_F). \tag{3.6}$$

Using this theoretical model of rational decision making as the framework for how individuals form decisions, individuals are expected to determine how many additional children they expect. In particular, in period t an individual seeks to maximize her expected future utility of fertility, by choosing how many additional children to have, subject to her expected future constraints. Expanding on this static simplified model, the individual's expected future utility is based on her background, current life parameters, and expected future life parameters:

$$\textit{Max}\, E(U_t(C, L)|W, X_t, E[X_{t+1}]) \tag{3.7}$$

subject to

$$E(C) = E(wH + I_S + N - C_S - C_F) \tag{3.8}$$

and

$$E(L) = E(T - H - T_F). \tag{3.9}$$

Here U_t is the individual's utility of fertility at time t. W is a vector of variables which represent the individual's background and do not change over time, such as race, formative family structure, and the religious environment in which the individual was raised. X is a vector of variables that change over time as the individual progresses through the life-cycle (including the number of current children). C is the individual's own consumption, w is the individual's wage rate, H is the hours the individual engages in wage labor, I_S is the wage income of the individual's spouse, N is the non-wage income of the individual's family, C_S is the consumption of the individual's spouse, and C_F is the consumption for the joint usage of the family (including consumption on children). L is the individual's hours of leisure, T is the total time available to the individual, H is the individual's hours of wage labor, and T_F is the hours the individual engages in household production activities. This conceptual model will be applied to the data, presented below, to arrive at an appropriate econometric model that will allow testing of the comparative statistics above.

Chapter 4

Comparative Statics - Testable Assumptions

Focusing on the individual, we have broken the factors associated with fertility expectations into the categories of background-characteristic variables and socioeconomic status. Background characteristics generally are stable variables that describe the environment in which the woman lived during her formative years – age is the only background characteristic variable that changes between interviews. The socioeconomic variables describe the current status of the woman and include parity level, marital status, education, employment variables, and location variables.

The childhood environment of an individual plays a large part in their current attitudes and beliefs. Trent (1994) finds that variables representing the teenager's family background had few significant effects on adolescent expectations for teen and nonmarital childbearing. In contrast Heiland et al. (2008), using multivariate analysis, found that the background of the individual was an important determinant of fertility expectations. We predict the size of the individual's childhood family will have a significantly positive effect on the expected family size of the individual. Trent (1994) found a statistically significant, positive relationship between the individual's number of siblings and the individual expecting a teen birth for black and Hispanic adolescents. For black teenagers, they found a positive, statistically significant, relationship between the number of siblings and expecting nonmarital childbearing. More siblings was found by Heiland et al.

(2008) to be correlated with a desire for a larger family for the women in their sample that were childless.

The education of the individual's parents also influences how many children the individual expects to have through the individual's expectations of their own future educational attainments. We hypothesize that individuals with parents who are highly educated will expect to have fewer children than individuals with less educated parents. For woman, if their mother has a college degree, the woman is anticipated to be more likely to expect to obtain a college degree herself and therefore expect to have fewer children. A statistically significant negative relationship between the mother's education and expecting teenage childbearing was found for black and white teenagers by Trent (1994).

We theorize that women who are raised in a family in which the mother works in the labor market are more likely to expect to supply market labor themselves, and therefore expect to have fewer children; however, we only test for the negative relationship between the individual's mother working and fertility expectations. Women who have fathers who work for pay are also expected to value market labor and to expect to have fewer children. This hypothesis is supported by Trent (1994), who finds that among teenagers living in a household in which the individual's mother supplied market labor, black teenagers have lower odds of expecting teenage childbirth and black and white teenagers have lower odds of expecting non-marital childbearing.

Hispanic individuals are expected to desire the largest families, black individuals to desire slightly smaller families than Hispanic individuals, and white individuals to desire the smallest families. Black adolescents are found by Trent (1994) to expect teenage childbearing at twice the rate of white adolescents, to expect to marry within the next five years at almost twice the rate of white adolescents, and to expect to have a child outside of marriage at a rate that is over twice the rate for white adolescents, supporting our hypothesis.

Although we predict individuals raised in a Roman Catholic environment will expect to have more children than individuals raised in a nonreligious environment, due to the Roman Catholic church discouraging the use of contraception; Trent (1994) found no statistically significant relationship between the religion in which an adolescent individual was raised and the individual's

expectation to give birth to a child during their teenage years. Interestingly, they did find that white teenagers raised in a Catholic household had higher odds of expecting nonmarital childbearing. The authors speculate that Catholic adolescents have lower expectations for marriage and are less likely to use contraceptives, thus leading to a higher likelihood for nonmarital childbearing. Providing support for our hypothesis, Heiland et al. (2008) found that women who are Catholic are more likely to expect a larger number of children. Women who gave birth at an earlier age were found by Heiland et al. (2008) to more likely be Catholic. The authors found evidence that 18 to 25 year old Catholic women change their desired family size more frequently than other women.

As women have a limited span of childbearing years, they are predicted to expect fewer additional children and, if they have not attained their desired number of children, to expect fewer total children as they age. Many social scientists have found support for these predications. In one early study, Davidson (1971) investigates the impact of demographic, social and economic factors on fertility expectations within a national probability survey of 30,000 wives aged 14 to 39 in 1967. Using descriptive statistics she discovers a reciprocal relationship between the number of children a wife expects and her birth parity. This reciprocal relationship leads to the age of the wife being inversely related to the number of additional children the wife expects. Later, Trent (1994) finds a negative, statistically significant relationship between an adolescent's age and the odds that they expect to have a birth in the next five years.

One can argue that the primary variable determining how many children a woman expects is the number of children she has given birth to already. As a woman moves through birth parities, the number of additional children she expects to have is predicted to decrease by at least the number of children she bears. However, some women may decrease the number of additional children they expect to have by more than the increase in their parity level. For instance, if a woman expects to have a total of two children and after she gives birth to her first child she decides she wants no more children, her number of additional children expected is now zero, having fallen by more than the increase in her birth parity. As stated above, Davidson (1971) found support for this hypothesis.

Given the limited span of childbearing years women are predicted to expect fewer additional children as they advance through their years of potential fertility without having as many children as they desire. However, if a woman gives birth to an unanticipated child between time periods t and $t+1$, her total number of children expected at time $t+1$ increases by the same number of children she gave birth to unexpectedly. Women are also thought to gain information on the effect of having a child on their own life after the birth of their first child, leading some women to change their preferences for children. We anticipate that a change in births at interview will increase the odds of the woman expecting more children at time $t+1$.

Economists and sociologist have produced an extensive literature that investigates the relationship between fertility and marital status. Most of the theoretical and empirical research investigating the determinants of fertility expectations focuses on samples of married women only. Although in the United States the relationship between marriage and childbearing has weakened over the past few decades, the NLSY79 cohort of women experiences only the beginning of this change and, even today, there exists a general desire on the part of women to have children within a marriage. Once a woman has married, she now must consider her spouse's preference for children when forming her own fertility expectations. We hypothesize that women who marry will expect more children than women who remain single and that a divorce, separation or the death of a spouse will induce women to expect less additional children.

In addition to a well established literature on the correlation between marital status and fertility expectations, there is also a large literature on the link between the education of the woman and her fertility expectations and outcomes. Descriptive statistics are used by Davidson (1971) to show that a wife's education is inversely related to the number of additional children expected. Bumpass and Westoff (1969) find that the education of the wife is positively related to the proportion of wives who gave birth to fewer children then they initially desired, while negatively associated with the proportion of wives that exceeded their initial fertility intentions. The impact of the wife's education is found by Namboodiri (1974) to vary with parity; compared to women who expect to have at least one more child, women who do not expect to have another child are better educated in the parity group 0 to 1 and less well educated in higher parity groups.

As educational attainment increases, the effect on the individual's expected number of children is ambiguous. Income should increase with education, which would imply that individuals with higher levels of education could afford more children (the income effect). However, as education increases, the preferences of the individual may change and the individual might decide to allocate more resources to a smaller number of children (the competing substitution effect). The latter would also happen if the individual has a shorter span of childbearing years due to pursuing an advanced educational degree. A statistically significant positive relationship between the individual dropping out of high school and expecting a birth within the next five years and, for white adolescents only, expecting a nonmarital childbirth is revealed in Trent's (1994) research. For black and Hispanic adolescents they find a statistically significant, positive relationship between lagging in educational attainment and both adolescent childbearing and nonmarital childbearing.

Looking at changes in education level, we hypothesize that graduating from high school should increase a woman's expectations of obtaining a job that pays fairly well, thus after graduating from high school women should increase their fertility expectations. Women who have enrolled in a college program (either for the first time or as a returning student) are thought to believe that their increased education will lead to a higher paying job; thus after they start their college career, we anticipate they will expect more children. On the other hand, women who withdraw from college before they receive a Bachelor degree might believe that they will have a lower paying job than they had hoped at the start of their college program. We hypothesize that women who leave a college program before they obtain their Bachelor degree will expect fewer children. Following this logic, after a woman obtains (at least) a Bachelor degree, they should expect more children.

A woman's current health status and her either having or having access to health insurance for herself and her child(ren) are important factors in the decision to have children. We expect to find that women who are in poor health decide not to have (additional) children either because childbearing and birth could further deteriorate her health, because her poor health could adversely affect the health of any child she bears, or because her poor health limits the quantity and quality of childcare she can supply to any child she might have. When investigating changes in

the woman's status, we hypothesize that, compared to women who experience no change in their health status, women who experience an improvement in their health will expect fewer children and women who develop a new health condition will expect more children.

Health insurance is also an important factor in childbearing decisions, as the medical cost of a pregnancy can be very high. As Wunderink (1995) discusses, one of the *maintenance costs* of children is health expenditures, from insurance premiums to payments for medical services. Thus, it is expected that women with health insurance from a stable source (i.e. self or spouse's current employer) will face a lower cost to childbearing, which should increase the number of children the woman expects. Therefore women who gain new health insurance are anticipated to increase the number of children they expect and women who lose health insurance will decrease the number of children they expect. In addition, we hypothesize that women who change their health insurance source to a current employer (either their own or their spouse's) will increase the number of children they expect. We believe that the effect of changes in the source of the insurance the woman provides for her children will be in the same direction as the effect in changes in the source of her own health insurance. Women who lose health insurance for their child are also theorized to decrease their expected number of children. Along the same lines, women who gain health insurance for their child should increase the number of children they expect. Women who switch to current employer health insurance for their child should increase the number of children expected.

The link between employment and fertility has been extensively studied by many social scientists. Although there is an ongoing debate about whether employment and fertility decisions should be modeled sequentially or simultaneously, the impact these decisions have upon each other is indisputable. We hypothesize those women who work for a 'family friendly' employer will expect to have more children than women working in other environments, as such environments lead to lower costs of fertility. The costs of childrearing and childbearing are anticipated to be reduced by employer offered fringe benefits such as childcare services, flexible work schedules, and paid maternity leave. While an employer may provide a family friendly environ-

ment without offering specific programs, we can only use observable measures to determine the woman's employment environment.

In addition to working in a 'family friendly' environment, the hourly wage rate and amount of market labor the woman supplies will have an ambiguous effect on the number of children she expects. The income effect should lead the woman to demand more children as she can afford more of all goods; however, the substitution effect leads to a higher opportunity cost of having children, lowering the number of children the woman demands. Working full time might indicate that the woman has chosen to have fewer children and focus on her career.

Trent (1994) provides some support for a negative relationship between the number of hours a woman works and the number of children she expects, as they find that white women who worked 21 or more hours per week had lower odds to give birth to a child out of wedlock in the next five years. Continuing this logic, women who increase the amount of paid labor they supply are hypothesized to be able to afford more children (assuming that the income effect outweighs the substitution effect) and to increase the number of children they expect. In contrast, women who decrease the number of hours of market labor should decrease the number of children they expect.

The type of occupation of the woman is also theorized to influence her fertility expectations. Women who are self-employed are expected to behave differently; they would expect more children if their self-employment lowers their childcare costs and they would expect fewer children if their self-employment increases their childcare costs. In addition, the effect of becoming self-employed or of going to work for someone else will have a theoretically ambiguous effect. Women working in a middle class occupation are theorized to have higher incomes and, thus, to expect to have more children, than working in a working class occupation. Therefore, women who move into a middle class occupation are hypothesized to increase the number of children they expect, as these occupations usually have higher incomes, and women who move into a working class (i.e. move out of a middle class) occupation should expect fewer children.

Closely linked to the woman's employment status, income has a large impact on the number of children a woman expects, as individuals with higher financial resources at their disposal

can afford to have more children. However, as described above, it has been shown that some individuals choose to invest their extra income in a smaller number of higher 'quality' children, than in a larger number of children. Thus the effect of total family income on fertility expectations will be ambiguous. As early as 1967 Davidson (1971) found that, for married women aged 14 to 39, the income of the husband was positively related to the current parity level but showed no relationship with the number of (additional or) total number of children expected. When they restricted the sample to wives ages 30 to 40, the spouse's income was inversely related to the current parity level and there was again no relationship with the number of (additional or) total number of children expected.

Social norms play a significant role in fertility expectations, thus we include variables that we hope capture the social environment in which the individual lives. Women who live in an urban location are expected to face a higher cost of childcare, both formal care and the physical space needed to let children play. The societal environment in many rural locations is still heavily focused on families and rural areas have fewer employment opportunities; thus women living in an urban location are expected to desire less children. Consequently, we believe moving into an urban area will lead the women to expect fewer children.

If an area with a higher level of unemployment influences more women to provide in-home child care which results in a smaller marginal cost of additional children, women living in areas with high unemployment would generally expect more children than women who live in an area with a lower level of unemployment. An increase in the unemployment rate of the region where the woman resides should decrease her opportunity cost of children (i.e. working versus at home childcare), leading these women to expect more children. Alternatively women living in an area where the unemployment rate decreases should decrease their fertility expectations. We do not hypothesize a particular direction of effect for different regional locations of the women. Moving to a different region of the United States has a theoretically ambiguous effect as different regions have different societal norms.

While the current socioeconomic status of the individual affects their fertility expectations, it is possible that the individual's expectations over their future status exert more influence over

their fertility expectations. Women who have never married, but expect to marry, would be more likely to expect to have children than women who have never married and expect to never marry. In addition, women who expect to obtain an advanced degree are hypothesized to expect to have fewer children than women who expect to only obtain their high school diploma. Finally, women who anticipate a high future family income, either through their own income increasing or through marriage to a spouse with a high income, might expect to have more children than women who anticipate a lower future family income. Although we think that the woman's expectations over her future socioeconomic status variables are important, we are unable to observe these values; thus they are not included in our analysis.

Chapter 5

Appropriate Analytical Sample

We anticipate some types of women will form fertility expectations differently. In particular, we believe woman can be separated into mutually exclusive categorizes based on their final fertility outcomes in the following manner: (1) women who never have any children because they did not want to have children (referred to in this paper as 'childless women'), (2) women who never have any children because they were unable to have children, and (3) women who have at least one child (regardless of planning). Childless women are easily recognized in a survey as they report in every year that they expect to have no additional children and at the conclusion of the study they report zero births. The second group is harder to identify using only answers to fertility expectation questions because remaining childless at the completion of the study does not allow distinctions between woman who will never have a child and women who have experienced conception difficulties. Given the difficulty of separating the second and third groups, this paper combines the second and third categories of women and refers to these women as 'potential mothers.'

There are competing theories about why women would elect to remain childless. The first theory sets out that childless women are more career focused and are substituting career for children. This theory predicts that childless women will have a higher education, a higher individual wage rate, a higher family income, be in a middle class industry, be less concerned about working for a family friendly employer, marry less frequently (as one of the major functions of marriage

is childbearing), and live in more urban locations. However, the competing theory is that women choose to have no children because they do not have the resources to support children, i.e. the income effect weighs heavily on these women. These women are expected to have lower educational attainment, lower individual wage rates, lower family income, and a working class occupation. Predictions over the marital status or location of childless women are not obvious from this theory.

We exclude childless women from our analysis of fertility expectations because as a group they have no variability (or uncertainty) in their fertility expectations and outcomes, and are expected to behave differently than women who at some point expect to have a child. Another exclusion we make based on a group reporting fertility certainties are those women who have completed their fertility. Potential mothers who expect zero additional children in the current and future time periods and have no unanticipated child in any future time period are coded as having completed their fertility in the time period *after* she gives birth to her last child. These exclusions allow us to focus on women who do face the uncertainty that is central to the current topic.

Chapter 6

Data

To explore fertility expectations of women, we look to a longitudinal panel data source that contains prospective information on fertility expectations. The National Longitudinal Survey of Youth, 1979 (NLSY79) is an ideal data set for our purposes as it contains rich information on an individual's background, current socioeconomic status, fertility expectations and fertility outcomes, as evidenced from the studies presented in the literature review. The NLSY79 respondents were interviewed yearly from 1979, when 6,283 women were interviewed, until 1994 and biyearly thereafter.[1]

Information on each child for every woman, including the child's date of birth, sex, and current place of residence is collected from the 'Birth Record' section of the NLSY79. The 'Attitudes and Expectations' section of the questionnaire, which asked respondents how many (additional) children they expect to have, is only fielded in 15 surveys: the 1979 survey, the 1982-1986 surveys, and bi-yearly thereafter.[2] We construct our measure of fertility expectations

[1] See the Data Appendix for details on the NLSY79 samples and construction of the analytical variables.

[2] Not all women answer the expectations questions; however, less than 2 percent of women have missing values for the fertility expectation questions in any year. We assume that women who do not report an expected number of children would use the same process to analyze information as those that do answer the question. The validity of this assumption is enhanced by the fact that all women who refused to answer, or were coded as an invalid skip, answered the question in either an earlier or later year, or both. Given the fact that less then one percent of the

by adding the total number of children the woman have borne to the number of (additional) children she expects.

Using the information available in the 'Birth Record' section we construct variables indicating whether the women are mothers, specifying the number of children they gave birth to, indicating whether they have any non school-aged and school-aged children, specifying the number of non school-aged and school-aged children, and specifying the mother's age at each birth. Women who have never had children have zeros for each of the variables measuring quantity or presence of children (overall, school-aged, and non school-aged). The indicator for the presence of any child is used to distinguish women who have had no children from those who only have children in a particular age category. Two central variables in our analysis measure the number of the woman's current school-aged and non school-aged children.

Following the analysis of Chapter 5, we divide the NLSY79 data into several different groups of women: all women, all 'potential mothers,'[3] potential mothers with an initial incomplete fertility (referred to as women with 'continuing fertility'), potential mothers with an initial complete fertility (referenced as women who have 'completed motherhood'), and childless women (defined above). The first three tables present descriptive statistics of the women of NLSY79 by these five categories. Table 1 presents the background and characteristic variables, Table 2 shows the socioeconomic status in 1979, and Table 3 gives information on the woman's final marital status, educational attainment, number of births and age of each birth.

---

sample has missing values for any other variable and these missing values appear to be random, I used a multiple imputation model to replace the missing values with a set of plausible values that represent the uncertainty about the right value to impute. Simply excluding the observations with missing values would result in our throwing away valuable information and could potentially bias the results by more than the use of the multiple imputation procedure.

[3]A woman is categorized as a 'potential mother' if she has either reported that she expects an additional child or she has given birth to a child in the panel. This definition is forced by the fact that any women who gives birth to a child is recorded as expecting a positive total number of children, including any woman who reported zero additional children but gave birth to an unanticipated child in the survey.

We begin by describing how the 97 childless women differ from potential mothers when they first enter the survey and at the conclusion of the survey. In regards to their background, childless women are more likely to be part of a white, non-religious, slightly larger family in which the parents have lower educational attainment and were less likely to work for pay in 1978. Childless women are, on average, 18 months older when they enter the sample as married, separated, divorced or widowed women who have at least obtained their high school diploma and are not currently a student. Although the health and work status of childless women are remarkably similar in 1979, as expected childless women are less likely to work for a family friendly employer (as measured by the fringe benefits offered).

In 1979, childless women were more likely to live in an urban area, the Northeast or the Northcentral region of the United States and to have a lower real family income – although in 1979 the sample of potential mothers are more likely to still be living with their parents, inflating the family income. At the conclusion of the survey, only ten percent of childless women have married and never divorced or separated (compared with 47 percent of potential mothers), while half have never married (compared with 13 percent of potential mothers) and the last forty percent married but divorced or separated. Childless women are more likely than potential mothers to have dropped out of high school (26 percent versus 7 percent) or gotten only some college (30 percent versus 25 percent) while potential mothers were more likely to have graduated high school (41 percent versus 29 percent) or college (26 percent versus 15 percent). These descriptive statistics suggest that the average childless woman in the NLSY79 cohort decide to have no children due to limited resources, as opposed to a desire to focus on their career.

Next we examine the differences between the 22 women who have completed motherhood and the 6,146 women who are continuing their fertility. Women who have completed motherhood differ markedly in that they are more likely to have been raised in a rural setting, in the Northcentral region of the United States within a larger, black, Protestant or non-religious, non-traditional household (traditional is defined here as two-parent) in which the parents had much lower educational attainment and the mother did not work for pay. At the initial survey women who have completed their fertility have an average of 2.6 children (versus 0.13); are more than

two and a half years older; are more likely to be married, separated, divorced or widowed; are more likely to have graduated high school but not attended college and not be a current student; are more likely to be working full time; are more likely to be in a working class industry; and are more likely to have a lower own hourly wage rate and family income. Women who have completed motherhood in 1979 had their first child almost eight years earlier and, over the life of the survey, were more likely to have never finished high school and slightly more likely to have divorced or separated.

Overall, Tables 1 through 3 illustrate that women in different fertility categories, i.e. women who make different decisions with regards to fertility, have quite different backgrounds. Although the small sample sizes of childless women and women who have completed their fertility in 1979 (97 and 22 women respectively) may skew the overall mean of the variables presented, we think it is important to highlight the differences between the women used for our analysis and those women excluded from the analysis to address any issues of sample selection. As childless women never face uncertainty in their fertility expectations, we believe there can be little bias from excluding these women from the analysis. In regards to women with completed fertility, as much of their differences are easily attributable to their higher initial age, we feel that there is little bias from selecting only those women who are continuing their fertility.

The distribution of fertility expectation and outcomes demonstrates if and how women change their fertility expectations over time as they have children. Table 4 shows the number of women, average births, percentage distribution of births, percent of women who gave birth, percent of women who have a birth that is not expected,[4] average total number of children expected, percentage distribution of total number of children expected, percent of women who change their fertility expectations between surveys, percent of women who increase their fertility expectations, and percent of women who decrease their fertility expectations for each fertility survey for all women in the NLSY79 data set.

---

[4]Women are coded as having an unanticipated birth if in the t interview they report having more children than they reported expecting in the $t-1$ interview.

The number of women interviewed in each fertility survey of the NLSY79 decreases from 6,283 in 1979 to 3,984 in 2004 due to missed interviews and the NLS dropping certain women from the sample over time. The average number of births for all women interviewed (including the zeros) increases from 0.15 in 1979 to 2.08 in 2004. In 1979 88.7 percent of the NLSY79 women have yet to give birth, 8.2 percent have given birth to only one child, 2.6 percent have given birth to two children, .5 percent have given birth to 3 children, and .1 percent have given birth to 4 or more children. By 2004 these percentages evolve such that 15.6 percent of women have yet to give birth, 16.3 percent have given birth to only one child, 34 percent have given birth to two children, 20.9 percent have given birth to three children, and 13.2 percent have given birth to 4 or more children. This type of increase was expected and consistent with women's expectations.

From the 1979 survey to the 1982 survey, 21 percent of women gave birth to at least one child. The percentage of women who gave birth between surveys drops to a range of 8 percent to 9.8 percent for the next few surveys because these surveys occur at one year intervals instead of the three year interval from 1979 to 1982. The percentage of women who gave birth between surveys increases again to 20.6 percent from the 1986 to 1988 survey, and slowly declines to 1.5 percent between the 2002 and 2004 surveys.

Every survey in which the fertility expectation questions were fielded includes women who have given birth to a child that was not expected; the percent of women who gave birth to an unanticipated child between surveys varied from a low of 0.5 percent in 2004 to a high of 4.1 percent in 1992. The percentage of women who experience an unanticipated birth is higher in the years when the survey interval was two years instead of one. In the surveys from 1983 to 1986 approximately 1 percent of the women experienced an unanticipated birth, for the 1988 to the 1994 surveys the percentage of women who had an unexpected birth ranged from 3.5 percent to 4.1 percent, in the 1996 to 2000 surveys the percentage of women who experienced an unanticipated birth ranged from 2.3 to 2.5 percent, in 2002 1.2 percent of women had an unexpected birth, and in 2004 only 0.5 percent of women had an unanticipated birth. The downward trend in unanticipated births is expected; as women age and enter menopause, their chance of having an

unexpected pregnancy decreases. In addition, women might learn from past fertility experience as they age. Overall this part of the table shows that the plot of the percent of women who gave birth in each year is bell shaped and that a small percentage of women have an unanticipated birth in each year.

The average number of children expected for all women (including the zeros) trends downward from 2.4 children in 1979 to 1.91 children in 1990. The average number of children expected ranges from 2.13 to 2.15 in the fertility surveys from 1992 to 2004. While the percentage of women who expected zero children increased substantially from 8.3 percent in 1979 to 13.7 percent in 2004, the percentages fluctuates over the years, reaching a peak of 17.1 percent in 1990. The percentage of women who expect to have only one child steadily increased from 9.7 percent in 1979 to 16.3 percent in 2004. Also fluctuating over the years, the percentage of women who expected to have two children exhibits a slow but steady decrease from 44.4 percent in 1979 to 35.2 percent in 2004. In 1979 19.6 percent of women expect to have three children and in 2004 21.3 percent of women expect to have three children. Women who expect to have three children have the smallest range of percentages, from a low of 18.2 in 1982 to a high of 22.4 percent in 1994. The percentage of women expecting 4 or more children decreases from 18 percent in 1979 to 13.5 percent in 2004; however, the percentages range from a low of 8.7 percent in 1988 to a high of 18 percent in 1979.

Most important for the current analysis, Table 4 shows the percentage of women who change their fertility expectation in each year. As women advance through their fertile years, the percentage of women who change their fertility expectations between surveys decreases, from 59 percent in 1982 to 11 percent in 2004. From the 1979 survey to the 1982 survey, 59 percent of women change their fertility expectations, 22.8 percent increase their expectations and 36.3 percent decrease their expectations. Between every survey, more women decrease their expectations than increase their expectations; the percent of women who increase the total number of children they expect to have declines throughout the survey from 22.8 percent in 1982 to 2.2 percent in 2004, while the percent of women who decrease the number of children they expect to have declines from 36.2 percent in 1982 to 8.8 percent in 2004.

Overall, Table 4 illustrates that women seem to overestimate their fertility outcomes. The percentage of women with a completed fertility in 2004 of no children or one child is almost double the percentage of women who expected to have no children (15.6 percent versus 8.3 percent) or one child (16.3 percent versus 9.7 percent) in 1979. Although 44.4 percent of women who expected to have two children in 1979, only 34 percent of women had given birth to two children by 2004. In 2004 13.2 percent of women had given birth to four of more children, while 18 percent had expected to have at least four children in 1979. In contrast, in 1979 19.6 percent of women expected to have three children and by 2004 20.9 percent of women had given birth to three children.

Using the sample of women who have not yet completed their fertility, Table 5 replicates the analysis of Table 4 for women in the NLSY79 who have not completed their fertility in each year. Comparing Table 4 to Table 5 we can see how many women were dropped from the analysis in each year because they have completed their fertility; by 2004 a total of 3,556 women have completed their fertility.[5] The number of women who have not completed their fertility in each year decreases from 6,164 in 1979 to 512 in 2004. In addition, Figure 1 displays the total children expected and births for the entire NLSY sample and the sample of women who have completed their fertility.

From Figure 1, we can see that the lines for the average number of births for women who have yet to complete their fertility and for women who have completed their fertility are almost overlapping. This leads us to believe that the women who have completed their fertility are using the same underlying model of fertility expectations formation, and only complete their fertility at different points in their lifecycle. Table 5 illustrates that as women go through time without completing their fertility, a larger percentage of the sample have no or only one child, a larger percentage have a birth each year, a larger percentage have a birth that was not expected, and a larger percentage change their fertility expectations in the later years. These higher percentages

[5]See the Data Appendix for more information on the differences in sample sizes.

are driven by the fact that we restrict the sample to women who have not completed their fertility, so we drop those women who have the highest number of births and are more likely to have undergone some form of sterilization. Additionally, those women who have not completed their fertility in the later surveys are certainly of an age that they might have accepted that, while they might still have a child, they will probably not have as many children as they would originally have liked.

We focus our attention now on those variables that represent the change in socioeconomic status for the respondents.[6] To construct variables representing the change in the continuous variables in the model (including the various measures of income, the respondent's wage rate, and the number of children the respondent has given birth to) we simply subtract the $t+1$ value from the t value. We chose to represent changes in the individual's marital status with dummies indicating if the individual has entered into a new marriage, has become divorced or separated, or has become widowed. Similarly to represent the educational status and student status, we constructed indicator variables for graduating from high school, beginning college attendance,[7] stopping college attendance before the individual receives a bachelor's degree,[8] and graduating from college.

For the woman's changed health status we created an indicator variable for reporting a new health condition that limits the amount or type of work the respondent is capable of and an indicator variable for reporting no health condition in period $t+1$ after reporting a health condition in period t. We hypothesize that the respondent having health insurance for themselves or their child(ren) through either their or their spouse's current employer are the most significant health insurance source variables. Our variables indicating if the health insurance source changed be-

[6]See the Data Appendix for more details on the construction of each of these variables.

[7]This category will include women who have not changed their educational attainment, but have returned to college at least part-time.

[8]This category will include those women who receive an Associate's degree.

tween interviews include: current employer sponsored insurance was lost without replacement, insurance through some other source was lost without replacement, current employer sponsored insurance was newly acquired, insurance through some other source was newly acquired, the insurance source switched from a current employer to any other source, the insurance source switched to a current employer from any other source, and no change in insurance source.

To illustrate changes in the work environment of the woman we constructed dummy variables for gaining or losing each of the four fringe benefits in our model: flexible work schedule, child care, paid maternity leave, and employer offered health insurance. Focusing more attention on the change in work hours, we create indicator variables for if the woman increased or decreased her work hours by 8 hours, 16 hours, 24 hours or 32 hours. We felt that small changes in work hours can have large impacts on the number of children the woman expects. Becoming self-employed or going back to outside employment are modeled along with advancing to a middle class occupational industry and returning to a working class occupational industry. Changes in location are measured using a simple indicator of living in a different region, indicators for moving to and away from an urban area, and simple variables indicating if the unemployment rate of the region increased or decreased. All of the change variables are used in our analysis of fertility expectations, presented below in three separate Chapters.

Chapter 7

Econometric Specification Issues

The economic literature has extensively studied the interrelation of the fertility, marital status, education, and employment decisions of women. Although economists are still uncertain if these relationships are more appropriately modeled as simultaneous or sequential, they are certain that the decisions are not made independently. Thus, many of the independent variables we use to explain variations in the number of children a woman expect and how these expectations evolve are almost certainly endogenous, as they are correlated with the error term in our regression models. In addition we have such an array of variables in our model that we must also look at the issue of multicollinearity, which would result in regression coefficients which are unreliable estimates. The variables in our model which are potentially endogenous include our employment, marital status, education, health insurance, and location variables. Because we are predicting an ordered response variable, the techniques used in linear regression models, discussed below, are difficult to apply and beyond the scope of this dissertation.[1] We are also unable to reasonably specify an exact structure of simultaneity or sequentiality within our endogenous variables; therefore we do specify direction associated with the endogeneity bias. We interpret our results with caution

[1] In our future work, we will investigate tools that would mitigate endogeneity in ordered response panel data models. We would like to investigate models which include Kawakatsu and Largey's proposed EM algorithms, Bayesian inference Using Gibbs Sampling, autoregressive lagged dependent variables, and many others.

and discuss the association between fertility decisions and the variable of interest instead of our variables causing fertility decisions.

If fertility expectations were a continuous variable and we were attempting to model the linear relationship between fertility expectations and these endogenous and multicollinear variables we would look to specialized econometric tools to help address the endogeneity issue. In particular, the Heckman (1978, 1979) two-step instrumental variables approach would suggest that if we could purge the endogeneity by implementing a two stage maximum likelihood model. In Heckman's model, the first stage would consist of regressing our endogenous variable (for instance work status) on a vector of covariates which include our instruments and the other independent variables that would predict our endogenous variable. We would use the predicted values for our endogenous variable in the second stage which would regress the total number of children expected on a vector of covariates which include our predicted values for the endogenous variable modeled in our first stage. The variables that we use as instruments would need to be correlated with the endogenous independent variables, conditional on the other covariates, and cannot be correlated with the error term in the explanatory equation.[2]

Another econometric tool used to mitigate endogeneity which arises from unobserved heterogeneity in models which utilize panel data is difference-in-difference models, including fixed effects and random effects. In our exploration of fertility expectations we chose to first analyze how changes in the woman's socioeconomic status variables affect changes in her fertility expectations because it is a first difference equation model; e.g. $\delta Y_i^e = \gamma_0 + \beta \delta X_i + \delta u_i$. The first underlying assumption of this method is that δu_i is uncorrelated with δX_i. For this assumption to hold the idiosyncratic error at each time t, u_{it}, must be uncorrelated with the explanatory

[2]In our analysis which test the rational expectations hypothesis, we attempted to use Heckman's instrumental variables approach in this analysis using the total fertility rate and the birth rate as instruments which we believe would adhere to these criterion. However, when we test our instruments for strength and for overidentification, we reject the hypothesis that these instruments are weak, i.e. that the instruments are not strongly correlated with the number of children the woman expects, and we reject the hypothesis that the instruments are uncorrelated with the error term. Therefore we must conclude that our instrument set is invalid; we cannot identify any other variable which is available and able to pass the two tests for strong and overidentified instruments.

variables in both time periods; thus this assumption is violated in lagged dependent variable models. The second assumption that must be satisfied is that δX_i must change over time. The final assumption is that the usual ordinary least squares statistics satisfied the homoskedasticity assumption.

While we do not attempt to control for the endogeneity in our model, we discuss the form of the endogeneity. The first two major variables which are potentially endogenous are age and number of children born. As we have discussed, as women age they have fewer childbearing years left and are thus expected to lower their fertility expectations if they have not yet given birth to the number of children they desire. In addition to this aspect of age, age is correlated with many of our other variables including marital status, education, and income. In our future work on fertility expectations we would like to investigate models which include variables interacting age and the variables age is correlated with.

One of our main hypothesis is that women form their fertility expectations within the framework of a rationality with learning. Women are hypothesized to experience decreasing marginal 'learning' with each child they bear. Therefore women 'learn' the most about their utility of having their own children after the birth of their first child and learn a little less after the birth of their second child. We also predict that the woman experiences substantially less learning after birth parities three and higher due to the woman experiencing the marginal utility of having a single child and the marginal utility of having multiple children. In our future work we would like to investigate this hypothesis using survival analysis. The coefficient on the number of children the woman has born needs to be interpreted with extreme caution, due to the fact that this measure is included in our dependent variable. We explored models where the dependent variable was simply the number of *additional* children the woman expects; however, this measure is not broad enough and experiences less variability than total number of children expected. The major problem with the measure of additional children the woman expects is that many women always report that they expect zero children, yet they give birth to a child (thus the child is categorized as unanticipated). Thus we decided that the best analysis includes total number of children expected and the number of children born.

Looking now at our employment variables, we anticipate that women make decisions over how many children to have and how many hours of market labor to supply either simultaneously or sequentially. It is possible that before a woman gives birth she expects to return/continue working the same number of hours after her maternity leave is finished and after she gives birth she decides to stay at home with the child or to reduce her hours of labor.[3] In other sequential scenarios the woman makes her employment decisions and then decided how many children to have, for instance a women might decide to focus on her career and never have children. The choice of occupation and the decision to be self-employed are also expected to be correlated with fertility decisions. The location of the woman could also be correlated with her employment variables, particularly if she has an occupation which mandates that she live in an urban area. In general employment decisions are intertwined with fertility decision too many levels to disentangle the direction of the bias associated with the endogeneity of the employment variables.

Two other important sources of endogeneity in our model are marital status and education. Women who anticipate marrying are more likely to expect to have children. Marital status is also correlated with other important variables including income, employment, and health insurance status. Women who are married will have a higher household income, have another source of household income that allows the woman more flexibility when choosing how many hours of market labor to supply, and have access to health insurance through their spouse's employer. In addition, when analyzing how changes in socioeconomic status affect changes in fertility expectations, women who divorce or separate from their spouse could lose their health insurance if they were covered under their spouses employer sponsored plan.

Women who choose to obtain a higher educational degree might also choose to delay their childbearing, which could lead to the woman having less children over her lifecycle. Additionally, education is correlated with income, employment, and health insurance status; women

[3]Some women with health insurance through their own current employer are required to either return to work for at least a brief following their maternity leave or to repay the health benefits that were paid out for her pregnancy and birth.

who have a higher educational attainment are more likely to be employed in higher income jobs which offer health insurance. Another set of variable which could potentially be correlated are our location variables. While we discussed the correlation between location and employment variables, the location variables included in the models might also be correlated with each other. Specifically, urban areas of the U.S. might experience lower unemployment rates.

Our analysis, presented below, yield coefficients on many of the health insurance covariates which are counterintuitive. One direct source of endogeneity is that women may choose the how many children to have in their lifetimes based on their health insurance status. Another source of bias in our health insurance source variables is multicollinearity with several of the variables we include in our models. We discussed above the potential correlation between the woman's health insurance source and her marital status and education, so we focus our attention now on the correlation with employment and income. Women may choose their employer based on the availability of health insurance (to the extent that they are able to choose their employer) and women may choose the number of hours of market labor they supply based on the availability of health insurance. Families with higher incomes are often better able to afford health insurance and more likely to be covered by health insurance.

Three of our health insurance covariates are certain to be correlated, the indicator for women whose employer offers health insurance to their workers[4] and the indicators for the woman having health insurance for herself and her child through her current employer. The inclusion of both of these variables weaken the strength of the coefficients on all three variables.[5] Women who do not work or only work part time, women who are in working class occupations, and women who are self-employed are less likely to be offered health insurance from their own current (and often prior) employer. Given the multiple ways in which health insurance variable interact with our

[4]As explained in the Data Appendix, this variables does not specify if the woman qualifies to participant in the health plan offered or if she participates in the plan that is offered, only that a plan is offered.

[5]In our future analysis to help mitigate this specific collinearity, we will explore models which exclude the covariate of employer offered health insurance and models which compile our information of working for a family friendly employer into a single indicator variable.

income, employment variables, and marital status variables we do not feel confident specifying a specific direction for the endogeneity bias of these variables.

Chapter 8

The Evolution of Fertility Expectations

We apply the underlying utility maximization conceptual framework to the NLSY79 data in our analysis of the affect of changes in the woman's socioeconomic status on the probability that she changes her fertility expectations. The summary statistics of the pooled cross sectional sample and the econometric model used in this analysis are presented in Section 8.1. Section 8.2 discusses the results of our analysis.

8.1 Summary Statistics and Econometric Model

Many of the summary statistics for the pooled cross sectional sample are given in Tables 1 through 3 in column 3 "Expect or Have Child by 2004: Not Completed Fertility, 1979." Table 6 presents the summary statistics of the 46,554 women-year observations for the pooled cross sectional sample of the NLSY79 woman who expect to have at least one child and have not completed her fertility. We see that 45 percent of sample change their fertility expectations; 15

percent increase the number of children they expect and 30 percent decrease their expectations. Given that such a large percentage of the sample change their fertility expectations, it is important for economists to understand which factors are associated with changing fertility expectations.

Individuals are expected to change how many total children they expect from period t to period $t+1$ in response to changes in their socioeconomic status over the same period. We anticipate that a woman will change her fertility expectations in response to changes in her socioeconomic status; therefore, we propose a simple econometric model:

$$dY_{i,t+1} = \alpha_0 + \beta_j dX_{j,i,t+1} + \epsilon_{t+1}. \tag{8.1}$$

The dependent variable $dY_{i,t+1}$ indicates whether the ith woman has changed her fertility expectations from time period t to time period $t+1$. The vector of independent variables $dX_{j,i,t+1}$ represents the change in the ith woman's jth socioeconomic factor from time period t to time period $t+1$. Using this simple binary response econometric model, we analyze three separate scenarios using logit regressions: the woman changes her fertility expectations from period t to period $t+1$ in any direction, the woman increases her fertility expectations, and the woman decreases her fertility expectations.[1]

[1]The regressions for increasing and decreasing fertility expectations are *not* conditional on the woman experiencing any change in her fertility expectations. We present the ordinary least squares regression results for reference.

8.2 Results

The results of the logit model regressing the indicator variable for a change in total number of children expected on a vector of variables representing the individual's changed socioeconomic status are presented in Table 7 the first column gives the results for any change, the second column for an increase, and the third column for a decrease. Each regression was carried out for the 46,445 woman-year observations consisting of women who expect to have at least one child during the survey and the years in which the woman has yet to complete her fertility. The statistical significance is represented by the stars attached to the odds ratio, one star denotes a parameter that is statistically significant at the 10 percent level, two stars the 5 percent level, and three stars the 1 percent level. Each model passes the test that at least one of the coefficients is different from zero. The R^2 is 0.0144 for the regression of any change, 0.0418 for an increase, and 0.0406 for a decrease.[2]

Several of the variables representing the change in socioeconomic status from period t to period $t+1$ are statistically significant at either the one, five or ten percent level. Each child the woman gives birth to between time periods t and $t+1$ is associated with odds of increasing the total number of children she expects that are over three times higher and 61 percent higher odds of decreasing her children expected. Recalling that the construction of the total number of children variable adds the number of *additional* children expected to the current number of children the woman has given birth to, these results seems fairly intuitive. If the birth was unanticipated then the number of *total* children the woman expects must also increase by the number of births. As Table 5 illustrates, a not insignificant number of women experience an unanticipated birth each year.

[2]For reference Table 8 presents the results of these same regressions using a simple ordinary least squares model.

Years since last interview proxies for the aging of women; each year between the interviews is associated with an 11 percent decrease in the odds that the woman will increase her fertility expectations and 35 percent higher odds of decreasing her expectations. These results support our hypothesis that women, who have a limited span of childbearing years, expect fewer additional children as they are advancing through their years of potential fertility. This effect is even stronger in our sample as the women have not completed their fertility and are therefore more likely to not yet have the number of children they desire.

Comparing women who maintain the same marital status between interviews with women who experience a marital status change, we see that marrying is associated with 15 percent higher odds of expecting more children, divorcing or separating from a spouse is associated with 39 percent higher odds of expecting fewer children, and having a spouse die is associated with 76 percent higher odds that the woman will expect fewer children. Surprisingly, at the same time, divorcing or separating from a spouse is associated with a 13 percent increase in the odds that the woman expects *more* children; although the effect is only significant at the ten percent level. If some women who divorce or separate from a spouse would have liked to have more children than they reported while in the relationship, perhaps due to the fact that their spouse did not desire as many children, the divorce/separation could cause the women to increase her total number of children expected. Another possibility is that an unintended pregnancy caused the spouse to leave the relationship.

Focusing on the impact of changes in the woman's educational attainment, we see that graduating from high school is associated with odds that the woman increases her total number of children expected with are 20 percent higher, beginning a college program is associated with odds of expecting more children that are 24 percent higher and associated with odds of expecting fewer children that are 12 percent lower, and graduating from college is associated with odds that the woman expects less children which are 11 percent lower. The effect of withdrawing from a college program has the correct direction, but is not statistically significant. These results suggest that the income effect outweighs the substitution effect for women of the NLSY79.

Reporting a new health condition that limits the work the woman can do is associated with 38 percent higher odds that the woman increases her fertility expectations between interviews. Reporting no health limitation in the second interview, after reporting a health limitation in the first interview, is associated with 23 percent higher odds that the woman expects fewer children at the second interview. One explanation for this counter-intuitive result might be that those women who increased their fertility expectations between periods did so because they had an unanticipated child and the health condition they developed was associated with the pregnancy.

Losing individual current employer sponsored health insurance is associated with 20 percent higher odds of decreasing the total number of children expected. Losing self health insurance purchased through any other source is correlated with a *decrease* in her odds of expecting fewer children in the second interview by 24 percent. Acquiring self insurance from any source results in an increase in the odds of expecting more children and switching the source of self health insurance has no real effect. Women who acquire health insurance between interviews might increase the number of children they expect to have as they are now able to afford a pregnancy and labor. These women might also have acquired health insurance for themselves as a direct result of their becoming pregnant - especially if their pregnancy leads to their becoming eligible for WIC and or Medicaid. These explanations might be even more plausible when we recall that women who have a truly unanticipated birth must, by construction of our variable, increase their fertility expectations.

Unexpectedly women who lose health insurance for their child have odds of increasing their number of children expected that are almost 50 percent *higher*, and have odds of decreasing their number of expected children that are almost 50 percent *lower*. Gaining health insurance for a child from a current employer is associated with a decrease of 18 percent in the odds that the woman will expect more children in period $t + 1$ than in period t. Although only significant at the ten percent level, women who gain health insurance for their child from a source other than a current employer have 22 percent higher odds of increasing their fertility expectations. One explanation for women who switch the source of their child's health insurance expecting

more children in period $t + 1$ might be that these women feel more secure with the new health insurance.

Increasing the number of hours of market labor is associated with 11 percent lower odds of expecting fewer children. Although decreasing the number of house worked is associated with a decrease in the odds that the woman changes her fertility expectations in any direction by 5 percent, there are no statistically significant effect on the woman increasing or decreasing her fertility expectations. If women who are increasing their work hours are also increasing their family income, the income effect outweighing the substitution effect for these women would explain these results.

Entering and exiting self-employment results in women having 15 percent and 22 percent, statistically significant at the ten and five percent levels respectively, lower odds of expecting more children. Also significant at the ten percent level, entering into a middle class occupation, compared with no change in occupation, increases the odds of expecting more children by 9 percent and leaving a middle class occupation increases the odds of expecting less children by 7 percent. Confirming our hypothesis that as the unemployment rate of the region of residence increases the woman's opportunity cost of children (i.e. working versus at home childcare) decrease, women who experience an increase in the unemployment rate of the region in which they reside have 13 percent higher odds of increasing their number of children expected. Moving into an urban areas has no statistically significant effect on the change in the number of children the woman expects between period t and $t + 1$ and moving out of an urban area increases the odds the woman will lower her number of children expected by 10 percent (statistically significant at only the ten percent level). We also fund that women who move to a different region of the U.S. have 20 percent higher odds of decreasing the number of children expected.

Chapter 9

Determinants of Fertility Expectations

Chapter 8 explores how changes in the socioeconomic status of women effect changes in their fertility decisions, allowing for analysis in a framework that mitigates some of the bias that results from the endogeneity of the variables we use to explore the determinants of fertility expectations. We now look to explore the effect of background and socioeconomic status of women on their fertility expectations. Again we exercise cautions when we interpret our results.

9.1 Summary Statistics and Econometric Model

Although the summary statistics of the pooled cross sectional sample for the years in which the woman has yet to complete her fertility are not representative of the United States population in any given year, to interpret the regression results it is important to present the summary statistics. Table 9 shows the summary statistics of the 6,164 woman in the 15 fertility survey years for the regression sample, which has a total of 55,756 women-year observations. On average,

the sample expects to have 2.17 children and gives birth to 0.75 children (1.91 births for those women who have given birth to a child), with 41 percent of the sample having given birth to at least one child. Thirty-one percent of the sample has 1.41 non-school aged children and 19 percent of the sample has 1.73 school aged child. Overall, these descriptive tables illustrate that the NLSY79 cohort of women is diverse and that economics, and other social sciences, would benefit from an exploration of the determinants of the fertility expectations of women.

The model exploring the determinants of fertility expectations discussed in Chapter 3 could easily and simply be estimated via a simple ordinary least squares (OLS) regression; however, given that fertility expectations take on ordinal values, the more appropriate model would be an ordered response regression model because the error term in the ordinary least squares regression will exhibit heteroskedasticity and the estimated probabilities can be negative and larger than one. Specifically, in an cumulative multinomial logit model, we assume that p_{ij} is the probability that individual i falls into category j of the dependent variable (i.e. expects j total number of children). Our categories are ordered in the sequence $j = 1, \ldots, J$. Now we define the cumulative probabilities as:

$$F_{ij} = \sum_{m=1}^{j} p_{im}.$$

Thus F_{ij} is the probability that individual i is in the jth category *or lower*. Each F_{ij} corresponds to a different dichotomization of the dependent variable. We can set the model as a set of $J - 1$ equations,

$$log\left(\frac{F_{ij}}{1 - F_{ij}}\right) = \alpha_j + \beta x_i \tag{9.1}$$

where $j = 1, \ldots, J-1$ and $\beta x_i = \beta_1 x_{i1} + \ldots + \beta_k x_{ik}$. This leads to a single set of coefficients for each category of j, but different intercepts for each of the equations. The explanatory variables of the model predict the probability of being in the lower category rather than in a higher category. We estimate this model using maximum likelihood methods. In particular, the cumulative logit model can be thought of as if a continuous variable has been split into distinct categories.

We let z_i be a continuous random variable that depends on a set of explanatory variables x_i according to the linear model

$$z_i = \alpha^* + \beta^* x_i + \sigma\epsilon_i. \tag{9.2}$$

As we do not directly observe z, only a set of thresholds $\tau_1, \ldots, \tau_{J-1}$ that we use to transform z into the observed variable y according to the following rules:

$$\begin{aligned}
y &= 1 \, if \, \tau_1 < z \\
y &= 2 \, if \, \tau_2 < z \leq \tau_1 && (9.3) \\
&. && (9.4) \\
&. && (9.5) \\
&. && (9.6) \\
y &= J \, if \, z\tau_{J-1}. && (9.7)
\end{aligned}$$

Assuming ϵ_i has a standard logistic distribution, it follows that the dependence of y on x is given by the cumulative logit model in Equation 9.1. The coefficients in Equation (9.1) are related to the coefficients in Equation (9.2) by

$$\begin{aligned}
\alpha_j &= \frac{\alpha^* - \tau_j}{\sigma} \\
\beta &= \beta^*/\sigma. && (9.8)
\end{aligned}$$

Using this framework we will run the following regression:

$$Y^e_{t,i} = \alpha + \beta_j X_{t,i,j} + \epsilon_{t,i} \tag{9.9}$$

where $Y^e_{t,i}$ is woman i's fertility expectations at time t, $X_{t,i,j}$ is the jth covariate for woman i at time t, and $\epsilon_{t,i}$ is the error term for the ith woman at time t.

Although the cumulative logit regression model is a reasonable tool to use in any ordered categorical regression model, when the ordered categories represent a progression of stages, a continuation ratio model is actually more specialized. Given that a woman cannot expect to have two children unless she expects to have one child first, the continuation ratio regression model is more attractive. In particular, we assume that our dependent variable y_i is ordered in the sequence $j = 1, \ldots, J$. We define A_{ij} as the probability that woman i advances to stage $j + 1$, given that she has made it to stage j (i.e. the probability the woman expects to have two additional children given that she expects to have one). More formally,

$$A_{ij} = P(y_i > j | y_i \geq j).$$

We can now specify $J - 1$ logit equations,

$$log\left(\frac{A_{ij}}{1 - A_{ij}}\right) = \alpha_j + \beta x_i,\ j = 1, \ldots, J - 1 \tag{9.10}$$

where $\beta x_i = \beta_1 x_{i1} + \ldots + \beta_k x_{ik}$. The right-hand side of Equation (9.10) is exactly like the cumulative logit model described above, with a separate intercept for each stage but a single set of coefficients. We rewrite the left-hand side in terms of the original probabilities:

$$log\left(\frac{A_{ij}}{1 - A_{ij}}\right) = log\left[\frac{\sum_{m=j+1}^{J} p_{im}}{p_{ij}}\right].$$

The continuation ratio model assumes that the effects of the explanatory variables are the same at each stage, i.e. expected birth parity; however, I test this assumption by including interactions between stage and the statistically significant variables. The results of this regression show that the majority of the interaction variables are statistically significant; thus many of the explanatory variables actually have differing effects on the progression between expecting zero total children to expecting one child, expecting one child to expecting two children and so on. As the majority

of the explanatory variables do not have an invariant effect, I estimate separate models for each stage, i.e. expected parity. The results reported below are for the Ordered Cumulative Logit regressions at each of the five stages, each regression models the probability that 'Advance' equals one. In addition, the results of the simplistic Ordinary Least Squares model, the Ordered Cumulative Logit model and the Continuation Ratio model are reported.

9.2 Results

Table 10 presents the results for the final five continuation ratio regressions. Each regression has as the dependent variable a binary indicator as to whether the women 'progressed to the next stage.' For the first stage the logit is measuring the probability that the woman advances from Stage 0 (expecting 0 children) to *at least* Stage 1 (expecting one child). The second stage logit measures the probability that woman advances from Stage 1, expecting 1 child, to *at least* Stage 2, and so on until Stage 5.[1] Each regression was carried out for the 55,756 woman-year observations in which the woman has yet to complete her fertility. Therefore, if the woman expects five or more children, she is coded as having advanced in each of the five stages (i.e. she has a 1 for the dependent variable in each of the regressions).

The statistical significance is represented by the stars attached to the estimate, one star denotes a parameter that is statistically significant at the 10 percent level, two stars the 5 percent level, and three stars the 1 percent level. Each model passes the test that at least one of the coefficients is different from zero. The pseudo-adjusted R^2 is 0.06 for the first stage regression, 0.23

[1] We cap the total number of children expected at five to simplify the analysis.

for the second and third stage regressions, 0.15 for the fourth stage regression, and 0.08 for the fifth stage regression. The discussion below will focus on the results from the five continuous ratio regressions.

In each model the coefficient on the number of children already born is statistically significant at the one percent level and similar in magnitude. Both variables for the number of children already born to the woman are excluded from the first stage regression, as any woman who has given birth to a child has already advanced to at least the first stage. For each additional child younger than six years old (six and older) the odds of the woman expecting at least two children (instead of less than two children) increases by a factor of 6.37 (8.52), the odds of the woman expecting at least three children increases by a factor of 3.42 (5.48), the odds of the woman expecting at least four children increases by a factor of 2.9 (4.48), and the odds of the woman expecting at least five children increases by a factor of 2.82 (4.77). Overall as women have children, the odds that they will expect a higher total number of children increases, but at a decreasing rate. As the current results illuminate which factors determine the total number of children a woman expects at a point in time, this interesting result leads us to ponder if women are forming their fertility expectations using a model of rational expectations with learning, as opposed to the simple rational expectations model that we are currently assuming. Additionally, our results seem to predict that the analysis of factors affecting the evolution of a woman's total number of children women expected will be important.

Many of the background variables are statically significant. Our results illustrate that the size of the woman's family of origin, measured by the number of the individual's siblings, has a different impact on the woman expecting the next number of children depending on which 'Stage' the woman is located in. Each additional sibling *decreases* the odds that the woman will expect one child instead of zero children by 3 percent, has no effect on the odds that the woman will expect two children (versus zero or only one child), and increases the odds that the woman expects at least the next number of children for stages three (by 6 percent), four (by 8 percent), and five or more children (by 11 percent). Thus having additional siblings has a larger impact on expecting a larger number of children than on expecting a smaller number of children.

The variables indicating the family structure in which the woman lived at age 14 are mostly statistically significant and uphold our hypothesis that women from traditional families expect larger families for themselves than women from other household structures. Women who lived with both biological parents have odds of advancing to the next stage that are higher than the odds for women who lived in any other household structure. Living with a mother and a step-father has a decreasing impact on advancing to the next number of children expected as the stages increase; implying that this family structure has a diminishing effect as the number of children the woman expects increases. In contrast, living with a single mother has an increasing impact as the stages increase and living in an alternative household structure has a similar effect in each stage in which it is statistically significant.

Overall our prediction that individuals with parents who have higher education would expect fewer children is generally not upheld. Women with mothers who have a high school diploma have odds of expecting at least one child that are 7 percent lower than women with a mother who dropped out of high school, 7 percent higher for expecting at least three children, and 17 percent higher for expecting at least five or more children. Women with mothers who have some college have odds of expecting at least two children that are 10 percent higher, odds of expecting at least three children that are 22 percent higher, odds of expecting at least four children that are 25 percent higher, and odds of expecting at least two children that are 39 percent higher. The odds of expecting at least three (four) children are 22 (30) percent higher for women who have mothers with a college degree. The effect of the education of the individual's mother increases as the stages progress.

Women who have fathers with a some college have 28 percent higher odds of expecting at least four children and 29 percent higher odds of expecting at least five children, while women who have fathers with a college degree have 13 percent higher odds of expecting at least one child, 26 percent higher odds of expecting at least two children, 33 percent higher odds of expecting at least three children, and 12 percent higher odds of expecting at least four children than women with fathers who dropped out of high school. If the families in which the father has a higher education are more affluent families, the increased likelihood of women expecting more

children could signify that these women expect to have a higher household income themselves, maybe as a result of acquiring more education for themselves and having higher paying jobs, and therefore expect to be able to afford more children. These circumstances would suggest that for women with a higher educated father the income effect dominates the substitution effect in the first four stages.

Our results provide only weak support for our hypothesis that individual's who have fathers and mothers who worked for pay in 1979 would expect fewer children. The only statistically significant effect of having a mother who worked for pay is a 5 percent lower odds of the woman advancing to expecting three children. Women with fathers who worked have 22 percent higher odds of expecting at least one child than women with father's who did not work. These results suggest that the work status of the individual's parents has little effect on the number of children the woman expects.

The indicator variables for Hispanic and black show decreasing effects as the stages increase. Our assumption that Hispanic women would expect more children than white women only holds true in stages one and two, Hispanic women are twice as likely to expect at least one child and have odds of expecting at least two children that are 7 percent higher than white women. Black women are also twice as likely to expect at least one child, but have 14 percent lower odds of expecting at least two children, 18 percent lower odds of expecting at least three children, and 8 percent lower odds of expecting at least four children than white women. Growing up in a Roman Catholic or other (including Jewish) religious environment, in contrast to a non-religious environment, increases the predicted odds of expecting the next number of children in each stage. Although as the woman's age increases the odds that the woman expects at least the next number of children decreases (the coefficient is statistically significant in each stage), the woman's age squared has no impact upon advancing. Overall, the regression results paint a picture of the influence of the woman's background that is very similar to our hypotheses.

Our results find that although women who are married have odds of expecting at least one child that are 24 percent higher than the odds for women who have never married; the odds of expecting at least the next number of children for married women are lower in each of the last

four stages. Women who have been widowed, separated from their spouse, or divorced have lower odds, in every stage, of expecting the next number of children. Although the magnitude of the effect of being widowed, separated or divorced is highest when measuring the odds the woman expects at least one child, the statistical significance is greater in the later stages. These results suggest that women who marry expect to have at least one child, and that as women go through widowhood, separation, or divorce their expectations of having additional children are reduced.

The educational attainment and status variables are all statistically significant (most at the one percent level) in each regression. Our results support the hypothesis that women with higher educations expect more children. The strongest effect of a woman obtaining a high school diploma, taking some college courses or obtaining at least a bachelors degree, instead of dropping out of high school, is in her advancement to expecting at least two children. As we look at the effect of higher educational attainment on advancing in the higher stages, we see that the log odds are generally lower as we move advance through the stages. Surprisingly, women who are current students have lower odds of advancing to expecting at least one child, but higher odds of advancing in each of the higher stages. This result is in line with women who have higher education levels expecting more children.

The effect of the women having a health condition that limits her work, either amount or type, is counter to our beginning hypothesis; in stages three through five, those regressions with statistically significant effects, these women have higher odds of advancing to the next stage. This seems to imply that women who have health problems actually expect to have more children than women who do not report health problems. One possibility is that women who have more children have poorer health. Another possibility is that women with health conditions identify as having health problems because they desire to stay at home with their children. The woman's own health insurance status variables which are statistically significant reveal that, for the most part, women who have health insurance for themselves have higher odds of advancing to the next stage than women who have no health insurance for themselves. The only contrasting effect is that women who have insurance for themselves from a government source have lower odds of

advancing in stages two through five. This could imply that women view the government as a less reliable or less consistent source of health insurance.

Women who provide health insurance for their children have higher odds of expecting at least one child, but lower odds of advancing in the remaining stage regressions. Specifically, women who have insurance for their child(ren) through their current employer have odds of expecting at least one child that is almost three times higher than the odds for women who have no health insurance for their child; women with insurance for their child through their spouse's current employer or the private market have odds that are over four times as high; and through the government that are over three times as high. It seems that providing health insurance for their children encourages women to expect at least one child, but discourages women from expecting more children.

Although we predicted that working for a family friendly employer would allow the woman to expect more children, working for an employer that offers health insurance, maternity leave, child care or a flexible work schedule actually has no statistically significant or high magnitude effect on the odds of the women advancing to the next number of children expected. Workers have higher odds than non workers of advancing to the next stage in each model; although the work status variables are only significant in stages one, two and four. Women who are self-employed have higher odds of expecting at least five children than women who are not self-employed. This result might provide support for the hypothesis that women who have large families choose to become self-employed as the cost of child care that would allow market labor would be too large. The effect of working in a working class occupation is only significant in the second stage; women in a working class occupation have odds of expecting at least two children that are ten percent lower than the odds for women who work in a middle class occupation.

Although the unemployment variables show few statistically significant effects; those women living in an urban area have higher odds of expecting a higher number of children than woman living in non-urban areas. Living in the Northcentral or the West, compared to living in the Northeast, increases the odds of expecting a higher number of total children. However, living

in the South decreases the odds that the women will advance to expecting the next number of children.[2]

[2]In addition, although we do not discuss the results, we present the earlier regressions in Table 11. Column (1) of Table 11 presents the regression results of an ordinary least squares regression with a dependent variable of the total number of children expected in period t, Column (2) presents the regression coefficients of an ordered cumulative logit regression with the same dependent variable, Column (3) presents the odds ratio of this regression, Column(4) presents the coefficients of regressing a dummy variable equal to one if the woman 'advances to the next stage' (i.e. she expects at least the next higher number of children) on a dummy variable for which 'stage' the 'advancement' dummy is referring and the other relevant independent variables from the previous regressions, and Column (5) reports the odds ratio of this regression. The regressions were carried out for the 55,756 woman-year observations in which the woman has yet to complete her fertility; for the continuous ratio regression, as there were five 'stages' this translated into 171,875 woman-year observations. As zero expected children is the lowest ordered value, the probability of expecting 0 total children is modeled.

Chapter 10

Testing Models of Fertility Expectations: Pure Rationality Versus Learning

Chapters 8 and 9 lead us to believe that the model women use in forming their fertility expectations is more complex than a simple rational expectations model. Thus, we explore the history of rational expectations models and models that incorporate learning in Section 10.1 and present the pure rational expectations hypothesis and a model to test the underlying hypothesis in Section 10.2. Section 10.3 presents our learning models and their underlying hypotheses, which we test, while Section 10.4 presents the summary statistics of the pooled cross sections used in our analysis and our econometric framework. Our analytical results are presented in Sections 10.5, 10.6, 10.7, and 10.8.

10.1 Rational Expectations and Learning Literature Review

Here we focus our attention on the literature surrounding models of rational expectations. The concept and definition of rationality has evolved since it was first introduced by Muth (1961). Macroeconomists contextualize rationality as an equilibrium concept while microeconomists use rationality to mean individual rationality or effectively using information at the individual level. Thus microeconomists assume that the economy is in equilibrium while macroeconomists are solving for the equilibrium level of different variables. Directly testing the RE hypothesis in economics has generated much discussion over the past few decades, with economists taking stances for or against. The author who strongly argued against testing the hypothesis is Prescott (1977), while Simon (1979), Tobin (1980), Revankar (1980), Zarnowitz (1984), and Lovell (1986) argue that it is important to directly analyze expectations. Manski (1990) advocates the careful use of any intentions data, especially if they are used to predict behavior. Hamermesh (2004) and Manski (2004) respectively emphasize that subjective outcomes are useful and expectations formation analysis is important.

Today there exist several large longitudinal panels that provide information concerning an individual's expectations over various microeconomic variables. These data have provided researchers with the opportunity to explore the formation, evolution and rationality of individuals' expectations. Economists and other social scientists have produced a large body of research exploring expectations and actual outcomes, especially in the following areas: wage, income, retirement consumption, retirement dates, and educational expectations; Social Security income expectations and retirement savings; and fertility expectations and actual pregnancy outcomes. Much of this research has focused on studying the formation of expectations and the relationship

between expectations and actual outcomes and not on testing the underlying model of rational behavior.[1]

It is important to understand expectations data and the model of behavior that underlies the formation of these expectations as expectations are a possible source of heterogeneity in individual characteristics used in applied microeconomic models. Expectations data might indicate critical unobservable differences in preferences and beliefs. Thus, if left out of the econometric models, the related observable variables could show biased results. Benítez-Silva et al. (2006) test the rationality of retirement, longevity, and educational expectations and find that, after controlling for sample selection and reporting biases, all three expectations are consistent with the RE theory. The authors state that there are two possible implications of rejecting the RE hypothesis: (1) rational behavioral models expect too much of individuals or (2) reality is more complex than most dynamic models assume.

While economists have tested the rational expectations hypothesis in a variety of setting, they have not done so in the area of fertility expectations. This paper expands the previous research and directly tests the rationality of fertility expectations. We anticipate that fertility expectations are the one topic in which the rational expectations framework is most likely to not be upheld because the factors which influence fertility expectations are usually subject to a higher degree of uncertainty. The literature of Coombs (1979), Freedman et al. (1980), Thomson et al. (1990), Thomson (1997), and Thornton et al. (1984) documenting the divergence between fertility intentions and fertility outcomes lends support for our hypothesis that women form fertility expectations over a family of distributions for each source of uncertainty instead of over a fixed probability distribution of uncertain events. Therefore we predict that women learn over time and update their priors as additional information is gathered.

---

[1]For a review of the literature on efforts to test rational expectations in various settings see Benítez-Silva et al. (2006).

10.2 Rational Expectations Theoretical Model

To test the pure rationality assumption that underlies this simple static model we follow the expansion of Bernheim (1990)'s model that Benítez-Silva et al. (2006) developed. Individuals form expectations over a variable Y (here how many children to have) by observing a sequence of random vector-valued variables at each time period:

$$Y = h(\omega_1, \omega_2, \ldots, \omega_T). \tag{10.1}$$

After some or all of the ω_t's have been observed, at time periods $t = 1, 2, \ldots, T.$, the woman will take action Y. As $\Omega_t = \{\omega_t\}_{t=1}^{t}$ represents the information known at period t and $\omega_t = (\omega_t^1, \omega_t^2)$, where all of the ω_t are observed by the individual but the researcher only observes ω_t^1; ω_t^2 represents the information observable to the individual but not to the researcher. If we let $\Omega_t^1 = \{\omega_t^1\}_{t=1}^{t}$ we can define

$$Y_t^e = E\langle Y|\Omega_t\rangle. \tag{10.2}$$

As Benítez-Silva et al. (2006) explains, setting the conditional mathematical expectation of a variable to the rational expectation of the variable guarantees that the set of variables known at time t will be uncorrelated with errors in the expectations. The appropriate variables to include in the information set Ω are determined in Chapter 9.

Assuming that the conditional distribution of new information is correctly forecasted by individuals, we use the law of iterated expectations on Equation (10.2) to determine:

$$E\langle Y_{t+1}^e|\Omega_t\rangle = E[E\langle Y|\Omega_t, \omega_{t+1}\rangle|\Omega_t] = E\langle Y|\Omega_t\rangle = Y_t^e, \tag{10.3}$$

where information that becomes available between periods t and $t+1$ is represented by ω_{t+1}.

From Equation (10.3) the evolution of expectations through time is

$$Y^e_{t+1} = Y^e_t + \eta_{t+1}, \tag{10.4}$$

where $\eta_{t+1} = Y^e_{t+1} - E[Y^e_{t+1}|\Omega_t]$, $E(\eta_{t+1}|\Omega_t) = 0)$, and η_{t+1} is a function of ω_{t+1}. Using this characterization of the evolution of expectations, the RE hypothesis is tested with the following regression:

$$Y^e_{t+1,i} = \alpha + \beta Y^e_{t,i} + \gamma \Omega^1_{t,i} + \epsilon_{t+1,i}, \tag{10.5}$$

where α is a constant and γ is a vector of parameters that estimate the effect of information in period t on period's $t+1$ expectations. The RE hypothesis implies that $\alpha = \gamma = 0$, and $\beta = 1$. A weak RE test tests whether expectations follow a random walk by assuming that γ is equal to a vector of zeros and testing for $\alpha = 0$ and $\beta = 1$. The strong RE tests these hypotheses as well as the hypothesis that $\gamma = 0$.

10.3 Learning Theoretical Models

If we find that women do not use a model of pure rationality when forming their fertility expectations, we believe that the next step should be exploring models of expectations formation that use *learning* to augment rationality. Although a woman can gain experience in caring for children, she can only acquire a limited knowledge of how having her own child will affect her life (i.e. her utility) thus she must form her expectations for children under much uncertainty. One of the major variables of learning that we are interested in is whether the woman has given birth

to a child. We predict that the woman's expected number of total children will move closer to her actual final fertility outcomes after she gives birth to her first child, due to her having learned more about the utility she derives from having her own children. Theoretically, the woman could experience positive or negative utility from caring for her children. We would predict that if she experiences disutility she will lower the number of children she expects (assuming that it was originally greater than one) and if she experiences disutility large enough she would choose to abandon her child. Experiencing a large increase in utility is predicted to increase her expected total number of children. We are unable to explicitly test these predictions because the utility of the woman is unobservable. We can test for a statistically significant coefficient on our variable for having a child (one of the change variables modeled in our learning models).

Modifying Lant's (1992) expansion of the Levinthal and March (1981) model of aspiration level adaptation (the ALA model) and the Lewin et al. (1944) model of attainment discrepancy (the AD model), we explore whether fertility expectations behave in ways that are consistent with either of these learning models. A basic assumption of the ALA model is that aspirations are updated on a simple decision rule that is based on a weighted average of the prior aspiration level and the actual performance. If the individual receives positive feedback, she will adjust her aspiration levels upward and if she receives negative feedback she will adjust her aspiration levels downward. Although the AD model is very similar to the ALA model, the AD model has less restrictive assumptions. In the AD model aspiration levels are updated based on a simple decision rule which considers the prior aspiration level and the attainment discrepancy, defined to be the discrepancy between the prior aspiration level and the actual performance.

In the ALA model, individuals set their performance aspirations in time $t-1$, compare their time $t-1$ actual performance level to their time $t-1$ performance aspirations, and modify their future aspirations based on this comparison. Although an individual can observe in time period t their actual performance in time period $t-1$, individual women cannot observe their actual lifetime total number of children in either period. Therefore we modify this framework by replacing the prior period's actual performance with a vector of variables that represent the current period's actual socioeconomic status, X_t:

$$Y_t^e = [1 - \gamma_2]Y_{t-1}^e + \gamma_2 X_t. \tag{10.6}$$

The woman's current fertility expectation Y_t^e is then modeled as an exponentially weighted moving average of her fertility expectation in the prior period Y_{t-1}^e and her socioeconomic status in the current period X_t. The ALA model predicts that the current period's socioeconomic status will have a positive effect on the current period's fertility expectations and fertility expectations in the current period are a function of the prior period's expectations and prior period's socioeconomic status. We run our regression using the equation $Y_t^e = \alpha_0 + \beta Y_{t-1}^e + \gamma X_t$, and test this prediction using the null hypothesis that $\gamma = 1 - \beta$ in our regression. A failure to reject this hypothesis implies the change in the woman's fertility expectations from period to period will not be greater than the change in her socioeconomic status.

Using this same regression and the null hypothesis that $0 < \gamma < 1$, we test the model's assumption that the individual's current socioeconomic status has a positive effect on her current period's fertility expectations. If we find that $\gamma = 1$ then the current period's fertility expectations are set using only the current period's socioeconomic status, and the effect of last period's fertility expectations will be insignificant. With $0 < \gamma < 1$, fertility expectations cannot change more rapidly than the socioeconomic status of the woman.

In contrast to the ALA model, the AD model proposes that the attainment discrepancy is vital information the decision makers uses to simplify the process of setting new goals. The decision maker is assumed, either consciously or unconsciously, to assess the difference between their aspirations and their actual outcomes and use this information to form their new aspirations level. The attainment discrepancy, the different in the actual outcomes and the aspirations, serves as the feedback governing the direction in which the aspirations adjust from the anchor of the previous aspiration level. Again we adjust the AD model slightly due to the unobservable nature of lifetime fertility outcomes:

$$Y_t^e = \alpha_0 + \alpha_1 Y_{t-1}^e + \alpha_2 Z_t + \epsilon_t. \tag{10.7}$$

Here Y_t^e is the woman's fertility expectations set in the current period, Y_{t-1}^e is the woman's fertility expectations set in the prior period, and Z_t is the attainment discrepancy between the current period's socioeconomic status and the prior period's socioeconomic status ($Z_t = X_t - X_{t-1}$). The AD model suggests that expectations in the prior period and the attainment discrepancy will both have a positive effect on expectations in the current period.

We can also use the AD model to test the assumption from the ALA model that fertility expectations are based *only* on the current socioeconomic status and the prior fertility expectations using the hypothesis of $H_0 : \alpha_0 = 0$. If we reject this hypothesis then we must conclude that there is some force acting on individual women such that they are unable to completely adjust their fertility expectations to the level of fertility that the ALA model would predict given their current/updated socioeconomic status; this force keeps the individual's fertility expectations either higher or lower than the ALA model would predict.

10.4 Summary Statistics and Econometric Specifications

Summary statistics of the pooled cross sectional samples used for our analysis are presented in Table 12 for the 46,445 women-year observations used in the rational expectations test[2] and in Table 13 for the 46,445 women-year observations for the ALA regressions sample. The RE sample summary statistics and the ALA sample summary statistics are slightly different because the RE independent variables are from time period t and the ALA independent variables are from

[2]The rational expectations regressions contains only 14 years of data as the dependent variable is the total number of children expected in year $t + 1$.

time period $t + 1$. Table 14 presents the percent of the 46,445 women-year observations used in the AD analysis which experience a specific change in socioeconomic status, and not the percent of women who experience a change in any particular year.

To test the models discussed above we start with a simple ordinary least squares regression. However, when a regression has a categorical dependent variable an ordered logistic regression is more appropriate. We presented a simple logit model in our analysis of the determinants of fertility expectations that we feel also applies well here. We again propose that the most appropriate model is the continuation ratio model given that fertility expectations are formed through a progression of stages – a woman cannot expect to have two children if she has not already decided to have at least one child.

After controlling for all of these driving factors, if the total number of children expected changes, we feel that women who express different fertility expectations are learning about their underlying preferences. In other words, women have underlying preferences for their own children which remain constant over their lifetime. However, these preferences are interrelated with other life decisions, such as divorce, and the preferences that women express at any given point in time are formed in a bubble of the information they have at that time. As women mature, they learn more about how children will affect their lives and their expressed preferences are updates in a convergence to their true underlying preferences. Therefore we expect to find a statistically significant coefficient on our fertility expectations at time t when we regress the total number of children expected at time $t + 1$ on children expected at time t and the observable variables available at time $t + 1$. A statistically significant coefficient would provide support for our hypothesis that women have steady underlying preferences and these preferences were reflected in their prior period's expectations.

10.5 Rational Expectations Results

Table 15 displays the results of our regressions testing the Rational Expectations Hypothesis; results are presented for the ordinary least squares, cumulative logit, and simple continuous ratio regressions. Recall that the weak ordinary least squares model and the ordered logit model both regress the continuous variable representing the total number of children expected at time $t + 1$ on the continuous variable representing total number of children expected at time t. However, the ordinary least squares model measures how a one unit change in the time t expectations effects the time $t + 1$ expectations and the ordered logit model measures the probability that the woman expects to have zero children at time $t + 1$. The continuous ratio logit regression regresses a dichotomous variable 'Advance,' equal to 1 if the woman expects the next number of children in the 'Stage' of advance measured (the five stages are expecting at least 1, at least 2, at least 3, at least 4, at least 5 children), on the categorical variable of 'Stage' and the continuous variable representing total number of children expected at time t.

Our ordinary least squares coefficient implies that each additional child the woman expected at time t is associated with the woman expecting 0.62 more children at time $t+1$. Each additional child expected at time t is shown in the ordered logit to be associated with 79 percent lower odds of expecting zero children at time $t + 1$. The coefficient in the continuous ratio model specification implies that each additional child expected at time t is associated with odds that the woman expects at least the next number of children at time $t + 1$ which are more than double.

Section 9.1 outlines why we consider the continuous ratio model to be the best specification for investigating the model underlying a woman's decision of how many children to give birth to in her lifetime. However, we present the results of each of our three specifications as the ordinary least squares specification provides the most straightforward test of the rational expectations theory null hypotheses and the order logit specification provides the most easily understood direct

effect of the woman's standing at time t on her expectations at time $t+1$. Given that the models are measuring different things, we compare the *interpretation* of the coefficients instead of the actual coefficients themselves. In both the weak and the strong tests, each of the three model specifications produces a coefficient on total number of children expected at time t that is statistically significant at the 1 percent level, of fairly high magnitude and in the predicted direction - as the number of children the woman expects in time period t increases, she expects to have more children in time period $t+1$. We again exercise caution when we interpret our results, due to the endogeneity inherent in our models.

We also test the hypotheses underlying the theory of rational expectations and present the results in the top of each section of Table 15. The results of the two tests, weak and strong, in each of the three model specifications led us to reject the rational expectations hypothesis. Our discussion of the econometric model explains that the rational expectations theory implies that the expectation at time t should be a sufficient statistic for the expectation at time $t+1$, yielding regression coefficients of 1 on expectations at time t, 0 on the intercept term, and 0 on the covariates representing the status of the woman at time $t+1$.

Rejecting these null hypotheses does not imply that women are *not rational* when they form their fertility expectations, rather it implies that either (a) women, although rational, are not using all of the information available to them when they make their fertility predictions; (b) the underlying model of fertility expectations decision making is misspecified; or (c) the underlying data has issues such as reporting bias or poorly measured responses. Our analysis of the determinants of fertility expectations provides support for our model specification and our discussion of the collection of our fertility expectations data leads us to believe that the underlying data represent well measured responses with no obvious bias. Therefore we are motivated to test for a model of learning in the fertility expectations of women as we feel that the most likely interpretation of rejecting the rational expectations hypotheses, especially as it fails in the simpler weak test, is that rational expectations is not the correct model underlying a woman's fertility expectations de-

cision. We hypothesize that women form their fertility expectations under a model of rationality with learning in which they update their preferences over time.[3]

10.6 ALA Learning Results

After we fail to accept the hypothesis that women form their fertility expectations using a model of pure rationality, we turn to investigating models of learning. Table 17 and Table 18 presents the regressions used to test a model of learning based on the aspiration level adaptation model. Comparing Table 15 to Table 17 allows us to see how the effect of last period's fertility expectations on the current period's fertility expectations changes when last period's explanatory variables are exchanged for the current period's explanatory variables, i.e. when the explanatory variables and the dependent variables are from the same period. We predict that new information will reduce the explanatory power of last period's expectations since any predictions from last period's expectations on future relevant factors in the decision process will be controlled for in the realization of those outcomes.

The continuous ratio model exhibits the largest change in the effect of last period's expectations on the current period's expectations when we replace information available in the prior period with current information. The ALA continuous ratio specification finds that the odds that the woman advances to the next number of children expected increases by a factor of 2.97 for each additional child expected in the prior period, statistically significant at the one percent level

[3]Although not discussed, Table 16 presents the results for the continuous ratio regressions ran separately for each stage.

and 0.58 higher than the odds in the RE test. Both the ordinary least squares and the ordered logit specifications for the ALA test yield coefficients on the woman's last period's expectations that remain statistically significant at the one percent level and are only 0.03 lower than in the RE test; however, this changes is so minimal that the (rounded) logit odds ratio did not change between the two models.

Further analysis of our results shows that on aggregate the effect of information currently available to the woman is similar to the effect of the information available to the woman in the prior period. When we compare the RE test ordinary least squares coefficients and ordered logit log odds with those from the ALA test we find that the majority of the coefficients exhibit only small changes. The variables whose coefficients change by more than 0.10 are marital status and health insurance. Compared with women who have never married, women who are widowed, separated or divorced in the prior period expect 0.17 fewer children in the current period and have 56 percent higher odds of expecting zero children in the current period; in contrast, women who are widowed, separated or divorced in the current period expect 0.12 fewer children and have 32 percent higher odds of expecting zero children in the current period. These results seem to imply that woman's marital status in the prior period has a larger effect on how many children she expects than her marital status in the current period. Intuitively if women who lose a spouse at older ages are closer to realizing their fertility expectations, a separation, divorce, or widowhood would have a smaller effect on the number of children they desire than if the loss of the spouse occurs at younger ages, before fertility expectations are realized.

When we switch from controlling for the woman's own prior health insurance source to her current health insurance source, these coefficients lose statistical significance and become smaller in magnitude. Women who provide health insurance for their child in the prior period from their own (spouse's) current employer expect 0.13 (0.08) fewer children and have 53 (36) percent higher odds of expecting zero children, all statistically significant at the one percent level. When we instead control for the woman providing health insurance for their child from their own current employer in the current period, the woman expects 0.04 (0.01) fewer children, statistically significant at the five percent level (not statistically significant), and have odds of

expecting zero children that are 22 (9) percent higher, statistically significant at the one percent level (five percent level). In contrast, while providing a child with health insurance through any previous employer in the prior period has no statistically significant effect, in the current period these women expect 0.21 more children and have odds of expecting zero children that are 36 percent lower (both statistically significant at the five percent level). Women who provide their child with health insurance from a prior employer in the current period should have provided their child with health insurance in the prior period through either their own or their spouse's current employer. These results suggest that the health insurance status of the child in the previous period actually has a larger effect on the woman's number of children expected in the current period than the child's current health insurance status.

Comparing the results from the RE and ALA tests under the continuous ratio model specification, we see that more covariates differ by a larger amount than those displayed under the ordinary least squares and the ordered logit model specifications. Under the ALA specifications, controlling for the information available in the current period instead of the information available in the previous period yields larger effects of the number of non-school aged and school aged children present in the home. In contrast to the RE model, in which each additional non-school (school) aged child in the household increases the odds that the woman expects the next number of children by a factor of 1.2 (1.29), in the ALA model each additional non-school (school) aged child in the household increases the odds that the woman expects the next number of children by a factor of 2.94 (3.31). Again if a woman gives birth to an unanticipated child, in the sense that she expected zero additional children in the prior interview, her fertility expectations increase simply because of the design of the variable. Therefore, for these women, if not also for others, we would expect the current number of children in the household to have a greater effect than the number of children in the prior period.

Further comparing the RE and the ALA continuous ratio model specification results lends additional support for the theory that women form their current fertility expectations by recalling how many children they expected in the prior period and updating these expectations as a result of *changes* in their socioeconomic status between the prior and the current period, not just the level

of her socioeconomic status in the prior and/or current period. Additional support is provided in the first part of Table 17, which reports that we reject all of our ALA hypotheses in each of the three model specifications: $\alpha = 0$, $\gamma = 1 - \beta$, $\gamma = 0$, and $\gamma = 1$. Rejecting the hypothesis that $\gamma = 1 - \beta$ implies that women might change their fertility expectations by an amount that is greater than the change in socioeconomic status would predict. Women might be changing their fertility expectations based on the fertility outcomes of their peers and their experiences with children, both of which are unobservable. If this is the case, then the change in socioeconomic status might not reflect the unobservable change in the woman's preferences for children as accurately as we would like. However as the models all have R^2 that are above 0.52, they are explaining much of the variation in the number of children the woman expects at time $t + 1$.

Rejecting the hypotheses that $\gamma = 0$ and $\gamma = 1$ leads us to conclude that although the current period's socioeconomic status heavily influences the number of children expected in the current period, the number of children expected at time t also exerts considerable influence. If fertility expectations were based only on the current socioeconomic status and the prior fertility expectations, we would fail to reject the hypothesis that $\alpha = 0$. Again, the rejection of these null hypotheses does not imply that women are *not rational* when they form their fertility expectations, rather it implies that either women are not following a model of learning in which only their current socioeconomic status information is used, our model is misspecified, or the data have underlying issues such as reporting bias or poorly measured responses. Overall, we believe that our results support a prediction that women are using a model of learning that takes into account changes in socioeconomic status between periods; we continue our analysis by investigating a model which uses an underlying framework from the attainment discrepancy literature.

10.7 AD Simple Continuous Ratio Results

Our exploration of the appropriate theoretical model underling a woman's fertility expectation decision has thus far led us to conclude that reality might be more complex than the model of pure rationality suggests and that women learn over time about the characteristics of their family of distributions over each source of uncertain events. With the failure to accept the hypotheses that test the underlying assumptions of the pure rational expectations mode, we turn our attention to models of learning by first looking at a model based on the aspiration level adaptation literature and find that women might behave according to a model that account for changes in socioeconomic status, not simply the levels of socioeconomic status. Borrowing again from the industrial organization literature, we modify the learning model of attainment discrepancy to craft a model for how women form their fertility expectations that takes into account the changes in their socioeconomic status between periods.

The ordinary least squares, ordered logit, and simple continuous ratio regressions used to investigate the theory of attainment discrepancy are presented in Table 19. Comparing the R^2 from the different models, we see that the goodness of fit increases from the RE model to the ALA model but decreases slightly from the ALA model to the AD model. Although we cannot say that the AD model has the best fit, we believe that the AD theoretical model is the best fit for modeling the fertility decisions of women because our previous models did not hold up to tests of their underlying assumptions and because of the fact that a large number of the variables representing the change in socioeconomic status from period t to period $t + 1$ are statistically significant at the one percent level.

Here we discuss the results from the continuous ratio regression; we discussed above why we feel the continuous ratio is the most appropriate model specification. Columns (4) and (5) of Table 19 present the results of the continuous ratio regression which has a binary dependent

variable equal to one if the woman expects at least the next number of children; specifically if the woman 'advances' in each 'stage' where 'stage' is a categorical variable equal to 1, 2, 3, 4, and 5 plus. We see that as the stage increases, the odds that the woman expects the next number of children decreases by 88 percent. This result seems to imply that women are more likely to expect smaller families. For every increase in the number of children expected at time t the odds of expecting the next number of children is 3.91 times higher; thus, as fertility expectations in time period t increase the number of children expected in time period $t+1$ also increases. Every birth from time period t to time period $t+1$ more than triples the odds of expecting the next number of children in time period $t+1$. Years since last interview is a proxy for the aging of women; each year between the interviews decreases the odds that the woman will expect one more child by 22 percent.

In line with our predictions, compared to women who maintain the same marital status between interviews, women who become married have odds of expecting one more child that are 6 percent higher, divorcing or separating lowers the odds of expecting one more child by 21 percent, and having a spouse die halves the odds of expecting the next number of children. Our hypotheses about the impact of changes in the woman's educational attainment on the woman's fertility expectations are mostly upheld. Compared to women who experience no change in their educational attainment between surveys, women who graduate from high school have odds of expecting one more child in period $t+1$ that are 30 percent higher, after beginning a Bachelor or lower program the odds increase by 28 percent, and after receiving a Bachelor degree the odds increase by 20 percent. However, the effect of leaving a college program before receiving a Bachelor degree has a small positive effect which is statistically insignificant.

Women who develop a new health condition which limits the quantity or type of market labor the woman could supply have 8 percent higher odds of expecting at least one more child than women who experience no change in their health condition. Also supporting the results found from analyzing the determinants, women who report that they no longer have a health limitation have odds of expecting at least one more child that are 17 percent lower than the odds for women who maintain the same health status. Women who lose their own health insurance purchased

through either their own or their spouse's current employer, have odds of expecting the next number of children that are 15 percent lower than women who keep the same insurance source. Surprisingly, the odds of expecting at least one more child for women who have lost their own health insurance purchased from any other source are 31 percent *higher*. Although the effect of a woman gaining any, from a current employer or another source, new health insurance for herself are in line with our forecasts, the effects of a woman switching the source of their own health insurance to or from a current employer are statistically insignificant.

In opposition to our predictions in regards to the effect of the source of the child's health insurance, losing health insurance for your child *doubles* the odds of expecting the next number of children, and obtaining new health insurance for your child from a current employer *decreases* the odds of expecting the next number of children in period $t + 1$ by 12 percent. Switching a child's source of health insurance to a current employer increases the odds of at least one more child by 73 percent; however, switching to any other source also increases the odds by 97 percent. If women who expect a larger number of children are in lower family income brackets, these surprising results might be explained by the fact that the uninsured are more likely to have low incomes.[4]

The strong link between employment and fertility of women has been extensively studied. While our variables associated with working for a family friendly employer are statistically insignificant with small effects; women who increase their work hours by either 9-16 hours or 25-32 hours have odds of expecting the next number of children in period $t + 1$ that are 13 and 15 percent higher than women who do not change their work hours. Along with the results that women who decrease their work hours have lower odds of expecting at least one more child, these results confirm that the income effect does outweigh the substitution effect for the women of the NLSY79. We find that the effect of changes in the occupation of the woman has little impact on her decision of how many children to have in her lifetime; although only statistically

[4]See http://aspe.hhs.gov/health/reports/07/uninsured/index.htm.

significant at the ten percent level, if a woman becomes self-employed her odds of expecting the next number of children decreases by 8 percent.

Changes in the woman's income or the unemployment rate of the region where the woman resides have no effect on the how many children the woman expects in period $t + 1$. However, further affirming the results of the analysis of the determinants of fertility expectations, women who move into an urban area have odds of expecting the next number of children that are 17 percent higher than women who do move into or out of an urban area between interviews. Additionally, women who move to a different region between interviews have odds of expecting at least one more child that are 12 percent lower than women who reside in the same region in periods t and $t + 1$.

10.8 AD Continuous Ratio Stages Results

Although these regressions show that women form their fertility expectations under a model of rationality with learning in the form of using information about how their socioeconomic status changed from the prior period, we determine that the 'best' econometric model is the continuous ratio model ran separately for each of the five 'stages.'[5] Therefore, the five continuous ratio stage regressions are presented in Table 20. We see that socioeconomic status changes from period t to period $t + 1$ have different effects depending upon how many children the woman expects.

[5]This is tested by using interactions between 'stage' and the statistically significant coefficients in the continuous ratio model. These results are available from the author upon request.

In each stage an increase in the number of children expected at time t increases the odds of expecting the next number of children between a factor of 3.37 and 4.08; thus, as fertility expectations in time period t increase the number of children expected in time period $t+1$ also increases in each stage. For each birth from time period t to time period $t+1$ the odds of expecting at least two children in time period $t+1$ increases by a factor of five, the odds of expecting at least three children almost triples, the odds of expecting at least four children increases by a factor of 2.4, and the odds of expecting at least five children more than doubles (log odds of 2.57). Once again each year between the interviews decreases the odds that the woman will expect the next number of children; the negative relationship weakens from a 22 percent reduction in the odds of expecting at least one child to a 17 percent reduction in the odds of expecting at least five children.

The effect of marrying between interviews t and $t+1$ is positive and statistically significant at the one percent level in the regressions for expecting at least one and at least two children, negative and significant at only the five or ten percent level in the regressions for expecting at least three and at least four children, and positive but insignificant in the regression for expecting at least five children. These results suggest that many women are reporting that they expect to have zero children until they become married, at which point they decide to have one or two children. It also suggests that some women are revising downward their fertility expectations after they marry, perhaps as a response to marrying someone who does not desire as large of a family. Women who experience a divorce/separation or the death of a spouse between interview t and $t+1$ have lower odds, statistically significant at the one percent level, of expecting at least one (37 percent and 74 percent) or two children (32 percent and 61 percent). The insignificance of the effect of divorcing/separating or the death of a spouse on the odds of expected three or more children could signify that women who are married are less likely to expect to have three or more children or that many of the women who experience the dissolution of their marriage have already had the children they expect. These results suggest that when using fertility expectations to form future population prediction, the researcher should pay particular attention to the current marital status of the woman and the likelihood that she will marry in the future.

While the only statistically significant effects of graduating from high school are a 72 percent increase in the odds of expecting at least one child in period $t + 1$ and 77 percent higher odds of expecting at least two children; graduating from college has statistically significance, increasing the odds by 62 percent, at the one percent level in the regression of expecting at least two children and significance, decreasing the odds by 39 percent, at the ten percent level in the regression of expecting at least five children. Women who start or return to a college program have higher odds of expecting at least two, three, four, and (significant at the ten percent level) five children than women who experience no change in their educational attainment between interviews. The results might suggest that women leave college before receiving a Bachelor degree after giving birth to their first child and these women are less likely to expect large families, as the effects on the odds of expecting at least one child are positive (25 percent significant at the ten percent level) and the effects on the odds of expecting at least five children are negative (37 percent significant at the ten percent level).

We find continued support for women who have a health condition expecting more children as developing a new health condition lowers the odds of expecting at least two children by 18 percent and increases the odds of expecting three children by 28 percent, while reporting an improved health condition lowers the odds of expecting at least one and at least two children. Our predictions of a positive relationship between gaining new health insurance between interviews, either from a current employer or another source, and expecting more children at the second interview are upheld with statistically significant effects in the regression for at least three, at least four, and at least five children. In contrast, although losing health insurance from a current employer lowers the odds that a women will expect at least one child and at least two children, losing health insurance from any other source *increases* the odds that the woman will expect at least three, at least four, and at least five children. Women who have a large number of children might be more likely to provide health insurance for their children through governmental sources, even though they do not have health insurance for themselves.

The variables representing changes in the source of the child's health insurance are omitted from the regression for expecting at least one child due to the fact that all women who have

not given birth will not have any health insurance for their child at interview t and acquiring health insurance for the child is an artifact of having the child. Losing health insurance for a child or switching the source of the child's health insurance yields higher odds of expecting the next number of children in most of the remaining four regressions. Switching the source of the child's health insurance between surveys increases the odds of expecting at least the next number of children in the equations in which the coefficient is statistically significant. These results are in line with predictions that woman are likely changing their health insurance carriers to a more generous insurance plan.

In this analysis, our variables associated with working for a family friendly employer are again statistically insignificant with small effects. Increasing the hours of market labor between surveys is associated with increases in the woman's odds of expecting at least one and at least two children and decreases in the odds of expecting at least three, four, and five children. Thus, women who work more are more likely to expect an average family with one or two children but less likely to expect more children. These discontinuous results could indicate that women would like a career, in contrast to staying at home with their children, and the marginal cost of childcare for the third child would increase the opportunity cost of working past the woman's possible wage rate.

The effect from decreasing work hours supports the prediction that the income effect dominates the substitution effect for women who have large decreases in the number of hours they work in a week. Women who decrease their work hours are by 8 hours or less, or 9-16 hours per week have higher odds of expecting to have at least one, and at least two children but lower odds of expecting to have at least four, or at least five children. Although of low statistically significance, decreasing hours worked per week by 25-32 hours and by more than 32 hours lowers the odds that the woman will expect at least two, four, or five children.

Any self-employment status change has a negative effect on expecting to have at least one child, but no statistically significant effect in the remaining four regressions. In addition the only statistically significant effect, at the ten percent level, of moving into a middle class occupation is an eight percent increase in the odds of expecting at least three children. We find some support

for the hypothesis that the unemployment rate of the region in which the woman resides is an indicator for the opportunity cost of staying home to care for children instead of supplying market labor as women who experience an increase in the unemployment rate of their region of residence have 18 percent higher odds of expecting at least one child, 10 percent higher odds of expecting at least two children, but 8 percent lower odds of expecting at least three children. Our results also further affirm the positive relationship between living in an urban area and expecting more children; women who move into an urban area have odds of expecting at least one child that are 27 percent higher, expecting at least two children that are 19 percent higher, and expecting at least five children that are 46 percent higher than women who experience no urban status change. Women who change regions between surveys are less likely to expect to have at least one, at least two, and at least four children at the follow-up interview.

Chapter 11

Conclusion

Exploring the factors which influence a woman to change her fertility expectations from period t to period $t+1$, we find that the majority of the assumptions surrounding the relationship between fertility and socioeconomic status that the U.S. society believes are revealed to be consistent with the behavior of the women in the NLSY79. However, our analysis produces several surprising findings. Women who divorce or separate from a spouse between interviews expect more children in the following interview, losing self health insurance purchased through any source other than a current employer of the woman or her spouse is associated with lower odds of expecting fewer children, losing health insurance for a child is associated with the woman increasing the number of children she expects, and gaining health insurance for a child decreases the odds the woman will expect more children.

We found that the background variables were statistically significant in our analysis of the determinants of fertility expectations. These results told a story that was mostly in line with our hypotheses. Women who have already given birth to children, have more siblings, lived in a traditional household at age 14, have parents with higher education, and were raised in a Roman Catholic or other religious environment have higher odds of expecting a larger number of children. The continuous ratio regressions for the five stages demonstrate that a woman's socioeconomic status has the largest effect on her decision to have at least one child, instead of no children. Women who have higher educations, supply market labor, and live in either an urban

area, the Northcentral or the West region of the United States expect more children. Overall our results indicate that a woman's background and current socioeconomic status have significant impacts on her fertility expectations, both in statistical significance and in magnitude.

As this work has demonstrated that the observable characteristics of women effect their fertility expectations in different ways depending on the number of children she expects, we would like to more fully explore the conceptual model underlying a woman's decision of how many children to give birth to in her lifetime. In particular, the results of the current analysis motivate us to formally test whether women form their fertility expectations under a model of pure rational expectations or under a model of rational expectations with learning. While we fail to accept the theory that women form their fertility expectations under a model of pure rationality, we find support for our alternative theory that women use a model of rationality with learning. Although our results are consistent with many of our predictions, there were a couple of surprising findings. Specifically, women who lost their own health insurance purchased through any source other than a current employer or lost their child's health insurance have higher odds of expecting at least one more child and obtaining new health insurance from a current employer for a child decreases the odds of expecting the next number of children. Overall, the factors which most influence the number of children the woman expects to have in period $t + 1$ are the number of children expected at time t and the number of children born between interviews.

We believe that this dissertation provides a much needed building block for understanding the formation and evolution of the fertility expectations of women. However, there is still much to be learned about how fertility expectations influence fertility outcomes, what constitutes an unanticipated fertility outcome, and how fertility expectations and outcomes interact with other life decisions - especially labor force participation decisions. In particular our results suggest that any economic analysis that uses fertility expectations as an argument should carefully consider the factors which influence these expectations; especially if the fertility expectations are only reported for one period as we see that changes in the socioeconomic status of the individual can have substantial effects on their fertility expectations.

Bibliography

ASPE. *Overview of the Uninsured in the United States: An Analysis of the 2007 Current Population Survey*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, http://aspe.hhs.gov/health/reports/07/uninsured/index.htm, September 2007.

Hugo Benítez-Silva, Debra S. Dwyer, Wayne-Roy Gayle, and Thomas J. Muench. Expectations in micro data: Rationality revisited. Working Paper, November 2006.

B. Douglas Bernheim. How do the elderly form expectations? An analysis of responses to new information. In Issues in the Economics of Aging. Ed. D. Wise. Chicago: University of Chicago Press, 1990.

Larry Bumpass and Charles F. Westoff. The prediction of completed fertility. *Demography*, 6 (4):445–454, November 1969.

Lolagene C. Coombs. Reproductive goals and achieved fertility: A fifteen-year perspective. *Demography*, 16(4):523–534, 1979.

Maria Davidson. Expectations of additional children by race, parity, and selected socio-economic characteristics, United States: 1967. *Demography*, 8(1):27–36, February 1971.

Ronald Freedman, Lolagene C. Coombs, and Larry Bumpass. Stability and change in expectations about family size: A longitudinal study. *Demography*, 2:250–275, 1965.

Ronald Freedman, Deborah S. Freedman, and Arland D. Thornton. Changes in fertility expectations and preferences between 1962 and 1977: Their relation to final parity. *Demography*, 17 (4):1–11, 1980.

Daniel S. Hamermesh. Subjective outcomes in economics. *Southern Economic Journal*, 47(1): 153–161, 2004.

Sarah R. Hayford. The evolution of fertility expectations over the life course. *Demography*, 46 (4):765–783, November 2009.

James Heckman. Dummy endogeneous variables in a simultaneous equation system. *Econometrica*, 46(4):931–59, 1978.

James Heckman. Sample selection bias as a specification error. *Econometrica*, 47:153–61, 1979.

Frank Heiland, Alexia Prskawetz, and Warren C. Sanderson. Are individuals' desired family sizes stable? evidence from West German panel data. *European Journal of Population*, 24(2): 129–156, June 2002.

G. E. Hendershot and P. J. Placek. *Predicting Fertility, Demographic Studies of Birth Expectations*. Lexington Books, Lexington, MA, 1981.

M. B. Hirsch, J. R. Seltzer, and M. Zelnik. Desired family size of young american women, 1971 and 1976. In G. E. Hendershot and P. J. Placek, editors, *Predicting Fertility*, pages 207–234. Lexington Books, Lexington, MA, 1981.

Theodore Joyce, Robert Kaestner, and S. Korenman. Retrospective assessments of pregnancy intentions. *Demography*, 39:199–213, 2002.

Hiroyuki Kawakatsu and Ann G. Largey. Em algorithms for ordered probit models with endogenous regressors. *The Econometrics Journal*, 12(1):164–186, March 2009.

Theresa Lant. Aspiration level adaptation: An empirical exploration. *Management Science*, 38 (5):623–644, May 1992.

Daniel Levinthal and James G. March. A model of adaptive organizational search. *Journal of Economic Behavior and Organization*, 2:307–333, 1981.

Kurt Lewin, Tamara Dembo, Leon Festinger, and Pauline Snedden Sears. Level of aspiration. In J. McV. Hunt, editor, *Personality and the Behavior Disorders*. The Ronald Press Company,

New York, 1944.

Michael C. Lovell. Tests of rational expectations hypothesis. *American Economic Review*, 76 (1):110–124, 1986.

Charles F. Manski. The use of intentions data to predict behavior: A best case analysis. *Journal of the American Statistical Association*, 85:934–940, 1990.

Charles F. Manski. Measuring expectations. *Econometrica*, 72(4):1221–1246, 2004.

W. B. Miller and D. J. Pasta. How does childbearing affect fertility motivations and desires? *Social Biology*, 42:185–198, 1995.

P. S. Morgan and R. Chen. Predicting childlessness for recent cohorts of American women. *International Journal of Forecasting*, 8:477–493, 1992.

John F. Muth. Rational expectations and the theory of price movements. *Econometrica*, 29(3): 1347–1363, 1961.

N. Krishnan Namboodiri. Which couples at given parities expect to have addition births? An exercise in discriminant analysis. *Demography*, 11(1):45–56, February 1974.

E. Prescott. Should control theory be used for economic stabilization? *Journal of Monetary Economics*, Supplement:13–38, 1977.

N. S. Revankar. Testing of the rational expectations hypothesis. *Econometrica*, 48(6):1347–1363, 1980.

R. Schoen, Y. J. Kim, C. A. Nathanson, J. M. Fields, and N. M. Astone. Why do Americans want children? *Population and Development Review*, 23:333–358, 1997.

R. Schoen, N. M. Astone, C. A. Nathanson, and J. M. Fields. Do fertility intentional affect fertility behavior? *Journal of Marriage and the Family*, 61:790–79, 1999.

H. A. Simon. Rational decision making in business organizations. *American Economic Review*, 69(4):493–513, 1979.

Elizabeth Thomson. Couple childbearing desires, intentions, and births. *Demography*, 34(3): 343–354, 1997.

Elizabeth Thomson, Elaine McDonald, and Larry L. Bumpass. Fertility desires and fertility: Hers, his, and theirs. *Demography*, 27(4):579–588, 1990.

Arland D. Thornton, Ronald Freedman, and Deborah S. Freedman. Further reflections on changes in fertility expectations and preferences. *Demography*, 21(3):423–429, 1984.

James Tobin. *Asset Accumulation and Economic Activity*. The University of Chicago Press, 1980.

Katherine Trent. Family context and adolescents' expectations about marriage, fertility, and nonmarital childbearing. *Social Science Quarterly*, 75(2):320–339, June 1994.

Bureau of Labor Statistics United States Department of Labor. *Current Employment Statistics*, 2009 (accessed 2009). URL `http://data.bls.gov/PDQ/outside.jsp?survey=ce`.

Sophia R. Wunderink. Is family planning an economic decision? *Journal of Economic Psychology*, 16:377–392, 1995.

V. Zarnowitz. Business cycle analysis and expecational survey data. NBER Working Paper 1378, 1984.

Data Appendix

The National Longitudinal Survey of Youth, 1979 (NLSY79) is a nationally representative longitudinal survey that began in 1979 with an initial sample of 12,686 youths (6,283 women and 6,403 men) aged 14 to 21 as of January 1, 1979. The survey started with a core cross section sample of 3,108 women, a socially disadvantaged supplemental sample of 2,719 women and a military sample of 456 women. Funding constraints required that selected respondents in the military and supplemental samples be dropped from the panel following the 1984 and 1990 surveys, respectively. A total of 1,331 women were dropped from the survey for financial reasons, 456 in 1984 and 874 in 1990.

Fertility Variables

In each year, we construct a sample which consists of women who are interviewed and have not completed their fertility. To determine how many women completed their fertility in each survey, we take the number of women in the entire interviewed sample, see Table 4, and subtract the number of women in the completed fertility sample who were interviewed in that survey. For instance, the 1982 completed fertility sample consists of 5,939 women: 6,035 interviewed women minus 96 women who had previously completed their fertility and were interviewed in 1982; there were 119 women who had previously completed their fertility but 23 of these women were not interviewed in 1982. The following table shows the number of women in each survey who have completed their fertility (Comp. fert.) in that survey, the number of those women who were interviewed in that survey (Inter.), and the number of those women who were not interviewed in that survey (Non-inter.).

Year	1979	1982	1983	1984	1985	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004
Comp. fert.	119	0	104	71	70	121	142	335	423	380	407	358	373	348	305
Inter.	119	96	202	271	324	442	582	920	1,308	1,687	2,172	2,447	2,818	3,166	3,472
Non inter.	0	23	21	21	40	43	45	42	77	78	82	83	85	85	84

Health Variables

Using the questions "Does your health limit the kind of work you can do?" and "Does your health limit the amount of work you can do?" from the Employment Section of the NLSY79 survey, a variable is created indicating women whose health limits their work. In a separate section of the survey, women are asked if they and their child(ren) have health insurance and the source of the health insurance. The sources of health insurance include the woman's current employer, the woman's previous employer, the woman's spouse's current employer, the woman's spouse's previous employer, the private market, and the government. These questions allow construction of indicator variables for source of health insurance. As few woman have health insurance for themselves or their child though either their own or their spouse's previous employer, we combine these categories to code a single variable for insurance through any previous employer.

Employment Variables

The NLSY79 survey contains an 'Employment' section which collects self-reported information on the woman's number of hours worked in the past calendar year, number of weeks worked in the past calendar year, hourly wage, self-employment status, and industry of employment. The average hours worked per week is calculated by dividing the number of hours worked in the past calendar year by the number of weeks worked in the past calendar year. Then the average number of hours worked per week are used to create variables indicating non-workers, part-time

workers, and full-time workers; part-time workers are defined as working an average of less than 35 hours per week and full-time workers as working an average of 35 or more hours per week. The real hourly wage, in 1982 dollars, is found by applying the Current Population Index (CPI) to the nominal wage in each year.

The individual's reported industry and the income distribution of the industry are used to construct variables indicating whether the woman is employed in a working class or a middle class occupation. In particular, the working class dummy variable is set to one if the woman reports her industry and wage income as either (1) agriculture, forestry and fisheries; (2) mining; (3) construction; (4) manufacturing; (5) transportation, communication, public utilities; (6) public administration; (7) business and repair services; (8) personal services; (9) entertainment and recreation services; or (10) wholesale and retail trade with income in the bottom half of the annual income distribution for the wholesale and retail trade industry. The middle class dummy variable is set to one if the woman reports her industry and wage income as either (1) professional and related services; (2) finance, insurance and real estate; or (3) wholesale and retail trade with income in top half of the annual income distribution of wholesale and retail trade. To construct these indicator variables we use median retail trade annual wage data from the Bureau of Labor Statistics (BLS).

Information on the fringe benefits offered by the individual's employer is also collected through a series of questions over the life of the survey. In each survey the individual is asked if their employer offers a variety of fringe benefits, including health insurance. The question asking if employers offered paid maternity leave was first fielded in 1985, child care in 1988, and flexible work schedule in 1989. These questions do not indicate whether the woman takes advantage of these fringe benefits, only that the woman is offered the benefits by their employer. The fringe benefit variables for years in which the questions are not asked are imputed using multiple imputations.

Location Variables

The NLSY79 survey collects the respondent's address; however, the public data contains only information on the region of residence (Northcentral, Northeast, South, and West). The unemployment indicator variables are based on a categorical variable for the unemployment rate of the region where the woman resides which is coded as 1 for less than three percent, 2 for 3-5.9 percent, 3 for 6-8.9 percent, 4 for 9-11.9 percent, 5 for 12-14.9 percent, 6 for fifteen percent or more. The urban dummy variable is based on the size of the population of the area or place

where the woman resides. Through 1996, the urban dummy variable is constructed using the total and urban population data for the county of residence from the 1970 Census of Population Characteristics of the Population (for NLSY79 1979-1982) and from the 1980 Census of Population and Housing (for NLSY79 1983-1988). The urban population consists of all inhabitants of urbanized areas, defined as a central core or city and its adjacent, closely settled territory which have a combined total population of 50,000 or more. After 1996, a respondent is coded as living in an urban area if she lives in an urbanized area or in a place with a population greater than 2,500 residents.

Other Socioeconomic Variables

The marital status questions are used to construct three variables indicating whether the woman has not yet married, is currently married, or is currently separated, divorced, or widowed. Indicator variables for educational attainment of less than high school, high school diploma only, some college, and college graduate are also created. As there are so few women with advanced degrees, they are not broken out in the analysis. Each survey gathers information about the household's income including the woman's real net family income, own wage income, spouse's wage income, and net family income minus own wage income. If the respondent lives with her parents, then the net family income includes the parent's income. Also, the income variables used in the analysis are in thousands of real 1982 dollars, calculated by applying the CPI to the self-reported nominal values.

Change Variables

For each of our change analysis categories we take no change in the category as the omitted dummy variable in our econometric analysis. To construct variables representing the change in the continuous variables in the model, including the various measures of income, the respondent's

wage rate, and the number of children the respondent has given birth to, we simple subtract the $t + 1$ value from the t value. We chose to represent changes in the individual's marital status with dummies indicating if the individual has entered into a new marriage, has become divorced or separated, or has became widowed. Similarly to represent the educational status and student status, we constructed indicator variables for graduating from high school, beginning college attendance (this category will include women who have not changed their educational attainment, but have returned to college at least part-time), stopping college attendance before the individual receives a bachelor's degree (this category will include those women who receive an Associate's degree), and graduating from college.

For the woman's changed health status we created an indicator variable for reporting a new health condition that limits the amount or type of work the respondent is capable of and an indicator variable for reporting no health condition in period $t + 1$ after reporting a health condition in period t. We hypothesize that the respondent having health insurance for themselves or their child(ren) through either their or their spouse's current employer are the most significant health insurance source variables. Our variables indicate if the source of the health insurance changed in the following ways: insurance through a current employer was lost without replacement, insurance through some other source was lost without replacement, insurance through a current employer was newly acquired, insurance through some other source was newly acquired, the insurance source switched from a current employer to any other source, the insurance source switched to a current employer from any other source, and no change in insurance source.

To illustrate changes in the work environment of the woman we constructed dummy variables for gaining or losing each of the four fringe benefits in our model: flexible work schedule, child care, paid maternity leave, and employer offered health insurance. We focused more attention on the change in work hours by creating indicator variable for if the woman increased or decreased her work hours by 8 hours, 16 hours, 24 hours or 32 hours. We felt that small changes in work hours can have large impacts on the number of children the woman expects. Becoming self-employed or going back to outside employment are modeled along with advancing to a middle class occupational industry and returning to a working class occupational industry. We also measure the change in location using a simple indicator of living in a different region, indicators for moving to and away from an urban area, and simple variables indicating if the unemployment rate of the region increased or decreased.

Table 1: Background Summary Statistics

	All	**Expect or Have Child by 2004**			**Expect & Have No Child by 2004**
		All	**Not Completed Fertility, 1979**	**Completed Fertility, 1979**	**Completed Fertility, 1979**
N	6283	6186	6164	22	97
No. of Siblings	3.41	3.40	3.40	4.56	3.80
	(2.31)	(2.31)	(2.31)	(2.31)	(2.13)
No. Older Siblings	1.94	1.93	1.93	2.64	2.24
	(2.03)	(2.03)	(2.03)	(2.38)	(1.83)
Lived with Mother and Father at age 14	0.74	0.74	0.74	0.68	0.74
	(0.44)	(0.44)	(0.44)	(0.47)	(0.44)
Lived with Mother and Step-Father at age 14	0.07	0.07	0.07	0.00	0.05
	(0.25)	(0.25)	(0.25)	0.00	(0.22)
Lived with Single Mother at age 14	0.12	0.12	0.12	0.23	0.13
	(0.33)	(0.33)	(0.33)	(0.42)	(0.34)
Other Household Structure at age 14	0.07	0.07	0.07	0.09	0.08
	(0.26)	(0.26)	(0.26)	(0.29)	(0.26)
Mother Less Than HS Grad in 1979	0.34	0.34	0.34	0.71	0.4
	(0.47)	(0.47)	(0.47)	(0.46)	(0.48)
Mother HS Grad in 1979	0.45	0.45	0.45	0.18	0.45
	(0.5)	(0.5)	(0.5)	(0.39)	(0.5)
Mother Some College in 1979	0.11	0.11	0.11	0	0.15
	(0.31)	(0.31)	(0.31)	(0.06)	(0.36)
Mother College Grad in 1979	0.1	0.1	0.1	0.1	0
	(0.3)	(0.3)	(0.3)	(0.3)	(0.07)
Father Less Than HS Grad in 1979	0.36	0.36	0.36	0.56	0.36
	(0.48)	(0.48)	(0.48)	(0.49)	(0.47)
Father HS Grad in 1979	0.37	0.37	0.37	0.43	0.47
	(0.48)	(0.48)	(0.48)	(0.49)	(0.5)
Father Some College in 1979	0.1	0.1	0.1	-0.01	0.1
	(0.3)	(0.3)	(0.3)	(0.09)	(0.3)
Father College Grad in 1979	0.17	0.17	0.17	0.02	0.07
	(0.38)	(0.38)	(0.38)	(0.16)	(0.28)
Mother worked, 1979	0.64	0.64	0.64	0.50	0.56
	(0.49)	(0.48)	(0.48)	(0.51)	(0.50)
Father worked, 1979	0.92	0.92	0.92	0.91	0.81
	(0.28)	(0.27)	(0.27)	(0.30)	(0.40)
Race Hispanic	0.06	0.06	0.06	0.01	0.04
	(0.24)	(0.24)	(0.24)	(0.11)	(0.21)
Race Black	0.14	0.14	0.14	0.21	0.08
	(0.35)	(0.35)	(0.35)	(0.41)	(0.27)
Race White	0.80	0.80	0.80	0.78	0.88
	(0.40)	(0.40)	(0.40)	(0.41)	(0.33)

Continued on next page

Table 1 – continued from previous page

	All	Expect or Have Child by 2004			Expect & Have No Child by 2004
		All	Not Completed Fertility, 1979	Completed Fertility, 1979	Completed Fertility, 1979
Religion Raised None	0.03	0.03	0.03	0.21	0.12
	(0.18)	(0.18)	(0.18)	(0.41)	(0.32)
Religion Raised Roman Catholic	0.33	0.33	0.33	0.11	0.24
	(0.47)	(0.47)	(0.47)	(0.32)	(0.42)
Religion Raised Protestant	0.51	0.51	0.51	0.56	0.53
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Religion Raised Other	0.13	0.13	0.13	0.12	0.12
(Includes Jewish)	(0.33)	(0.33)	(0.33)	(0.32)	(0.32)
Age	18.32	18.3	18.29	20.9	19.81
	(2.29)	(2.29)	(2.29)	(1.15)	(2.07)
Age Squared	340.86	340.21	339.85	437.98	396.74
	(84.02)	(83.88)	(83.77)	(47.29)	(77.56)

Means are reported on the first line with standard errors on the second line in parenthesis.
Sampling weights were used to generate this table.

Table 2: Summary Statistics, 1979

	All	**Expect or Have Child by 2004**			**Expect & Have No Child by 2004**
		All	**Not Completed Fertility, 1979**	**Completed Fertility, 1979**	**Completed Fertility, 1979**
N	6283	6186	6164	22	97
Total Number of Children Expected	2.42	2.44	2.44	2.62	-
	(1.31)	(1.3)	(1.3)	(0.8)	-
Number of Children	0.14	0.15	0.14	2.62	-
	(0.46)	(0.46)	(0.43)	(0.8)	-
Number of Children Younger Than 6	0.14	0.14	0.13	2.42	-
	(0.44)	(0.44)	(0.42)	(0.53)	-
Number of Children 6 and Older	0	0	0	0.2	-
	(0.06)	(0.06)	(0.05)	(0.45)	-
Never Married	0.84	0.84	0.84	0.09	0.72
	(0.37)	(0.37)	(0.36)	(0.28)	(0.45)
Married	0.14	0.14	0.14	0.76	0.18
	(0.35)	(0.35)	(0.34)	(0.43)	(0.39)
Widowed, Separated or Divorced	0.02	0.02	0.02	0.15	0.10
	(0.14)	(0.14)	(0.14)	(0.36)	(0.29)
Less Than HS Grad	0.58	0.58	0.58	0.59	0.42
	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)
HS Grad	0.28	0.28	0.28	0.38	0.34
	(0.45)	(0.45)	(0.45)	(0.49)	(0.47)
Some College	0.14	0.14	0.14	0.03	0.19
	(0.34)	(0.34)	(0.34)	(0.17)	(0.40)
College Grad	0.01	0.01	0.01	0.00	0.05
	(0.08)	(0.07)	(0.07)	0.00	(0.21)
Current Student	0.63	0.63	0.63	0.03	0.41
	(0.48)	(0.48)	(0.48)	(0.17)	(0.49)
Health Limits Work	0.06	0.06	0.06	0.1	0.05
	(0.23)	(0.23)	(0.23)	(0.3)	(0.22)
Woman Has No HI	0.11	0.11	0.11	0.04	0.14
	(0.31)	(0.31)	(0.31)	(0.2)	(0.34)
Woman's HI thru Her Current Employer	0.21	0.21	0.21	0.16	0.11
	(0.41)	(0.41)	(0.41)	(0.37)	(0.31)
Woman's HI thru Her Spouse's Current Employer	0.16	0.16	0.16	0.47	0.11
	(0.36)	(0.36)	(0.36)	(0.5)	(0.32)
Woman's HI thru a Previous Employer	0	0	0	0	0.01
	(0.02)	(0.01)	(0.01)	(0)	(0.07)
Woman's HI thru Private Market	0.01	0.01	0.01	0.03	0.02
	(0.13)	(0.13)	(0.13)	(0.17)	(0.14)
Woman's HI thru Government	0.05	0.05	0.05	0.13	0.04
	(0.24)	(0.24)	(0.24)	(0.35)	(0.21)

Continued on next page

Table 2 – continued from previous page

	All	Expect or Have Child by 2004			Expect & Have No Child by 2004
		All	Not Completed Fertility, 1979	Completed Fertility, 1979	Completed Fertility, 1979
Child Has No HI	0.87	0.87	0.87	0.34	0.97
	(0.33)	(0.34)	(0.33)	(0.47)	(0.17)
Child(ren's HI thru Mother's Current Employer	0.03	0.03	0.03	0.18	
	(0.17)	(0.17)	(0.17)	(0.39)	
Child(ren's HI thru Father's Current Employer	0.04	0.04	0.04	0.45	
	(0.21)	(0.21)	(0.2)	(0.5)	
Child(ren's HI thru Parent's Previous Employer	0	0	0	0	
	(0.01)	(0.01)	(0.01)	(0)	
Child(ren's HI thru Private Market	0	0	0	0.01	
	(0.03)	(0.03)	(0.03)	(0.12)	
Child(ren's HI thru Government	0	0	0	0.04	
	(0.07)	(0.07)	(0.07)	(0.19)	
Health Insurance (Employer Provides)	0.25	0.26	0.25	0.35	0.21
	(0.44)	(0.44)	(0.44)	(0.48)	(0.41)
Maternity Leave (Employer Provides)	0.3	0.3	0.3	0.41	0.24
	(0.51)	(0.51)	(0.51)	(0.52)	(0.48)
Child Care (Employer Provides)	0.01	0.01	0.01	0.01	0.0
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)
Flexible Work Schedule	0.15	0.15	0.15	0.17	0.07
	(0.62)	(0.61)	(0.61)	(0.61)	(0.65)
Non-Worker	0.42	0.42	0.42	0.42	0.42
	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)
Part Time Worker	0.32	0.32	0.32	0.13	0.36
	(0.47)	(0.47)	(0.47)	(0.34)	(0.48)
Full Time Worker	0.26	0.26	0.26	0.45	0.22
	(0.44)	(0.44)	(0.44)	(0.5)	(0.41)
Self-Employed	0.02	0.02	0.02	0	0.02
	(0.13)	(0.13)	(0.13)	0)	(0.15)
Middle Class	0.22	0.22	0.22	0.23	0.21
	(0.52)	(0.52)	(0.52)	(0.59)	(0.48)
Working Class	0.78	0.78	0.78	0.76	0.79
	(0.52)	(0.52)	(0.52)	(0.59)	(0.49)
Real Hourly Wage	2.36	2.36	2.36	1.52	2.43
	(2.85)	(2.86)	(2.86)	(1.9)	(2.37)
Real Family Income ($1,000)	25.35	25.38	25.43	13.23	22.60
	(22.07)	(22.07)	(22.07)	(19.18)	(22.10)
Real Respondent Wage Income ($1,000)	2.04	2.05	2.06	0.11	1.60
	(6.16)	(6.15)	(6.13)	(11.00)	(6.53)
Real Spouse Wage Income ($1,000)	1.87	1.87	1.83	10.71	2.44
	(5.67)	(5.65)	(5.61)	(9.25)	(6.98)
Real Family Income Minus Respondent Wage Income ($1,000)	23.36	23.39	23.43	12.95	21.05
	(22.01)	(22.01)	(22.01)	(18.58)	(21.68)

Continued on next page

Table 2 – continued from previous page

	All	Expect or Have Child by 2004			Expect & Have No Child by 2004
		All	Not Completed Fertility, 1979	Completed Fertility, 1979	Completed Fertility, 1979
Unemployment Rate $< 3\%$	0.02	0.02	0.02	0	0
	(0.12)	(0.12)	(0.12)	0)	(0.01)
Unemployment Rate $3 - 5.9\%$	0.49	0.49	0.49	0.52	0.45
	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Unemployment Rate $6 - 8.9\%$	0.43	0.43	0.43	0.38	0.46
	(0.5)	(0.5)	(0.5)	(0.49)	(0.5)
Unemployment Rate $9 - 11.9\%$	0.06	0.05	0.05	0.1	0.08
	(0.23)	(0.23)	(0.23)	(0.3)	(0.28)
Unemployment Rate $12 - 14.9\%$	0.01	0.01	0.01	0	0.02
	(0.12)	(0.12)	(0.12)	0)	(0.16)
Unemployment Rate $15\%+$	0	0	0	0	0
	(0.01)	(0.01)	(0.01)	0)	0)
Urban Location	0.79	0.78	0.79	0.58	0.86
	(0.41)	(0.41)	(0.41)	(0.49)	(0.35)
Live in Northeast	0.21	0.21	0.21	0.02	0.34
	(0.41)	(0.41)	(0.41)	(0.14)	(0.47)
Live in Northcentral	0.29	0.29	0.29	0.49	0.37
	(0.45)	(0.45)	(0.45)	(0.50)	(0.48)
Live in South	0.34	0.34	0.34	0.30	0.20
	(0.47)	(0.47)	(0.47)	(0.46)	(0.40)
Live in West	0.16	0.16	0.16	0.19	0.09
	(0.37)	(0.37)	(0.37)	(0.39)	(0.28)

Means are reported on the first line with standard errors on the second line in parenthesis.
Sampling weights were used to generate this table.

Table 3: Final Summary Statistics

	All	**Expect or Have Child by 2004**			**Expect & Have No Child by 2004**
		All	**Not Completed Fertility, 1979**	**Completed Fertility, 1979**	**Completed Fertility, 1979**
N	6283	6186	6164	22	97
Never Married	0.14	0.13	0.13	0.07	0.50
	(0.34)	(0.34)	(0.34)	(0.26)	(0.50)
Married: Never Divorced, Separated, or Widowed	0.46	0.47	0.47	0.49	0.10
	(0.50)	(0.50)	(0.50)	(0.50)	(0.30)
Married: Divorced or Separated	0.38	0.38	0.38	0.44	0.40
	(0.49)	(0.49)	(0.49)	(0.50)	(0.49)
Married: Widowed	0.02	0.02	0.02	0.00	0.00
	(0.14)	(0.14)	(0.14)	0.00	0.00
Married: Divorced, Separated, or Widowed	0.40	0.40	0.40	0.44	0.40
	(0.49)	(0.49)	(0.49)	(0.50)	(0.49)
Education: Less than High School	0.08	0.07	0.07	0.30	0.26
	(0.27)	(0.26)	(0.26)	(0.46)	(0.44)
Education: High School	0.41	0.41	0.41	0.42	0.29
	(0.49)	(0.49)	(0.49)	(0.49)	(0.46)
Education: Some College	0.25	0.25	0.25	0.28	0.30
	(0.44)	(0.44)	(0.44)	(0.45)	(0.46)
Education: College Graduate	0.26	0.26	0.26	0.00	0.15
	(0.44)	(0.44)	(0.44)	0.00	(0.36)
Final Children Born	1.66	1.68	1.67	2.62	0.00
	(1.42)	(1.41)	(1.41)	(0.80)	0.00
Age at 1st Birth	24.62	24.62	24.66	16.74	
	(5.65)	(5.65)	(5.63)	(0.89)	
	[3772]	[3772]	[3750]	[22]	
Age at 2nd Birth	27.65	27.65	27.71	19.02	
	(5.38)	(5.38)	(5.35)	(0.86)	
	[3036]	[3036]	[3015]	[21]	
Age at 3rd Birth	29.50	29.50	29.56	20.76	
	(5.20)	(5.20)	(5.17)	(0.59)	
	[583]	[583]	[581]	[2]	
Age at 4th Birth	30.98	30.98	31.04	21.86	
	(5.15)	(5.15)	(5.11)	(0.16)	
	[1505]	[1505]	[1498]	[7]	
Age at 5th Birth	31.59	31.59	31.59		
	(4.79)	(4.79)	(4.79)		
	[203]	[203]	[203]		
Age at 6th Birth	32.56	32.56	32.56		
	(5.19)	(5.19)	(5.19)		
	[79]	[79]	[79]		

Continued on next page

Table 3 – continued from previous page

	All	Expect or Have Child by 2004			Expect & Have No Child by 2004
		All	Not Completed Fertility, 1979	Completed Fertility, 1979	Completed Fertility, 1979
Age at 7th Birth	32.06	32.06	32.06		
	(4.62)	(4.62)	(4.62)		
	[32]	[32]	[32]		
Age at 8th Birth	34.51	34.51	34.51		
	(4.24)	(4.24)	(4.24)		
	[15]	[15]	[15]		
Age at 9th Birth	35.59	35.59	35.59		
	(1.54)	(1.54)	(1.54)		
	[7]	[7]	[7]		
Age at 10th Birth	37.38	37.38	37.38		
	(1.41)	(1.41)	(1.41)		
	[4]	[4]	[4]		
Age at 11th Birth	42.66	42.66	42.66		
	0.00	0.00	0.00		
	[1]	[1]	[1]		

Means are reported first, standard errors next in parenthesis, and number of observations (optional) last in brackets. Sampling weights were used to generate this table.

Table 4: Distribution of Actual Fertility and Fertility Expectation, by year, entire sample

	Number of Women	Average Births	Percentage Distribution of Births					Percent Gave Birth	Birth Not Expected
			Zero Children	One Child	Two Children	Three Children	Four+ Children		
1979	6,283	0.15	88.7%	8.2%	2.6%	0.5%	0.1%	-	-
1982	6,035	0.37	75.9%	14.7%	7.0%	1.8%	0.6%	21.0%	2.3%
1983	6,073	0.45	71.7%	16.2%	8.5%	2.8%	0.8%	8.0%	0.9%
1984	6,014	0.54	67.7%	17.3%	10.4%	3.5%	1.2%	8.1%	1.0%
1985	5,523	0.67	61.1%	19.2%	13.3%	4.6%	1.7%	9.1%	1.1%
1986	5,418	0.78	56.8%	19.6%	15.7%	5.6%	2.2%	9.8%	1.1%
1988	5,312	0.99	49.7%	18.7%	19.7%	8.3%	3.5%	20.6%	3.6%
1990	5,324	1.17	44.0%	18.4%	21.7%	10.9%	5.0%	16.2%	3.3%
1992	4,535	1.55	29.1%	20.3%	27.8%	15.4%	7.4%	15.8%	4.1%
1994	4,480	1.72	24.4%	19.1%	30.2%	17.1%	9.2%	14.4%	3.5%
1996	4,361	1.84	21.0%	18.5%	31.6%	18.4%	10.5%	9.8%	2.5%
1998	4,299	1.95	17.8%	17.7%	33.4%	19.8%	11.3%	8.5%	2.3%
2000	4,113	2.03	16.7%	16.5%	34.1%	20.2%	12.5%	6.3%	2.4%
2002	3,955	2.05	16.2%	16.3%	34.4%	20.5%	12.7%	2.7%	1.2%
2004	3,984	2.08	15.6%	16.3%	34.0%	20.9%	13.2%	1.5%	0.5%

	Number of Women	Average Children Expected	Percentage Distribution of Expectations					Percent Change Expectations		
			Zero Children	One Child	Two Children	Three Children	Four+ Children	All	Increase	Decrease
1979	6,283	2.4	8.3%	9.7%	44.4%	19.6%	18.0%	-	-	-
1982	6,035	2.15	9.9%	13.3%	46.4%	18.2%	12.2%	59.0%	22.8%	36.2%
1983	6,073	2.12	10.2%	13.2%	46.1%	19.8%	10.8%	44.3%	21.0%	23.23%
1984	6,014	2.05	12.1%	13.8%	44.7%	20.2%	9.3%	38.6%	16.4%	22.2%
1985	5,523	2.09	10.1%	13.7%	46.0%	20.9%	9.4%	36.7%	17.0%	19.7%
1986	5,418	2.05	11.7%	14.1%	44.1%	20.6%	9.5%	35.2%	15.6%	19.6%
1988	5,312	1.96	14.5%	15.4%	41.4%	20.0%	8.7%	41.4%	16.5%	25.0%
1990	5,324	1.91	17.1%	15.7%	39.0%	18.7%	9.4%	36.9%	14.8%	22.1%
1992	4,535	2.13	10.1%	15.3%	41.8%	22.1%	10.7%	31.4%	13.9%	17.5%
1994	4,480	2.13	11.0%	15.9%	39.2%	22.4%	11.5%	25.3%	11.1%	14.2%
1996	4,361	2.15	11.2%	15.9%	38.7%	21.8%	12.4%	21.3%	9.3%	12.0%
1998	4,299	2.14	11.4%	16.6%	37.6%	22.1%	12.3%	18.3%	6.6%	11.7%
2000	4,113	2.15	12.0%	16.6%	36.5%	21.5%	13.4%	15.1%	6.3%	8.8%
2002	3,955	2.14	12.6%	16.8%	36.1%	21.1%	13.4%	11.5%	3.8%	7.7%
2004	3,984	2.13	13.7%	16.3%	35.2%	21.3%	13.5%	11.0%	2.2%	8.8%

Table 5: Distribution of Actual Fertility and Fertility Expectation, by year, completed fertility sample

	Number of Women	Average Births	Percentage Distribution of Births					Percent Gave Birth	Birth Not Expected
			Zero Children	One Child	Two Children	Three Children	Four+ Children		
1979	6,164	0.15	88.8%	8.3%	2.4%	0.4%	0.1%	-	-
1982	5,939	0.36	75.9%	15.0%	6.9%	1.7%	0.6%	21.4%	2.4%
1983	5,871	0.42	72.8%	16.5%	7.7%	2.4%	0.6%	8.3%	0.9%
1984	5,743	0.49	69.2%	17.7%	9.2%	2.9%	1.0%	8.5%	1.0%
1985	5,199	0.61	63.4%	19.7%	11.8%	3.6%	1.5%	9.6%	1.2%
1986	4,976	0.68	60.1%	20.1%	13.5%	4.3%	1.9%	10.7%	1.3%
1988	4,730	0.88	53.8%	19.1%	17.1%	7.0%	3.0%	23.1%	4.0%
1990	4,404	0.99	50.3%	19.2%	17.8%	8.5%	4.1%	19.6%	4.0%
1992	3,227	1.32	36.8%	22.4%	22.7%	11.9%	6.2%	22.2%	5.8%
1994	2,793	1.45	33.0%	21.6%	24.6%	12.7%	8.1%	23.2%	5.5%
1996	2,271	1.55	30.2%	21.6%	25.5%	13.5%	9.3%	18.8%	4.8%
1998	1,852	1.68	26.4%	21.2%	27.0%	15.1%	10.3%	19.7%	5.4%
2000	1,295	1.76	26.8%	18.8%	27.1%	14.7%	12.6%	20.0%	7.5%
2002	789	1.69	30.7%	18.1%	26.1%	13.7%	11.4%	13.7%	6.0%
2004	512	1.67	32.0%	19.1%	20.3%	16.0%	12.5%	11.3%	3.9%

	Number of Women	Average Children Expected	Percentage Distribution of Expectations					Percent Change Expectations		
			Zero Children	One Child	Two Children	Three Children	Four+ Children	All	Increase	Decrease
1979	6,164	2.43	7.0%	9.9%	45.0%	19.9%	18.3%	-	-	-
1982	5,939	2.17	8.9%	13.5%	46.9%	18.4%	12.3%	59.9%	23.1%	36.7%
1983	5,871	2.14	9.2%	13.3%	46.6%	20.0%	11.0%	45.7%	21.7%	24.0%
1984	5,743	2.08	11.1%	14.0%	45.1%	20.3%	9.5%	40.4%	17.2%	23.2%
1985	5,199	2.12	9.1%	13.8%	46.5%	20.9%	9.7%	38.9%	18.1%	20.9%
1986	4,976	2.08	11.0%	14.1%	44.4%	20.6%	9.9%	38.3%	17.0%	21.3%
1988	4,730	1.97	14.3%	15.4%	41.4%	20.1%	8.8%	46.5%	18.5%	27.9%
1990	4,404	1.89	17.8%	16.1%	38.8%	17.9%	9.5%	44.5%	17.8%	26.6%
1992	3,227	2.12	10.2%	15.4%	42.2%	21.3%	10.9%	44.0%	19.5%	24.6%
1994	2,793	2.10	11.5%	16.5%	39.0%	21.2%	11.8%	40.6%	17.9%	22.8%
1996	2,271	2.14	11.4%	16.7%	39.0%	19.9%	13.1%	40.8%	17.8%	23.0%
1998	1,852	2.10	11.6%	18.8%	36.6%	20.4%	12.6%	42.5%	15.3%	27.1%
2000	1,295	2.15	11.8%	19.2%	34.9%	18.9%	15.2%	48.0%	20.0%	27.9%
2002	789	2.13	13.0%	21.0%	34.6%	16.9%	14.6%	57.4%	19.1%	38.3%
2004	512	2.06	17.0%	18.9%	29.8%	19.1%	15.2%	85.2%	17.0%	68.2%

Figure 1: Average Children Expected and Born by Year

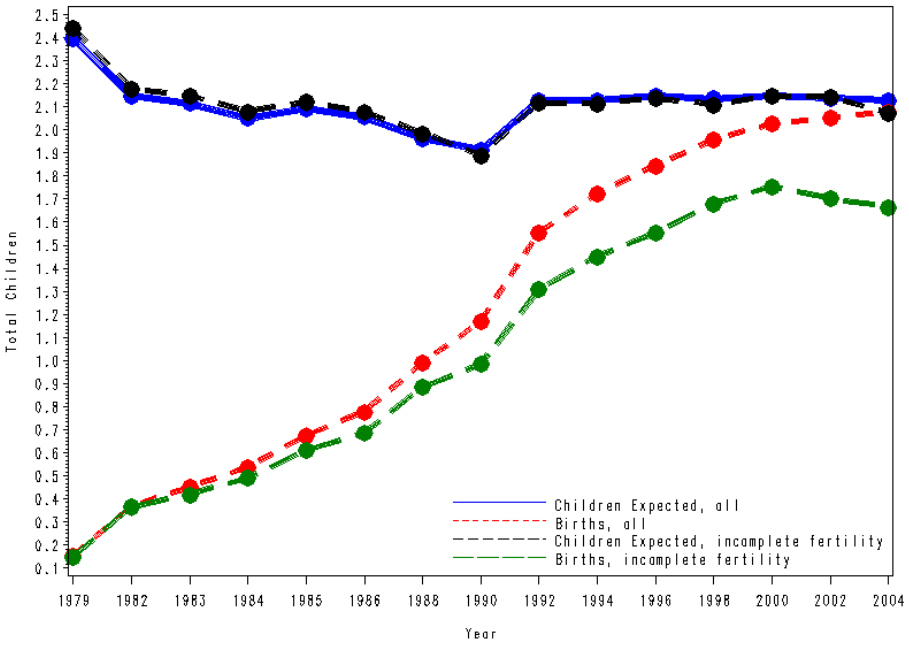

Table 6: Fertility Evolution Regression Summary Statistics

Variable	Mean	Std
Changed Total Number of Children Expected	0.45	0.5
Increased Total Number of Children Expected	0.15	0.36
Decreased Total Number of Children Expected	0.3	0.46
Change in Births at Interview	0.17	0.4
Years Since Last Interview	1.72	0.69
Become Married	0.09	0.29
Become Divorced or Separated	0.04	0.19
Become Widowed	0	0.03
No Change in Marital Status	0.87	0.34
Graduate From High School	0.05	0.21
Start/Return College	0.05	0.22
Leave College	0.02	0.15
Graduate College	0.03	0.16
No Change in Education Level	0.85	0.36
New Health Limitation	0.04	0.19
Improved Health Limitation	0.04	0.19
No Change in Health Status	0.93	0.26
Woman Lost Current Employer HI	0.06	0.23
Woman Lost Other HI	0.01	0.1
Woman Gained New Current Employer HI	0.06	0.24
Woman Gained New Other HI	0.01	0.11
Woman Switched to Current Employer HI	0.03	0.18
Woman Switched From Current Employer HI	0.04	0.19
No Change in the Woman's HI Status	0.79	0.4
Child Lost Current Employer HI	0.04	0.2
Child Lost Other HI	0.01	0.09
Child Gained New Current Employer HI	0.09	0.29
Child Gained New Other HI	0.02	0.14
Child Switched to Current Employer HI	0.02	0.13
Child Switched From Current Employer HI	0.02	0.15
No Change in the Child's HI Status	0.8	0.4
Work Hours Increase	0.41	0.49
Work Hours Decrease	0.34	0.47
No Change in Work Hours	0.25	0.43
Become Self-Employed	0.02	0.15
Stop Being Self-Employed	0.02	0.14
No Change in Self-Employment Status	0.96	0.2
Move into a Middle Class Occultation	0.13	0.34
Move out of a Middle Class Occultation	0.11	0.32
No Change in Occultation	0.76	0.43
Increase in the Unemployment Rate of the Region	0.26	0.44
Decrease in the Unemployment Rate of the Region	0.28	0.45
No Change in the Unemployment Rate of the Region	0.46	0.5

Continued on next page

Table 6 – continued from previous page

Variable	Mean	Std
Move into an Urban Area	0.03	0.17
Move out of an Urban Area	0.03	0.18
No Change in Urban Area	0.93	0.25
Changed Region	0.05	0.22

There are 46,445 women-year observations.
Sampling weights are used to generate this table.

Table 7: Fertility Evolution Regression Results: Logit

Parameter	**Any Change**	**Increase**	**Decrease**
Intercept	0.64***	0.15***	0.35***
	(-0.45)	(-1.9)	(-1.04)
	[0.03]	[0.04]	[0.03]
Change in Births at Interview	1.13***	3.32***	0.39***
	(0.12)	(1.2)	(-0.94)
	[0.03]	[0.03]	[0.03]
Years Since Last Interview	1.24***	0.9***	1.35***
	(0.21)	(-0.11)	(0.3)
	[0.01]	[0.02]	[0.02]
Become Married	1.07**	1.15***	0.99
	(0.07)	(0.14)	(-0.01)
	[0.03]	[0.04]	[0.04]
Become Divorced or Separated	1.44***	1.13*	1.39***
	(0.36)	(0.12)	(0.33)
	[0.05]	[0.07]	[0.05]
Become Widowed	1.61*	0.9	1.76**
	(0.48)	(-0.11)	(0.57)
	[0.27]	[0.39]	[0.27]
Graduate From High School	1.05	1.2***	0.95
	(0.05)	(0.18)	(-0.05)
	[0.05]	[0.06]	[0.05]
Start/Return College	1	1.24***	0.88***
	(0.002)	(0.22)	(-0.13)
	[0.04]	[0.06]	[0.05]
Leave College	1.02	0.97	1.04
	(0.01)	(-0.03)	(0.04)
	[0.06]	[0.09]	[0.07]
Graduate College	0.9*	0.99	0.89*
	(-0.11)	(-0.01)	(-0.12)
	[0.06]	[0.09]	[0.07]
New Health Limitation	1.28***	1.38***	1.08
	(0.25)	(0.32)	(0.08)
	[0.05]	[0.06]	[0.05]
Improved Health Limitation	1.12**	0.89*	1.23***
	(0.11)	(-0.12)	(0.21)
	[0.05]	[0.07]	[0.06]
Woman Lost Current Employer HI	1.16***	0.97	1.2***
	(0.15)	(-0.03)	(0.19)
	[0.05]	[0.08]	[0.05]

The dependent variable in each regression is an indicator for (1) any change in total number of children expected, (2) an increase, and (3) a decrease.
There are 46,445 women-year observations.

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 7 – continued from previous page

Parameter	Any Change	Increase	Decrease
Woman Lost Other HI	0.9	1.2	0.76*
	(-0.11)	(0.18)	(-0.27)
	[0.13]	[0.16]	[0.14]
Woman Gained New Current Employer HI	1.13**	1.15**	1.06
	(0.13)	(0.14)	(0.05)
	[0.06]	[0.06]	[0.06]
Woman Gained New Other HI	1.17	1.37***	0.95
	(0.16)	(0.31)	(-0.05)
	[0.11]	[0.12]	[0.14]
Woman Switched to Current Employer HI	0.94	1.05	0.9
	(-0.06)	(0.05)	(-0.11)
	[0.07]	[0.12]	[0.07]
Woman Switched From Current Employer HI	1.06	1.01	1.07
	(0.06)	(0.01)	(0.06)
	[0.08]	[0.09]	[0.07]
Child Lost Current Employer HI	0.76***	1.53***	0.51***
	(-0.27)	(0.42)	(-0.68)
	[0.06]	[0.1]	[0.09]
Child Lost Other HI	0.67***	1.48**	0.44***
	(-0.39)	(0.39)	(-0.82)
	[0.12]	[0.16]	[0.17]
Child Gained New Current Employer HI	0.91***	0.82***	1.08*
	(-0.1)	(-0.19)	(0.08)
	[0.04]	[0.05]	[0.04]
Child Gained New Other HI	1.05	1.22*	0.93
	(0.05)	(0.2)	(-0.07)
	[0.08]	[0.11]	[0.08]
Child Switched to Current Employer HI	0.67***	1.38**	0.45***
	(-0.4)	(0.32)	(-0.8)
	[0.1]	[0.14]	[0.11]
Child Switched From Current Employer HI	0.61***	1.47***	0.36***
	(-0.5)	(0.38)	(-1.01)
	[0.07]	[0.11]	[0.11]
Work Hours Increase	0.92***	1.01	0.9***
	(-0.08)	(0.01)	(-0.1)
	[0.02]	[0.03]	[0.03]
Work Hours Decrease	0.95**	0.98	0.96
	(-0.05)	(-0.02)	(-0.04)
	[0.03]	[0.03]	[0.03]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 7 – continued from previous page

Parameter	Any Change	Increase	Decrease
Become Self-Employed	0.99	0.85*	1.09
	(-0.01)	(-0.16)	(0.09)
	[0.07]	[0.1]	[0.07]
Stop Being Self-Employed	0.96	0.78**	1.11
	(-0.04)	(-0.24)	(0.1)
	[0.08]	[0.12]	[0.08]
Move into a Middle Class Occupation	1.07**	1.1*	1.02
	(0.07)	(0.09)	(0.02)
	[0.03]	[0.05]	[0.04]
Move out of a Middle Class Occupation	1.08**	1.04	1.07*
	(0.08)	(0.03)	(0.06)
	[0.03]	[0.05]	[0.04]
Increase in the Unemployment Rate of the Region	1.09***	1.13***	1.02
	(0.08)	(0.12)	(0.02)
	[0.03]	[0.04]	[0.03]
Decrease in the Unemployment Rate of the Region	0.96	0.96	0.98
	(-0.04)	(-0.04)	(-0.02)
	[0.02]	[0.03]	[0.03]
Move into an Urban Area	1	1.09	0.96
	(0.005)	(0.08)	(-0.04)
	[0.06]	[0.08]	[0.06]
Move out of an Urban Area	1.04	0.91	1.1*
	(0.04)	(-0.1)	(0.1)
	[0.06]	[0.08]	[0.06]
Changed Region	1.14***	0.93	1.2***
	(0.13)	(-0.08)	(0.19)
	[0.04]	[0.06]	[0.04]
R^2	0.0144	0.0418	0.0406
Adjusted R^2	0.0192	0.0723	0.0565
$H0 : \beta = 0$ p-value	$<$ .0001	$<$ .0001	$<$ .0001

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.

Table 8: Fertility Evolution Regression Results: OLS

Parameter	**Any Change**	**Increase**	**Decrease**
Intercept	0.39***	0.13***	0.26***
	(0.01)	(0.01)	(0.01)
Change in Births at Interview	0.03***	0.2***	-0.17***
	(0.01)	(0.005)	(0.01)
Years Since Last Interview	0.05***	-0.01***	0.07***
	(0.004)	(0.003)	(0.003)
Become Married	0.02**	0.02***	-0.002
	(0.01)	(0.01)	(0.01)
Become Divorced or Separated	0.09***	0.02*	0.07***
	(0.01)	(0.01)	(0.01)
Become Widowed	0.12*	-0.01	0.13**
	(0.07)	(0.05)	(0.06)
Graduate From High School	0.01	0.02***	-0.01
	(0.01)	(0.01)	(0.01)
Start/Return College	0.0005	0.03***	-0.03***
	(0.01)	(0.01)	(0.01)
Leave College	0.004	-0.004	0.01
	(0.02)	(0.01)	(0.01)
Graduate College	-0.03*	-0.001	-0.03*
	(0.02)	(0.01)	(0.01)
New Health Limitation	0.06***	0.04***	0.02
	(0.01)	(0.01)	(0.01)
Improved Health Limitation	0.03**	-0.02*	0.04***
	(0.01)	(0.01)	(0.01)
Woman Lost Current Employer HI	0.04***	-0.003	0.04***
	(0.01)	(0.01)	(0.01)
Woman Lost Other HI	-0.03	0.03	-0.05*
	(0.03)	(0.02)	(0.03)
Woman Gained New Current Employer HI	0.03**	0.02**	0.01
	(0.01)	(0.01)	(0.01)
Woman Gained New Other HI	0.04	0.05***	-0.01
	(0.03)	(0.02)	(0.03)
Woman Switched to Current Employer HI	-0.02	0.01	-0.02
	(0.02)	(0.02)	(0.02)
Woman Switched From Current Employer HI	0.01	0.002	0.01
	(0.02)	(0.01)	(0.01)
Child Lost Current Employer HI	-0.07***	0.06***	-0.13***
	(0.01)	(0.02)	(0.01)
Child Lost Other HI	-0.1***	0.05**	-0.15***
	(0.03)	(0.02)	(0.03)

The dependent variable in each regression is an indicator for (1) any change in total number of children expected, (2) an increase, and (3) a decrease.
There are 46,445 women-year observations.

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 8 – continued from previous page

Parameter	Any Change	Increase	Decrease
Child Gained New Current Employer HI	-0.02**	-0.03***	0.01
	(0.01)	(0.01)	(0.01)
Child Gained New Other HI	0.01	0.03*	-0.02
	(0.02)	(0.02)	(0.02)
Child Switched to Current Employer HI	-0.1***	0.05**	-0.14***
	(0.02)	(0.02)	(0.02)
Child Switched From Current Employer HI	-0.12***	0.06***	-0.18***
	(0.02)	(0.02)	(0.02)
Work Hours Increase	-0.02***	0.001	-0.02***
	(0.01)	(0.004)	(0.01)
Work Hours Decrease	-0.01**	-0.003	-0.01
	(0.01)	(0.004)	(0.01)
Become Self-Employed	-0.002	-0.02*	0.02
	(0.02)	(0.01)	(0.02)
Stop Being Self-Employed	-0.01	-0.03**	0.02
	(0.02)	(0.01)	(0.02)
Move into a Middle Class Occultation	0.02**	0.01**	0.005
	(0.01)	(0.01)	(0.01)
Move out of a Middle Class Occultation	0.02**	0.005	0.01*
	(0.01)	(0.01)	(0.01)
Increase in the Unemployment Rate of the Region	0.02***	0.02***	0.004
	(0.01)	(0.004)	(0.01)
Decrease in the Unemployment Rate of the Region	-0.01	-0.005	-0.004
	(0.01)	(0.004)	(0.01)
Move into an Urban Area	0.001	0.01	-0.01
	(0.01)	(0.01)	(0.01)
Move out of an Urban Area	0.01	-0.01	0.02*
	(0.01)	(0.01)	(0.01)
Changed Region	0.03***	-0.01	0.04***
	(0.01)	(0.01)	(0.01)
R^2	0.0144	0.0512	0.0382
Adjusted R^2	0.0137	0.0505	0.0375
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$	$< .0001$

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.
There are 46,445 women-year observations.

Table 9: Summary Statistics of Pooled Sample for Logit Regression of Fertility Determinants

Variable	Mean	Std
Total Number of Children Expected	2.17	1.19
Had Child	0.41	0.49
Number of Children	0.75	1.10
Number of Children (> 0)	1.91	1.08
Have Child Younger Than 6	0.31	0.46
Number of Children Younger Than 6	0.44	0.73
Number of Children Younger Than 6 (> 0)	1.41	0.63
Have Child 6 and Older	0.19	0.39
Number of Children 6 and Older	0.31	0.76
Number of Children 6 and Older (> 0)	1.73	0.98
Never Married	0.44	0.50
Married	0.45	0.50
Widowed, Separated or Divorced	0.11	0.31
Less Than HS Grad	0.17	0.37
HS Grad	0.41	0.49
Some College	0.25	0.43
College Grad	0.18	0.38
Current Student	0.20	0.40
Age	26.52	6.36
Age Squared	743.75	363.46
Woman's Has No HI	0.27	0.34
Woman's HI thru Her Current Employer	0.43	0.49
Woman's HI thru Her Spouse's Current Employer	0.21	0.41
Woman's HI thru a Previous Employer	0.01	0.08
Woman's HI thru Private Market	0.03	0.17
Woman's HI thru Government	0.05	0.22
Child Has No HI	0.66	0.47
Child(ren)'s HI thru Mother's Current Employer	0.1	0.3
Child(ren)'s HI thru Father's Current Employer	0.17	0.37
Child(ren)'s HI thru Parent's Previous Employer	0	0.06
Child(ren)'s HI thru Private Market	0.02	0.15
Child(ren)'s HI thru Government	0.04	0.19
Health Limits Work	0.06	0.24
Health Insurance (Employer Provides)	0.54	0.50
Maternity Leave (Employer Provides)	0.57	0.51
Child Care (Employer Provides)	0.02	0.25
Flexible Work Schedule	0.39	0.57
Non-Worker	0.20	0.40
Part Time Worker	0.27	0.44
Full Time Worker	0.54	0.50
Real Hourly Wage	5.71	103.53
Working Class	0.63	0.50
Middle Class	0.36	0.51
Self-Employed	0.04	0.19

Continued on next page

Table 9 – continued from previous page

Variable	Mean	Std
Real Family Income ($1,000)	28.14	42.67
Real Respondent Wage Income ($1,000)	8.03	31.67
Real Spouse Wage Income ($1,000)	8.93	16.09
Real Family Income Minus Respondent Wage Income ($1,000)	20.48	40.57
Unemployment Rate $< 3\%$	0.02	0.15
Unemployment Rate $3 - 5.9\%$	0.34	0.48
Unemployment Rate $6 - 8.9\%$	0.36	0.48
Unemployment Rate $9 - 11.9\%$	0.16	0.37
Unemployment Rate $12 - 14.9\%$	0.07	0.26
Unemployment Rate $15\%+$	0.04	0.2
Unemployment Rate of Region	3.06	1.13
Urban Location	0.80	0.41
Live in Northeast	0.20	0.40
Live in Northcentral	0.27	0.45
Live in South	0.35	0.48
Live in West	0.17	0.38

There are 55,756 women-year observations.
Sampling weights are used to generate this table.

Table 10: Determinants of Fertility Regression Results for the Five Continuous Ratio Stages

Parameter	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
Intercept	0***	0***	0***	0***	0***
	(7.59)	(5.16)	(2.66)	(3.57)	(3.16)
	[0.35]	[0.28]	[0.25]	[0.35]	[0.6]
Number of Children		6.37***	3.42***	2.9***	2.82***
Younger Than 6		(1.85)	(1.23)	(1.07)	(1.04)
		[0.04]	[0.02]	[0.03]	[0.04]
Number of Children		8.52***	5.48***	4.78***	4.77***
6 and Older		(2.14)	(1.7)	(1.56)	(1.56)
		[0.04]	[0.02]	[0.03]	[0.04]
No. of Siblings	0.97***	1	1.06***	1.08***	1.11***
	(-0.03)	(-0.002)	(0.06)	(0.08)	(0.1)
	[0.01]	[0.005]	[0.005]	[0.01]	[0.01]
Lived with Mother and Step-Father	0.94	0.83***	0.83***	0.72***	0.6***
at age 14	(-0.06)	(-0.18)	(-0.19)	(-0.33)	(-0.5)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.12]
Lived with Single Mother	0.65***	0.67***	0.74***	0.81***	0.87*
at age 14	(-0.42)	(-0.41)	(-0.3)	(-0.21)	(-0.14)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]
Other Household Structure	0.88**	0.81***	0.97	0.84***	0.88
at age 14	(-0.13)	(-0.21)	(-0.03)	(-0.17)	(-0.13)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.09]
Mother, HS Grad	0.93*	0.99	1.07**	1.06	1.17**
	(-0.07)	(-0.01)	(0.07)	(0.05)	(0.16)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]
Mother, Some College	1	1.1**	1.22***	1.25***	1.39***
	(0.004)	(0.1)	(0.2)	(0.22)	(0.33)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.12]
Mother, College Grad	1.02	1.04	1.17***	1.3***	1.17
	(0.02)	(0.04)	(0.16)	(0.26)	(0.16)
	[0.07]	[0.06]	[0.05]	[0.08]	[0.14]
Father, HS Grad	1	1.05	1.04	1.01	1.06
	(0.001)	(0.05)	(0.04)	(0.01)	(0.06)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]
Father, Some College	1.01	1.08	1.08*	1.28***	1.29**
	(0.01)	(0.08)	(0.08)	(0.25)	(0.26)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.12]
Father, College Grad	1.13**	1.26***	1.33***	1.12*	1.09
	(0.13)	(0.24)	(0.29)	(0.12)	(0.09)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.11]

The dependent variable is an indicator 'Advance' equal to 1 if the woman expects the next number of children in each 'Stage,' which is set to 1, 2, 3, 4, or 5 or more children.

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets. *, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 10 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Mother worked, 1979	0.95	1	0.95**	0.97	1.03
	(-0.05)	(0.005)	(-0.05)	(-0.03)	(0.03)
	[0.03]	[0.03]	[0.02]	[0.03]	[0.06]
Father worked, 1979	1.22***	1.01	1.03	0.93	0.91
	(0.2)	(0.01)	(0.03)	(-0.08)	(-0.09)
	[0.06]	[0.04]	[0.04]	[0.05]	[0.09]
Race Hispanic	2.27***	1.07	0.99	0.96	0.84*
	(0.82)	(0.07)	(-0.01)	(-0.04)	(-0.18)
	[0.06]	[0.04]	[0.04]	[0.05]	[0.09]
Race Black	2.37***	0.86***	0.82***	0.92*	0.95
	(0.86)	(-0.16)	(-0.19)	(-0.09)	(-0.05)
	[0.04]	[0.03]	[0.03]	[0.05]	[0.08]
Religion Raised Roman Catholic	1.47***	1.41***	1.49***	1.48***	1.74***
	(0.38)	(0.35)	(0.4)	(0.39)	(0.55)
	[0.08]	[0.07]	[0.07]	[0.09]	[0.17]
Religion Raised Protestant	1.12	1.03	0.98	0.98	1.11
	(0.12)	(0.03)	(-0.02)	(-0.02)	(0.1)
	[0.08]	[0.07]	[0.06]	[0.09]	[0.16]
Religion Raised Other (Includes Jewish)	0.97	1.19**	1.41***	1.35***	1.69***
	(-0.03)	(0.18)	(0.34)	(0.3)	(0.52)
	[0.08]	[0.07]	[0.07]	[0.1]	[0.17]
Age	0.65***	0.74***	0.77***	0.66***	0.6***
	(-0.43)	(-0.3)	(-0.26)	(-0.42)	(-0.52)
	[0.02]	[0.02]	[0.02]	[0.02]	[0.04]
Age Squared	1.01***	1***	1***	1***	1.01***
	(0.01)	(0.002)	(0.002)	(0.004)	(0.01)
	[0.0003]	[0.0003]	[0.0003]	[0.0004]	[0.001]
Married	1.24***	0.76***	0.75***	0.65***	0.61***
	(0.22)	(-0.28)	(-0.28)	(-0.43)	(-0.5)
	[0.04]	[0.03]	[0.03]	[0.05]	[0.09]
Widowed, Separated or Divorced	0.92*	0.44***	0.57***	0.55***	0.55***
	(-0.08)	(-0.82)	(-0.56)	(-0.6)	(-0.59)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.1]
HS Grad	1.44***	1.66***	1.28***	1.25***	1.21**
	(0.36)	(0.51)	(0.25)	(0.23)	(0.19)
	[0.04]	[0.04]	[0.03]	[0.05]	[0.08]
Some College	1.63***	2.18***	1.86***	1.77***	1.96***
	(0.49)	(0.78)	(0.62)	(0.57)	(0.67)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.1]
College Grad	1.99***	3.75***	2.69***	2.44***	2.08***
	(0.69)	(1.32)	(0.99)	(0.89)	(0.73)
	[0.06]	[0.05]	[0.05]	[0.08]	[0.16]
Current Student	0.82***	1.32***	1.24***	1.19***	1.31***
	(-0.2)	(0.28)	(0.21)	(0.18)	(0.27)
	[0.05]	[0.04]	[0.03]	[0.05]	[0.09]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 10 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Health Limits Work	1.07	0.91*	1.31***	1.31***	1.27**
	(0.07)	(-0.09)	(0.27)	(0.27)	(0.24)
	[0.06]	[0.05]	[0.05]	[0.06]	[0.11]
Health Limits Work	1.07	0.91*	1.31***	1.31***	1.27**
	(0.07)	(-0.09)	(0.27)	(0.27)	(0.24)
	[0.06]	[0.05]	[0.05]	[0.06]	[0.11]
Woman's HI thru Her	1.14***	1.35***	1.31***	1.38**	1.5**
Current Employer	(0.13)	(0.3)	(0.27)	(0.32)	(0.41)
	[0.05]	[0.07]	[0.06]	[0.09]	[0.13]
Woman's HI thru Her Spouse's	1.16**	1.23***	1.13**	1.18**	1.21
Current Employer	(0.15)	(0.2)	(0.12)	(0.17)	(0.19)
	[0.07]	[0.06]	[0.04]	[0.07]	[0.12]
Woman's HI thru a	0.95	1.2	1.24	1.39	1.43
Previous Employer	(-0.05)	(0.18)	(0.21)	(0.33)	(0.36)
	[0.3]	[0.25]	[0.23]	[0.35]	[0.63]
Woman's HI thru Private Market	1.02	1.44***	1.2*	1.28**	0.82
	(0.02)	(0.37)	(0.18)	(0.25)	(-0.2)
	[0.12]	[0.09]	[0.09]	[0.12]	[0.34]
Woman's HI thru Government	1.51***	0.89	0.89	0.81*	0.95
	(0.41)	(-0.11)	(-0.12)	(-0.21)	(-0.05)
	[0.11]	[0.09]	[0.08]	[0.11]	[0.13]
Child(ren)'s HI thru Mother's	2.93***	0.48***	0.56***	0.49***	0.39***
Current Employer	(1.07)	(-0.74)	(-0.58)	(-0.71)	(-0.94)
	[0.1]	[0.06]	[0.04]	[0.08]	[0.17]
Child(ren)'s HI thru Father's	4.1***	0.62***	0.7***	0.64***	0.63***
Current Employer	(1.41)	(-0.48)	(-0.36)	(-0.45)	(-0.47)
	[0.07]	[0.07]	[0.04]	[0.08]	[0.12]
Child(ren)'s HI thru Parent's	1.42	0.72	0.63*	0.55	0.54
Previous Employer	(0.35)	(-0.32)	(-0.46)	(-0.59)	(-0.61)
	[0.45]	[0.32]	[0.24]	[0.38]	[0.69]
Child(ren)'s HI thru Private Market	4.19***	0.59***	0.79**	0.67**	0.85
	(1.43)	(-0.52)	(-0.24)	(-0.4)	(-0.16)
	[0.17]	[0.13]	[0.1]	[0.15]	[0.24]
Child(ren)'s HI thru Government	3.16***	0.99	1.1	1.15	1.06
	(1.15)	(-0.01)	(0.1)	(0.14)	(0.06)
	[0.12]	[0.1]	[0.07]	[0.08]	[0.12]
Health Insurance	1.01	1.03	0.94	0.91	0.89
(Employer Provides)	(0.01)	(0.03)	(-0.06)	(-0.09)	(-0.12)
	[0.06]	[0.05]	[0.05]	[0.08]	[0.12]
Maternity Leave	1.02	1.01	1.01	0.99	0.98
(Employer Provides)	(0.02)	(0.01)	(0.01)	(-0.01)	(-0.02)
	[0.08]	[0.05]	[0.06]	[0.07]	[0.12]
Child Care	0.97	1.05	1.06	1.03	0.98
(Employer Provides)	(-0.03)	(0.05)	(0.06)	(0.03)	(-0.02)
	[0.07]	[0.06]	[0.07]	[0.09]	[0.16]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 10 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Flexible Work Schedule	1.01	1.01	1.01	1.01	1.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
	[0.04]	[0.03]	[0.04]	[0.05]	[0.07]
Part Time Worker	1.4***	1.43***	1.08	1.17***	1.1
	(0.34)	(0.35)	(0.08)	(0.15)	(0.09)
	[0.06]	[0.04]	[0.06]	[0.06]	[0.1]
Full Time Worker	1.31***	1.62***	1.11	1.08	1.02
	(0.27)	(0.48)	(0.1)	(0.08)	(0.02)
	[0.06]	[0.04]	[0.06]	[0.06]	[0.13]
Self-Employed	0.89	0.92	1.01	1.1	1.48***
	(-0.12)	(-0.08)	(0.01)	(0.09)	(0.39)
	[0.08]	[0.07]	[0.07]	[0.09]	[0.15]
Working Class	0.94	0.9***	0.95	0.96	0.96
	(-0.06)	(-0.1)	(-0.05)	(-0.04)	(-0.04)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]
Real Family	1	1	1	1	0.99
Income ($1,000)	(-0.001)	(-0.0002)	(-0.001)	(-0.005)	(-0.01)
	[0.0005]	[0.0005]	[0.001]	[0.003]	[0.01]
Real Respondent Wage	1**	1***	1***	1	1
Income ($1,000)	(0.002)	(0.003)	(0.001)	(0.001)	(-0.00001)
	[0.001]	[0.0005]	[0.0004]	[0.001]	[0.001]
Unemployment Rate $3-5.9\%$	1.08	1.06	1.03	1.08	1.03
	(0.08)	(0.06)	(0.03)	(0.07)	(0.03)
	[0.09]	[0.06]	[0.06]	[0.1]	[0.25]
Unemployment Rate $6-8.9\%$	1.09	1.02	0.94	0.97	0.97
	(0.08)	(0.02)	(-0.07)	(-0.03)	(-0.03)
	[0.09]	[0.06]	[0.06]	[0.1]	[0.23]
Unemployment Rate $9-11.9\%$	1.14	0.99	0.86**	0.97	0.94
	(0.13)	(-0.01)	(-0.15)	(-0.03)	(-0.07)
	[0.09]	[0.06]	[0.06]	[0.11]	[0.23]
Unemployment Rate $12-14.9\%$	1.29**	1.01	0.95	0.94	0.96
	(0.25)	(0.01)	(-0.05)	(-0.06)	(-0.04)
	[0.1]	[0.07]	[0.07]	[0.11]	[0.23]
Unemployment Rate $15\%+$	1.2	1.03	0.91	0.94	0.71
	(0.18)	(0.03)	(-0.09)	(-0.06)	(-0.34)
	[0.11]	[0.08]	[0.08]	[0.12]	[0.25]
Urban Location	1.25***	1.29***	1.09***	1.07	1.12
	(0.22)	(0.25)	(0.08)	(0.07)	(0.11)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 10 – continued from previous page

Parameter	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
Live in Northcentral	1.15***	1.09**	1.18***	1.15***	1.03
	(0.14)	(0.09)	(0.16)	(0.14)	(0.03)
	[0.05]	[0.04]	[0.03]	[0.05]	[0.09]
Live in South	0.94	0.82***	0.78***	0.76***	0.83**
	(-0.07)	(-0.2)	(-0.25)	(-0.28)	(-0.18)
	[0.04]	[0.03]	[0.03]	[0.05]	[0.09]
Live in West	1.18***	1.11***	1.08**	1.27***	1.37***
	(0.17)	(0.1)	(0.08)	(0.24)	(0.32)
	[0.05]	[0.04]	[0.04]	[0.05]	[0.09]
N Advance	48,494	40,661	17.075	6,265	1,816
N observations	54,375	54,375	54,375	54,375	54,375
Adjusted R^2	0.0593	0.2319	0.2329	0.153	0.0787
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$	$< .0001$	$< .0001$	$< .0001$

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.
Because all of the women who do not advance to stage 1 (i.e. all of the women who expect to have 0 children) have no children, the number of children cannot be included in the model for the first stage.

Table 11: Determinants of Fertility Regression Results: OLS, Cumulative Logit, Continuous Ratio

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Intercept 0	4.61***	-7.77***		9.87***	
	(0.1)	(0.19)		(0.16)	
Intercept 1		-6.5***			
		(0.19)			
Intercept 2		-4.03***			
		(0.19)			
Intercept 3		-2.33***			
		(0.19)			
Intercept 4		-0.55***			
		(0.19)			
Stage				-1.89***	0.15
				(0.01)	
Number of Children	0.63***	-1.3***	0.27	1.27***	3.55
Younger Than 6	(0.01)	(0.02)		(0.01)	
Number of Children	0.77***	-1.65***	0.19	1.62***	5.04
6 and Older	(0.01)	(0.02)		(0.01)	
No. of Siblings	0.01***	-0.02***	0.98	0.03***	1.03
	(0.002)	(0.003)		(0.003)	
Lived with Mother and Step-Father	-0.12***	0.24***	1.27	-0.24***	0.79
at age 14	(0.02)	(0.03)		(0.03)	
Lived with Single Mother	-0.17***	0.34***	1.41	-0.34***	0.71
at age 14	(0.01)	(0.02)		(0.02)	
Other Household Structure	-0.07***	0.14***	1.15	-0.15***	0.86
at age 14	(0.02)	(0.03)		(0.02)	
Mother, HS Grad	0.02	-0.03	0.97	0.03*	1.03
	(0.01)	(0.02)		(0.02)	
Mother, Some College	0.08***	-0.17***	0.85	0.16***	1.17
	(0.02)	(0.03)		(0.03)	
Mother, College Grad	0.06***	-0.12***	0.88	0.13***	1.14
	(0.02)	(0.04)		(0.03)	
Father, HS Grad	0.02	-0.02	0.98	0.03*	1.03
	(0.01)	(0.02)		(0.02)	
Father, Some College	0.06***	-0.1***	0.9	0.11***	1.12
	(0.02)	(0.03)		(0.03)	

The dependent variable in the OLS and Cumulative Logit regressions is the total number of children expected at time t (rounded at five or more). The dependent variable in the Continuous Ratio Logit regression is an indicator 'Advance' equal to 1 if the woman expects the next number of children, 'Stage' is an indicator set to 1, 2, 3, 4, or 5 or more children. Refer to Table (**??**) for the number of observations which 'Advance' in each stage.

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 11 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Father, College Grad	0.1***	-0.23***	0.79	0.21***	1.23
	(0.02)	(0.03)		(0.02)	
Mother worked, 1979	-0.01	0.03	1.03	-0.03*	0.97
	(0.01)	(0.02)		(0.01)	
Father worked, 1979	0.01	-0.05*	0.95	0.02	1.02
	(0.02)	(0.03)		(0.02)	
Race Hispanic	0.04***	-0.05*	0.95	0.08***	1.08
	(0.01)	(0.03)		(0.02)	
Race Black	-0.01	0.08***	1.08	-0.03	0.97
	(0.01)	(0.02)		(0.02)	
Religion Raised Roman Catholic	0.2***	-0.37***	0.69	0.39***	1.48
	(0.02)	(0.05)		(0.04)	
Religion Raised Protestant	0.01	-0.01	0.99	0.03	1.03
	(0.02)	(0.05)		(0.04)	
Religion Raised Other (Includes Jewish)	0.12***	-0.22***	0.8	0.24***	1.27
	(0.03)	(0.05)		(0.04)	
Age	-0.19***	0.38***	1.47	-0.37***	0.69
	(0.01)	(0.01)		(0.01)	
Age Squared	0.002***	-0.004***	1	0.004***	1
	(0.0001)	(0.0002)		(0.0002)	
Married	-0.14***	0.3***	1.35	-0.28***	0.75
	(0.01)	(0.02)		(0.02)	
Widowed, Separated or Divorced	-0.29***	0.62***	1.86	-0.61***	0.54
	(0.01)	(0.03)		(0.02)	
HS Grad	0.18***	-0.36***	0.69	0.35***	1.42
	(0.01)	(0.03)		(0.02)	
Some College	0.33***	-0.69***	0.5	0.66***	1.94
	(0.02)	(0.03)		(0.02)	
College Grad	0.52***	-1.1***	0.33	1.06***	2.89
	(0.02)	(0.04)		(0.03)	
Current Student	0.11***	-0.25***	0.78	0.21***	1.24
	(0.01)	(0.03)		(0.02)	
Health Limits Work	0.07***	-0.15***	0.86	0.14***	1.15
	(0.02)	(0.04)		(0.03)	
Woman's HI thru Her Current Employer	0.15***	-0.3***	0.74	0.3***	1.35
	(0.03)	(0.06)		(0.06)	
Woman's HI thru Her Spouse's Current Employer	0.08***	-0.15***	0.86	0.15***	1.17
	(0.02)	(0.03)		(0.03)	
Woman's HI thru a Previous Employer	0.08	-0.17	0.84	0.17	1.19
	(0.08)	(0.16)		(0.13)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 11 – continued from previous page

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Woman's HI thru Private Market	0.11***	-0.2***	0.82	0.21***	1.23
	(0.04)	(0.07)		(0.06)	
Woman's HI thru Government	-0.03	0.05	1.06	-0.07	0.93
	(0.03)	(0.06)		(0.06)	
Child(ren)'s HI thru Mother's	-0.22***	0.48***	1.61	-0.46***	0.63
Current Employer	(0.02)	(0.04)		(0.04)	
Child(ren)'s HI thru Father's	-0.11***	0.28***	1.32	-0.27***	0.76
Current Employer	(0.02)	(0.04)		(0.03)	
Child(ren)'s HI thru Parent's	-0.14	0.26	1.3	-0.28	0.75
Previous Employer	(0.11)	(0.2)		(0.18)	
Child(ren)'s HI thru Private Market	-0.07	0.18**	1.19	-0.18**	0.84
	(0.04)	(0.08)		(0.07)	
Child(ren)'s HI thru Government	0.08***	-0.15***	0.86	0.16***	1.17
	(0.03)	(0.05)		(0.04)	
Health Insurance	-0.01	0.004	1	-0.02	0.98
(Employer Provides)	(0.02)	(0.04)		(0.03)	
Maternity Leave	0.002	-0.01	0.99	0.005	1
(Employer Provides)	(0.03)	(0.05)		(0.05)	
Child Care	0.02	-0.03	0.97	0.03	1.03
(Employer Provides)	(0.03)	(0.06)		(0.05)	
Flexible Work Schedule	0.004	-0.01	0.99	0.01	1.01
	(0.01)	(0.03)		(0.03)	
Part Time Worker	0.11***	-0.22***	0.8	0.22***	1.24
	(0.02)	(0.04)		(0.03)	
Full Time Worker	0.13***	-0.28***	0.75	0.27***	1.31
	(0.02)	(0.04)		(0.04)	
Self-Employed	-0.01	0.04	1.04	-0.02	0.98
	(0.03)	(0.05)		(0.04)	
Working Class	-0.04***	0.07***	1.07	-0.07***	0.93
	(0.01)	(0.02)		(0.02)	
Real Family	-0.0002	0.0003	1	-0.0003	1
Income ($1,000)	(0.0002)	(0.0003)		(0.0002)	
Real Respondent Wage	0.001***	-0.001***	1	0.001***	1
Income ($1,000)	(0.0001)	(0.0003)		(0.0002)	
Unemployment Rate $3-5.9\%$	0.03	-0.05	0.95	0.05	1.05
	(0.03)	(0.05)		(0.04)	
Unemployment Rate $6-8.9\%$	-0.01	0.01	1.01	-0.02	0.98
	(0.02)	(0.05)		(0.04)	
Unemployment Rate $9-11.9\%$	-0.03	0.07	1.07	-0.06	0.94
	(0.03)	(0.05)		(0.04)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 11 – continued from previous page

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate $12 - 14.9\%$	-0.002	0.01	1.01	-0.01	0.99
	(0.03)	(0.05)		(0.04)	
Unemployment Rate $15\%+$	-0.02	0.03	1.03	-0.05	0.95
	(0.03)	(0.06)		(0.05)	
Urban Location	0.08***	-0.18***	0.84	0.17***	1.18
	(0.01)	(0.02)		(0.02)	
Live in Northcentral	0.05***	-0.11***	0.9	0.1***	1.11
	(0.01)	(0.03)		(0.02)	
Live in South	-0.1***	0.2***	1.23	-0.21***	0.81
	(0.01)	(0.03)		(0.02)	
Live in West	0.06***	-0.11***	0.89	0.12***	1.13
	(0.01)	(0.03)		(0.02)	
N	54,375	54,375		271,875	
R^2	0.3512	0.3669			
Adjusted R^2	0.3506	0.3853		0.5111	
$H_0 : \beta = 0$ p-value	$< .0001$	$< .0001$		$< .0001$	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Table 12: Summary Statistics for Rational Expectations Regressions

Variable	**Mean**	**Std**
Children Expected at time $t+1$	2.13	1.1
Children Expected at time t	2.18	1.18
Had Child	0.4	0.49
Number of Children	0.74	1.09
Number of Children (> 0)	1.89	1.07
Have Child Younger Than 6	0.32	0.46
Number of Children Younger Than 6	0.44	0.73
Number of Children Younger Than 6 (> 0)	1.41	0.64
Have Child Older Than 6	0.18	0.38
Number of Children Older Than 6	0.3	0.73
Number of Children Older Than 6 (> 0)	1.71	0.96
No. of Siblings	3.36	2.28
Lived with Mother and Father at 14	0.75	0.43
Lived with Mother and Step-Father at 14	0.06	0.25
Lived with Single Mother at 14	0.12	0.33
Other Household Structure at 14	0.07	0.25
Mother Less Than HS Grad in 1979	0.33	0.47
Mother HS Grad in 1979	0.45	0.5
Mother Some College in 1979	0.11	0.32
Mother College Grad in 1979	0.11	0.31
Father Less Than HS Grad in 1979	0.34	0.48
Father HS Grad in 1979	0.36	0.48
Father Some College in 1979	0.1	0.31
Father College Grad in 1979	0.19	0.39
Mother worked, 1979	0.64	0.48
Father worked, 1979	0.93	0.27
Race Hispanic	0.06	0.24
Race Black	0.14	0.35
Race White	0.79	0.4
Religion Raised None	0.03	0.18
Religion Raised Roman Catholic	0.34	0.47
Religion Raised Protestant	0.51	0.5
Religion Raised Other (Includes Jewish)	0.13	0.33
Age	26.28	6.17
Age Squared	728.87	347.32
Never Married	0.45	0.5
Married	0.44	0.5
Widowed, Separated or Divorced	0.11	0.31
Less Than HS Grad	0.17	0.37
HS Grad	0.41	0.49
Some College	0.25	0.43
College Grad	0.18	0.38
Current Student	0.2	0.4
Health Limits Work	0.06	0.23

Continued on next page

Table 12 – continued from previous page

Variable	Mean	Std
Woman No Health Insurance (HI)	0.14	0.35
Woman's HI thru Her Current Employer	0.42	0.49
Woman's HI thru Her Spouse's Current Employer	0.32	0.47
Woman's HI thru a Previous Employer	0.02	0.15
Woman's HI thru Private Market	0.06	0.24
Woman's HI thru Government	0.07	0.26
Child No Health Insurance (HI)	0.68	0.47
Child(ren)'s HI thru Mother's Current Employer	0.12	0.32
Child(ren)'s HI thru Father's Current Employer	0.18	0.39
Child(ren)'s HI thru Mother's or Father's Previous Employer	0.02	0.12
Child(ren)'s HI thru Private Market	0.04	0.21
Child(ren)'s HI thru Government	0.05	0.22
Health Insurance (Employer Provides)	0.54	0.5
Maternity Leave (Employer Provides)	0.56	0.51
Child Care (Employer Provides)	0.02	0.25
Flexible Work Schedule	0.38	0.57
Non-Worker	0.2	0.4
Part Time Worker	0.27	0.44
Full Time Worker	0.54	0.5
Self-Employed	0.04	0.19
Middle Class	0.36	0.51
Working Class	0.64	0.51
Real Respondent Wage Income ($1,000)	8.08	32.12
Real Family Income Minus Respondent Wage Income ($1,000)	20.35	40.7
Unemployment Rate $1-2.9\%$	0.02	0.15
Unemployment Rate $3-5.9\%$	0.33	0.48
Unemployment Rate $6-8.9\%$	0.36	0.48
Unemployment Rate $9-11.9\%$	0.16	0.37
Unemployment Rate $12-14.9\%$	0.07	0.26
Unemployment Rate $15\%+$	0.04	0.2
Urban Location	0.8	0.41
Live in Northeast	0.2	0.4
Live in Northcentral	0.27	0.45
Live in South	0.35	0.48
Live in West	0.17	0.38

There are 46,445 women-year observations.
Sampling weights are used to generate this table.

Table 13: Summary Statistics for ALA Regressions

Variable	**Mean**	**Std**
Children Expected at time $t+1$	2.13	1.1
Children Expected at time t	2.21	1.15
Had Child	0.44	0.5
Number of Children	0.82	1.13
Number of Children (> 0)	1.92	1.08
Have Child Younger Than 6	0.34	0.47
Number of Children Younger Than 6	0.48	0.75
Number of Children Younger Than 6 (> 0)	1.41	0.64
Have Child Older Than 6	0.2	0.4
Number of Children Older Than 6	0.34	0.79
Number of Children Older Than 6 (> 0)	1.73	0.98
No. of Siblings	3.35	2.28
Lived with Mother and Father at 14	0.75	0.43
Lived with Mother and Step-Father at 14	0.06	0.25
Lived with Single Mother at 14	0.12	0.33
Other Household Structure at 14	0.06	0.25
Mother Less Than HS Grad in 1979	0.32	0.47
Mother HS Grad in 1979	0.45	0.5
Mother Some College in 1979	0.11	0.32
Mother College Grad in 1979	0.11	0.31
Father Less Than HS Grad in 1979	0.34	0.47
Father HS Grad in 1979	0.36	0.48
Father Some College in 1979	0.1	0.31
Father College Grad in 1979	0.19	0.4
Mother worked, 1979	0.64	0.48
Father worked, 1979	0.93	0.27
Race Hispanic	0.06	0.24
Race Black	0.14	0.35
Race White	0.79	0.41
Religion Raised None	0.03	0.18
Religion Raised Roman Catholic	0.34	0.47
Religion Raised Protestant	0.50	0.5
Religion Raised Other (Includes Jewish)	0.13	0.33
Age	27.4	5.96
Age Squared	786.29	352.52
Never Married	0.40	0.49
Married	0.48	0.5
Widowed, Separated or Divorced	0.12	0.32
Less Than HS Grad	0.12	0.32
HS Grad	0.42	0.49
Some College	0.26	0.44
College Grad	0.2	0.4
Current Student	0.15	0.36
Health Limits Work	0.06	0.24

Continued on next page

Table 13 – continued from previous page

Variable	Mean	Std
Woman No Health Insurance (HI)	0.14	0.35
Woman's HI thru Her Current Employer	0.42	0.49
Woman's HI thru Her Spouse's Current Employer	0.32	0.47
Woman's HI thru a Previous Employer	0.02	0.15
Woman's HI thru Private Market	0.06	0.24
Woman's HI thru Government	0.07	0.26
Child No Health Insurance (HI)	0.68	0.47
Child(ren)'s HI thru Mother's Current Employer	0.12	0.32
Child(ren)'s HI thru Father's Current Employer	0.18	0.39
Child(ren)'s HI thru Mother's or Father's Previous Employer	0.02	0.12
Child(ren)'s HI thru Private Market	0.04	0.21
Child(ren)'s HI thru Government	0.05	0.22
Health Insurance (Employer Provides)	0.57	0.5
Maternity Leave (Employer Provides)	0.59	0.51
Child Care (Employer Provides)	0.03	0.24
Flexible Work Schedule	0.42	0.56
Non-Worker	0.17	0.37
Part Time Worker	0.26	0.44
Full Time Worker	0.57	0.5
Self-Employed	0.04	0.2
Middle Class	0.38	0.51
Working Class	0.62	0.51
Real Respondent Wage Income ($1,000)	8.72	33.7
Real Family Income Minus Respondent Wage Income ($1,000)	20.22	42.26
Unemployment Rate $3-5.9\%$	0.32	0.47
Unemployment Rate $6-8.9\%$	0.35	0.48
Unemployment Rate $9-11.9\%$	0.17	0.38
Unemployment Rate $12-14.9\%$	0.08	0.27
Unemployment Rate $15\%+$	0.05	0.21
Urban Location	0.8	0.41
Live in Northeast	0.2	0.4
Live in Northcentral	0.27	0.44
Live in South	0.35	0.48
Live in West	0.18	0.38

There are 46,445 women-year observations.
Sampling weights are used to generate this table.

Table 14: Summary Statistics for AD Regressions

Variable	Mean	Std
Children Expected at time t	2.21	1.15
Change in Births at Interview	0.17	0.4
Years Since Last Interview	1.72	0.69
Become Married	0.09	0.29
Become Divorced or Separated	0.04	0.19
Become Widowed	0	0.03
No Change in Marital Status	0.87	0.34
Graduate From High School	0.05	0.21
Start/Return College	0.05	0.22
Leave College	0.02	0.15
Graduate College	0.03	0.16
No Change in Education Level	0.85	0.36
New Health Limitation	0.04	0.19
Improved Health Limitation	0.04	0.19
No Change in Health Status	0.93	0.26
Woman Lost Current Employer HI	0.06	0.23
Woman Lost Other HI	0.01	0.1
Woman Gained New Current Employer HI	0.06	0.24
Woman Gained New Other HI	0.01	0.11
Woman Switched to Current Employer HI	0.03	0.18
Woman Switched From Current Employer HI	0.04	0.19
No Change in the Woman's HI Status	0.79	0.4
Child Lost Current Employer HI	0.04	0.2
Child Lost Other HI	0.01	0.09
Child Gained New Current Employer HI	0.09	0.29
Child Gained New Other HI	0.02	0.14
Child Switched to Current Employer HI	0.02	0.13
Child Switched From Current Employer HI	0.02	0.15
No Change in the Child's HI Status	0.8	0.4
Gain Flexible Work Schedule	0.22	0.41
Lose Flexible Work Schedule	0.19	0.4
No Change in Flexible Work Schedule	0.59	0.49
Gain Child Care (Employer Offered)	0.03	0.18
Lose Child Care (Employer Offered)	0.03	0.17
No Change in Child Care (Employer Offered)	0.94	0.25
Gain Maternity Leave (Employer Offered)	0.17	0.38
Lose Maternity Leave (Employer Offered)	0.15	0.35
No Change in Maternity Leave (Employer Offered)	0.68	0.47
Gain Employer Offered HI	0.15	0.36
Lose Employer Offered HI	0.12	0.32
No Change in Employer Offered HI	0.73	0.44
Work Hours Increase 8 or less	0.19	0.39
Work Hours Increase 9-16	0.09	0.28
Work Hours Increase 17-24	0.05	0.22
Work Hours Increase 25-32	0.03	0.18
Work Hours Increase more than 32	0.05	0.22

Continued on next page

Table 14 – continued from previous page

Variable	Mean	Std
Work Hours Decrease 8 or less	0.17	0.38
Work Hours Decrease 9-16	0.06	0.24
Work Hours Decrease 17-24	0.03	0.18
Work Hours Decrease 25-32	0.02	0.15
Work Hours Decrease more than 32	0.04	0.2
No Change in Work Hours	0.25	0.43
Become Self-Employed	0.03	0.16
Stop Being Self-Employed	0.02	0.13
No Change in Self-Employment Status	0.96	0.2
Move into a Middle Class Occupation	0.14	0.35
Move out of a Middle Class Occupation	0.11	0.31
No Change in Occupation	0.75	0.43
Change in Real Respondent Wage Income ($1,000)	0.85	46.83
Change in Real Family Income Minus Respondent Wage Income ($1,000)	0.02	50.28
Increase in the Unemployment Rate of the Region	0.26	0.44
Decrease in the Unemployment Rate of the Region	0.28	0.45
No Change in the Unemployment Rate of the Region	0.46	0.5
Move into an Urban Area	0.03	0.17
Move out of an Urban Area	0.03	0.18
No Change in Urban Area	0.93	0.25
Changed Region	0.05	0.22

There are 46,445 women-year observations.
Sampling weights are used to generate this table.

Table 15: RE Test Regression Results: OLS, Cumulative Logit, Continuous Ratio

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Weak Rational Expectations Model and Test					
$H_0 : \alpha = 0$	REJECT	REJECT		REJECT	
$H_0 : \beta = 1$	REJECT	REJECT		REJECT	
Intercept 0	0.73***	0.29***		1.31***	
	(0.01)	(0.02)		(0.01)	
Intercept 1		1.75***			
		(0.02)			
Intercept 2		4.47***			
		(0.03)			
Intercept 3		6.43***			
		(0.04)			
Intercept 4		8.37***			
		(0.05)			
Stage				-1.51***	0.22
				(0.01)	
Number of Children Expected	0.62***	-1.54***	0.21	0.97***	2.63
at time t	(0.003)	(0.01)		(0.01)	
N	46,445	46,445		269,440	
R^2	0.4259	0.4601			
Adjusted R^2	0.4259	0.4836		0.4571	
The dependent variable in the OLS and Cumulative Logit regressions is the total number of children expected at time $t + 1$ (rounded at five or more). The dependent variable in the Continuous Ratio Logit regression is an indicator 'Advance' equal to 1 if the woman expects the next number of children, 'Stage' is an indicator set to 1, 2, 3, 4, or 5 or more children. 96,106 women Advance.					
Strong Rational Expectations Model and Test					
$H_0 : \alpha = 0$	REJECT	REJECT		REJECT	
$H_0 : \beta = 1$	REJECT	REJECT		REJECT	
$H_0 : \gamma = 0$	REJECT	REJECT		REJECT	
Intercept 0	1.84***	-2.23***		0.83***	
	(7.83)	(0.22)		(0.14)	
Intercept 1		-0.69***			
		(0.22)			
Intercept 2		2.25***			
		(0.22)			
Intercept 3		4.41***			
		(0.23)			
Intercept 4		6.63***			
		(0.23)			
*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level. Standard errors are in parenthesis under the coefficients.					

Continued on next page

Table 15 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Stage				-1.58***	0.21
				(0.01)	
Number of Children Expected	0.46***	-1.25***	0.29	0.87***	2.39
at time t	(120.86)	(0.01)		(0.01)	
Number of Children	0.41***	-0.97***	0.38	0.18***	1.2
Younger Than 6	(54.24)	(0.02)		(0.01)	
Number of Children	0.42***	-1.05***	0.35	0.25***	1.29
6 and Older	(54.38)	(0.02)		(0.01)	
No. of Siblings	0.004**	-0.01*	0.99	0.002	1
	(2.39)	(0.004)		(0.002)	
Lived with Mother and Step-Father	-0.04	0.11***	1.11	-0.05**	0.95
at age 14	(-0.19)	(0.04)		(0.02)	
Lived with Single Mother	-0.08	0.21***	1.23	-0.16***	0.85
at age 14	(-0.38)	(0.03)		(0.02)	
Other Household Structure	-0.03	0.05	1.05	-0.06***	0.94
at age 14	(-0.14)	(0.03)		(0.02)	
Mother, HS Grad	0.01	-0.02	0.98	0.04***	1.04
	(1.44)	(0.02)		(0.02)	
Mother, Some College	0.05***	-0.12***	0.89	0.1***	1.1
	(3.14)	(0.04)		(0.02)	
Mother, College Grad	0.04**	-0.1**	0.91	0.1***	1.1
	(2.4)	(0.04)		(0.03)	
Father, HS Grad	-0.003	0.01	1.01	0.01	1.01
	(-0.27)	(0.02)		(0.01)	
Father, Some College	0.01	-0.02	0.98	0.004	1
	(0.62)	(0.04)		(0.02)	
Father, College Grad	0.05***	-0.13***	0.87	0.11***	1.11
	(3.24)	(0.04)		(0.03)	
Mother worked, 1979	-0.01	0.02	1.02	0.01	1.01
	(-1.13)	(0.02)		(0.01)	
Father worked, 1979	0.01	-0.03	0.97	0.04*	1.05
	(0.75)	(0.04)		(0.02)	
Race Hispanic	0.07***	-0.13***	0.88	0.24***	1.27
	(5.51)	(0.03)		(0.02)	
Race Black	0.04***	-0.04	0.96	0.25***	1.28
	(3.45)	(0.03)		(0.02)	
Religion Raised Roman Catholic	0.09***	-0.21***	0.81	0.16***	1.18
	(3.92)	(0.05)		(0.04)	
Religion Raised Protestant	0.01	-0.02	0.98	0.05	1.05
	(0.24)	(0.05)		(0.03)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 15 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Religion Raised Other (Includes Jewish)	0.04*	-0.13**	0.88	0.08**	1.08
	(1.68)	(0.06)		(0.04)	
Age	-0.07***	0.15***	1.16	0.1***	1.1
	(-10.03)	(0.02)		(0.01)	
Age Squared	0.001***	-0.001***	1	-0.004***	1
	(4.77)	(0.0003)		(0.0002)	
Married	-0.11***	0.28***	1.32	-0.17***	0.84
	(-10.6)	(0.02)		(0.02)	
Widowed, Separated or Divorced	-0.12***	0.31***	1.37	-0.11***	0.89
	(-8.09)	(0.03)		(0.02)	
HS Grad	0.08***	-0.17***	0.84	0.01	1.01
	(6.78)	(0.03)		(0.02)	
Some College	0.15***	-0.34***	0.71	0.09***	1.09
	(9.92)	(0.03)		(0.02)	
College Grad	0.27***	-0.63***	0.53	0.34***	1.41
	(14.56)	(0.04)		(0.03)	
Current Student	0.07***	-0.16***	0.85	0.08***	1.08
	(5.73)	(0.03)		(0.02)	
Health Limits Work	0.02	-0.05	0.95	0.1***	1.1
	(1.42)	(0.04)		(0.03)	
Woman's HI thru Her Current Employer	0.01	-0.04	0.96	0.004	1
	(0.72)	(0.03)		(0.02)	
Woman's HI thru Her Spouse's Current Employer	0.02	-0.04	0.96	0.005	1
	(0.88)	(0.05)		(0.03)	
Woman's HI thru a Previous Employer	-0.05	0.06	1.06	0.07	1.07
	(-0.65)	(0.18)		(0.11)	
Woman's HI thru Private Market	-0.01	0.02	1.02	-0.12	0.89
	(-0.16)	(0.08)		(0.07)	
Woman's HI thru Government	0.02	-0.06	0.95	0.12***	1.13
	(0.66)	(0.09)		(0.04)	
Child(ren)'s HI thru Mother's Current Employer	-0.04**	0.2***	1.22	0.15***	1.16
	(-2.25)	(0.04)		(0.02)	
Child(ren)'s HI thru Father's Current Employer	0.01	0.08**	1.09	0.2***	1.22
	(0.6)	(0.04)		(0.04)	
Child(ren)'s HI thru Parent's Previous Employer	0.21**	-0.44**	0.64	0.26**	1.3
	(2.28)	(0.21)		(0.12)	
Child(ren)'s HI thru Private Market	0.02	0.06	1.07	0.27***	1.31
	(0.66)	(0.09)		(0.05)	
Child(ren)'s HI thru Government	0.04	-0.08	0.93	0.08*	1.09
	(1.21)	(0.08)		(0.04)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 15 – continued from previous page

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Health Insurance	0.01	-0.04	0.96	0.0001	1
(Employer Provides)	(0.65)	(0.03)		(0.03)	
Maternity Leave	0.004	-0.01	0.99	-0.001	1
(Employer Provides)	(0.3)	(0.03)		(0.03)	
Child Care	0.01	-0.02	0.98	0.05	1.05
(Employer Provides)	(0.48)	(0.05)		(0.04)	
Flexible Work Schedule	0.01	-0.02	0.98	0.001	1
	(0.7)	(0.02)		(0.01)	
Part Time Worker	0.1***	-0.22***	0.8	0.21***	1.23
	(6.8)	(0.03)		(0.02)	
Full Time Worker	0.11***	-0.24***	0.79	0.23***	1.26
	(6.44)	(0.04)		(0.03)	
Self-Employed	-0.04	0.1*	1.11	-0.07**	0.93
	(-1.51)	(0.06)		(0.04)	
Working Class	-0.02**	0.04**	1.04	-0.001	1
	(-2.29)	(0.02)		(0.02)	
Real Family	0.0002	-0.0005*	1	0.001***	1
Income ($1,000)	(1.35)	(0.0003)		(0.0002)	
Real Respondent Wage	0.001***	-0.001***	1	0.001***	1
Income ($1,000)	(4.77)	(0.0003)		(0.0002)	
Unemployment Rate $3-5.9\%$	-0.01	0.03	1.03	-0.03	0.97
	(-0.51)	(0.05)		(0.04)	
Unemployment Rate $6-8.9\%$	-0.002	0.001	1	0.06	1.06
	(-0.08)	(0.05)		(0.04)	
Unemployment Rate $9-11.9\%$	0.004	-0.02	0.98	0.09**	1.1
	(0.19)	(0.05)		(0.04)	
Unemployment Rate $12-14.9\%$	0.02	-0.06	0.94	0.16***	1.18
	(0.66)	(0.06)		(0.04)	
Unemployment Rate $15\%+$	0.04	-0.11	0.9	0.19***	1.21
	(1.38)	(0.07)		(0.05)	
Urban Location	0.03***	-0.08***	0.93	0.09***	1.09
	(2.76)	(0.02)		(0.02)	
Live in Northcentral	0.05***	-0.1***	0.91	0.09***	1.09
	(3.76)	(0.03)		(0.02)	
Live in South	-0.04***	0.09***	1.1	-0.05***	0.95
	(-3.78)	(0.03)		(0.02)	
Live in West	0.03**	-0.06*	0.94	0.02	1.02
	(2.07)	(0.03)		(0.02)	
N	46,445	46,445		269,440	
R^2	0.5037	0.5299			
Adjusted R^2	0.5031	0.5569		0.4734	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Table 16: RE Regression Results: Continuous Ratio Stages

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Intercept	-***	-***	-***	-***	-***
	(0.84)	(-1.35)	(-5.29)	(-5.58)	(-6.09)
	[0.29]	[0.25]	[0.29]	[0.44]	[0.8]
Number of Children Expected	2.4***	2.57***	2.73***	2.73***	2.37***
at time t	(0.87)	(0.94)	(1)	(1)	(0.86)
	[0.01]	[0.01]	[0.01]	[0.02]	[0.02]
Number of Children	0.64***	0.93***	1.48***	1.59***	1.7***
Younger Than 6	(-0.45)	(-0.08)	(0.39)	(0.47)	(0.53)
	[0.02]	[0.02]	[0.02]	[0.03]	[0.04]
Number of Children	0.66***	0.93***	1.55***	1.75***	1.96***
6 and Older	(-0.42)	(-0.07)	(0.44)	(0.56)	(0.67)
	[0.02]	[0.02]	[0.02]	[0.03]	[0.05]
No. of Siblings	0.97***	0.99***	1.03***	1.04***	1.06***
	(-0.03)	(-0.01)	(0.03)	(0.04)	(0.05)
	[0.005]	[0.004]	[0.005]	[0.01]	[0.012]
Lived with Mother and Step-Father	0.95	0.98	1.03	0.9	0.77*
at age 14	(-0.05)	(-0.02)	(0.03)	(-0.1)	(-0.27)
	[0.05]	[0.04]	[0.05]	[0.07]	[0.14]
Lived with Single Mother	0.82***	0.82***	0.88***	0.91*	0.99
at age 14	(-0.19)	(-0.2)	(-0.13)	(-0.09)	(-0.01)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.09]
Other Household Structure	0.89***	0.9***	1.08*	0.94	1.01
at age 14	(-0.11)	(-0.11)	(0.07)	(-0.06)	(0.01)
	[0.04]	[0.04]	[0.04]	[0.06]	[0.11]
Mother, HS Grad	1.03	1.05*	1.05	1.04	1.27***
	(0.03)	(0.05)	(0.05)	(0.04)	(0.24)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.08]
Mother, Some College	1.06	1.06	1.14***	1.14*	1.3*
	(0.06)	(0.06)	(0.13)	(0.13)	(0.26)
	[0.05]	[0.04]	[0.05]	[0.07]	[0.14]
Mother, College Grad	1.07	1.07	1.11**	1.26***	1.32
	(0.07)	(0.07)	(0.1)	(0.23)	(0.28)
	[0.06]	[0.05]	[0.05]	[0.09]	[0.17]
Father, HS Grad	0.99	1.02	1.01	0.98	1.05
	(-0.01)	(0.02)	(0.01)	(-0.02)	(0.05)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.08]
Father, Some College	0.98	1.01	0.97	1.09	1.08
	(-0.02)	(0.01)	(-0.03)	(0.09)	(0.08)
	[0.05]	[0.04]	[0.05]	[0.07]	[0.14]

The dependent variable is an indicator 'Advance' equal to 1 if the woman expects at least the number of children in each 'Stage,' which is set to 1, 2, 3, 4, and 5 or more children.
There are 46,445 women-year observations.

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 16 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Father, College Grad	1.02	1.16***	1.24***	1.03	1.02
	(0.02)	(0.15)	(0.22)	(0.03)	(0.02)
	[0.05]	[0.05]	[0.05]	[0.08]	[0.17]
Mother worked, 1979	1.03	1.05**	0.97	0.98	0.98
	(0.02)	(0.05)	(-0.03)	(-0.02)	(-0.02)
	[0.03]	[0.02]	[0.03]	[0.04]	[0.07]
Father worked, 1979	1.1**	1.07	1.07	0.92	0.93
	(0.09)	(0.07)	(0.07)	(-0.08)	(-0.07)
	[0.04]	[0.04]	[0.04]	[0.06]	[0.12]
Race Hispanic	1.48***	1.26***	1.21***	1.24***	1.14
	(0.39)	(0.23)	(0.19)	(0.21)	(0.13)
	[0.04]	[0.04]	[0.04]	[0.06]	[0.11]
Race Black	1.77***	1.25***	1.1***	1.18***	1.27***
	(0.57)	(0.22)	(0.09)	(0.16)	(0.24)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.09]
Religion Raised Roman Catholic	1.21***	1.16***	1.21***	1.17	1.44*
	(0.19)	(0.15)	(0.19)	(0.15)	(0.37)
	[0.07]	[0.06]	[0.07]	[0.11]	[0.2]
Religion Raised Protestant	1.15**	1.03	1	1.01	1.2
	(0.14)	(0.03)	(-0.004)	(0.01)	(0.18)
	[0.06]	[0.06]	[0.07]	[0.11]	[0.19]
Religion Raised Other (Includes Jewish)	1.03	1.02	1.21***	1.1	1.24
	(0.03)	(0.02)	(0.19)	(0.1)	(0.21)
	[0.07]	[0.07]	[0.07]	[0.12]	[0.21]
Age	0.96**	1.04**	1.16***	1.06**	0.98
	(-0.04)	(0.04)	(0.15)	(0.06)	(-0.02)
	[0.02]	[0.02]	[0.02]	[0.03]	[0.05]
Age Squared	1***	1***	1***	1***	1
	(-0.001)	(-0.003)	(-0.004)	(-0.003)	(-0.001)
	[0.0003]	[0.0003]	[0.0004]	[0.001]	[0.0009]
Married	0.83***	0.81***	0.94**	0.8***	0.73***
	(-0.18)	(-0.22)	(-0.06)	(-0.22)	(-0.32)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.1]
Widowed, Separated or Divorced	0.95	0.8***	1.01	0.92	0.99
	(-0.05)	(-0.23)	(0.01)	(-0.08)	(-0.01)
	[0.04]	[0.04]	[0.05]	[0.07]	[0.11]
High School	1.1***	1.11***	0.98	0.98	0.93
	(0.1)	(0.1)	(-0.02)	(-0.02)	(-0.07)
	[0.04]	[0.03]	[0.04]	[0.05]	[0.09]
Some College	1.14***	1.15***	1.1**	1.03	1.13
	(0.13)	(0.14)	(0.1)	(0.03)	(0.12)
	[0.04]	[0.04]	[0.04]	[0.06]	[0.11]
College Grad	1.39***	1.54***	1.32***	1.23**	1.06
	(0.33)	(0.43)	(0.28)	(0.21)	(0.06)
	[0.05]	[0.05]	[0.06]	[0.09]	[0.18]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 16 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Current Student	0.98	1.22***	1.09**	1.08	1.04
	(-0.02)	(0.2)	(0.08)	(0.08)	(0.04)
	[0.04]	[0.03]	[0.04]	[0.06]	[0.11]
Health Limits Work	1.08*	0.99	1.19***	1.29***	1.19
	(0.08)	(-0.01)	(0.18)	(0.25)	(0.17)
	[0.05]	[0.05]	[0.05]	[0.07]	[0.13]
Woman's HI thru Her	0.97	0.98	0.99	1.03	0.96
Current Employer	(-0.03)	(-0.02)	(-0.01)	(0.03)	(-0.04)
	[0.04]	[0.04]	[0.04]	[0.08]	[0.12]
Woman's HI thru Her Spouse's	0.98	1.01	0.99	0.99	1.01
Current Employer	(-0.02)	(0.01)	(-0.01)	(-0.01)	(0.01)
	[0.05]	[0.04]	[0.05]	[0.08]	[0.12]
Woman's HI thru a	0.96	1.05	1.08	1.04	0.6
Previous Employer	(-0.04)	(0.04)	(0.08)	(0.04)	(-0.52)
	[0.17]	[0.17]	[0.23]	[0.37]	[0.67]
Woman's HI thru Private Market	0.84*	0.88	0.88	0.96	0.85
	(-0.17)	(-0.12)	(-0.13)	(-0.04)	(-0.16)
	[0.1]	[0.1]	[0.09]	[0.16]	[0.35]
Woman's HI thru Government	1.21***	1.18***	1.07	0.98	0.98
	(0.19)	(0.17)	(0.07)	(-0.02)	(-0.02)
	[0.07]	[0.06]	[0.08]	[0.1]	[0.15]
Child(ren)'s HI thru Mother's	1.76***	1.5***	1.09**	0.9	0.89
Current Employer	(0.56)	(0.41)	(0.08)	(-0.1)	(-0.11)
	[0.05]	[0.04]	[0.04]	[0.08]	[0.16]
Child(ren)'s HI thru Father's	1.74***	1.55***	1.15***	1.01	0.89
Current Employer	(0.56)	(0.44)	(0.14)	(0.01)	(-0.12)
	[0.07]	[0.04]	[0.05]	[0.08]	[0.14]
Child(ren)'s HI thru Parent's	1.47**	1.44*	1.6*	1.79	2.76*
Previous Employer	(0.39)	(0.37)	(0.47)	(0.58)	(1.02)
	[0.2]	[0.2]	[0.25]	[0.37]	[0.6]
Child(ren)'s HI thru Private Market	1.94***	1.75***	1.19	0.97	0.81
	(0.67)	(0.56)	(0.17)	(-0.03)	(-0.21)
	[0.09]	[0.09]	[0.11]	[0.17]	[0.25]
Child(ren)'s HI thru Government	1.21*	1.19**	1.03	0.96	0.97
	(0.19)	(0.18)	(0.03)	(-0.04)	(-0.03)
	[0.09]	[0.07]	[0.08]	[0.1]	[0.15]
Health Insurance	0.99	1.05	0.97	0.91	0.82
(Employer Provides)	(-0.01)	(0.05)	(-0.03)	(-0.1)	(-0.19)
	[0.05]	[0.05]	[0.05]	[0.06]	[0.17]
Maternity Leave	0.99	0.97	1.01	1	1.09
(Employer Provides)	(-0.01)	(-0.03)	(0.01)	(0.005)	(0.08)
	[0.05]	[0.06]	[0.04]	[0.07]	[0.14]
Child Care	1.02	1.05	1.07	1.11	1.11
(Employer Provides)	(0.02)	(0.05)	(0.07)	(0.1)	(0.1)
	[0.06]	[0.06]	[0.05]	[0.08]	[0.18]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 16 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Flexible Work Schedule	0.99	1	1	1.01	1.03
	(-0.01)	(-0.0004)	(-0.0045)	(0.01)	(0.03)
	[0.03]	[0.02]	[0.02]	[0.04]	[0.09]
Part Time Worker	1.34***	1.36***	1.17***	1.17**	1.06
	(0.3)	(0.31)	(0.16)	(0.16)	(0.05)
	[0.04]	[0.04]	[0.04]	[0.07]	[0.12]
Full Time Worker	1.43***	1.4***	1.12***	1.05	1.03
	(0.36)	(0.33)	(0.11)	(0.05)	(0.03)
	[0.05]	[0.04]	[0.04]	[0.07]	[0.13]
Self-Employed	0.86**	0.91	0.92	0.99	1.41**
	(-0.15)	(-0.09)	(-0.08)	(-0.01)	(0.35)
	[0.06]	[0.06]	[0.07]	[0.11]	[0.17]
Working Class	1.02	0.99	1	0.98	0.94
	(0.02)	(-0.01)	(-0.0046)	(-0.02)	(-0.06)
	[0.03]	[0.03]	[0.03]	[0.04]	[0.08]
Real Family	1**	1	1	1	0.99
Income ($1,000)	(0.003)	(0.001)	(0.0003)	(0.001)	(-0.006)
	[0.002]	[0.0005]	[0.0003]	[0.0004]	[0.006]
Real Respondent Wage	1*	1**	1***	1**	1
Income ($1,000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
	[0.0004]	[0.0004]	[0.0004]	[0.001]	[0.001]
Unemployment Rate $3-5.9\%$	0.98	0.98	0.94	1.02	0.87
	(-0.02)	(-0.02)	(-0.07)	(0.02)	(-0.14)
	[0.09]	[0.07]	[0.07]	[0.12]	[0.2]
Unemployment Rate $6-8.9\%$	1.09	1.09	1	1.07	1
	(0.08)	(0.09)	(0)	(0.07)	(-0.002)
	[0.1]	[0.07]	[0.07]	[0.13]	[0.19]
Unemployment Rate $9-11.9\%$	1.22*	1.15**	0.98	1.04	1.02
	(0.2)	(0.14)	(-0.02)	(0.04)	(0.02)
	[0.1]	[0.07]	[0.07]	[0.13]	[0.2]
Unemployment Rate $12-14.9\%$	1.32***	1.23***	1.1	1.05	0.88
	(0.27)	(0.21)	(0.09)	(0.05)	(-0.13)
	[0.1]	[0.08]	[0.08]	[0.14]	[0.22]
Unemployment Rate $15\%+$	1.37***	1.33***	1.09	1.06	0.78
	(0.31)	(0.28)	(0.09)	(0.06)	(-0.25)
	[0.11]	[0.08]	[0.09]	[0.15]	[0.25]
Urban Location	1.12***	1.17***	1.04	0.99	0.96
	(0.11)	(0.15)	(0.04)	(-0.01)	(-0.04)
	[0.03]	[0.03]	[0.03]	[0.05]	[0.09]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 16 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Live in Northcentral	1.05	1.09***	1.17***	1.19***	1.11
	(0.05)	(0.09)	(0.15)	(0.18)	(0.11)
	[0.04]	[0.03]	[0.04]	[0.06]	[0.1]
Live in South	1.01	0.97	0.9***	0.87***	0.96
	(0.01)	(-0.03)	(-0.1)	(-0.14)	(-0.05)
	[0.04]	[0.03]	[0.04]	[0.06]	[0.1]
Live in West	0.99	0.98	0.99	1.18***	1.28**
	(-0.01)	(-0.03)	(-0.01)	(0.16)	(0.25)
	[0.04]	[0.04]	[0.04]	[0.06]	[0.11]
Adjusted R^2	0.2086	0.2736	0.2817	0.1915	0.0911
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$	$< .0001$	$< .0001$	$< .0001$

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Table 17: ALA Test Regression Results: OLS, Cumulative Logit, Continuous Ratio

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Test $H_0 : \alpha_0 = 0$	REJECT	REJECT		REJECT	
Test $H_0 : \gamma = 1 - \beta$	REJECT	REJECT		REJECT	
Test $H_0 : \gamma = 0$	REJECT	REJECT		REJECT	
Test $H_0 : \gamma = 1$	REJECT	REJECT		REJECT	
Intercept 0	2.31***	-3.53***		6.63***	
	(0.1)	(0.24)		(0.2)	
Intercept 1		-1.94***			
		(0.24)			
Intercept 2		1.1***			
		(0.24)			
Intercept 3		3.35***			
		(0.24)			
Intercept 4		5.65***			
		(0.25)			
Stage				-2.34***	0.1
				(0.01)	
Number of Children Expected at t	0.43***	-1.22***	0.29	1.09***	2.97
	(0.004)	(0.01)		(0.01)	
Number of Children Younger Than 6	0.43***	-1.08***	0.34	1.08***	2.94
	(0.01)	(0.02)		(0.01)	
Number of Children 6 and Older	0.44***	-1.17***	0.31	1.2***	3.31
	(0.01)	(0.02)		(0.01)	
No. of Siblings	0.004**	-0.01	0.99	0.01*	1.01
	(0.002)	(0.004)		(0.003)	
Lived with Mother and Step-Father at age 14	-0.05***	0.13***	1.14	-0.15***	0.86
	(0.02)	(0.04)		(0.03)	
Lived with Single Mother at age 14	-0.09***	0.22***	1.24	-0.22***	0.8
	(0.01)	(0.03)		(0.02)	
Other Household Structure at age 14	-0.03***	0.06*	1.06	-0.09***	0.91
	(0.01)	(0.03)		(0.03)	
Mother, HS Grad	0.01	-0.01	0.99	0.02	1.02
	(0.01)	(0.02)		(0.02)	
Mother, Some College	0.05***	-0.12***	0.88	0.12***	1.13
	(0.02)	(0.04)		(0.03)	
Mother, College Grad	0.04**	-0.09**	0.91	0.1***	1.1
	(0.02)	(0.04)		(0.04)	
Father, HS Grad	-0.01	0.02	1.02	-0.02	0.98
	(0.01)	(0.02)		(0.02)	

The dependent variable in (1) and (2) is the total number of children expected in period $t + 1$ and the dependent variable in (4) is an indicator for whether the woman expects at least the next number of children.

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page.

Table 17 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Father, Some College	0.01	-0.03	0.97	0.03	1.03
	(0.02)	(0.04)		(0.03)	
Father, College Grad	0.06***	-0.14***	0.87	0.13***	1.13
	(0.02)	(0.04)		(0.03)	
Mother worked, 1979	-0.01	0.02	1.02	-0.02	0.98
	(0.01)	(0.02)		(0.02)	
Father worked, 1979	0.01	-0.03	0.97	0.003	1
	(0.01)	(0.03)		(0.03)	
Race Hispanic	0.05***	-0.07**	0.93	0.1***	1.1
	(0.01)	(0.03)		(0.03)	
Race Black	0.02	0.02	1.03	0.02	1.02
	(0.01)	(0.03)		(0.02)	
Religion Raised Roman Catholic	0.1***	-0.23***	0.79	0.24***	1.27
	(0.02)	(0.05)		(0.04)	
Religion Raised Protestant	0.01	-0.02	0.98	0.03	1.03
	(0.02)	(0.05)		(0.04)	
Religion Raised Other (Includes Jewish)	0.05**	-0.15***	0.86	0.13***	1.14
	(0.02)	(0.06)		(0.05)	
Age	-0.1***	0.23***	1.26	-0.24***	0.79
	(0.01)	(0.02)		(0.01)	
Age Squared	0.001***	-0.002***	1	0.002***	1
	(0.0001)	(0.0003)		(0.0002)	
Married	-0.09***	0.25***	1.29	-0.24***	0.79
	(0.01)	(0.02)		(0.02)	
Widowed, Separated or Divorced	-0.17***	0.45***	1.56	-0.45***	0.64
	(0.01)	(0.03)		(0.03)	
HS Grad	0.11***	-0.25***	0.78	0.26***	1.29
	(0.01)	(0.03)		(0.02)	
Some College	0.19***	-0.46***	0.63	0.46***	1.58
	(0.01)	(0.03)		(0.03)	
College Grad	0.3***	-0.74***	0.48	0.75***	2.11
	(0.02)	(0.04)		(0.03)	
Current Student	0.07***	-0.18***	0.83	0.16***	1.17
	(0.01)	(0.03)		(0.02)	
Health Limits Work	0.05***	-0.12***	0.88	0.11***	1.12
	(0.02)	(0.04)		(0.03)	
Woman's HI thru Her Current Employer	0.09***	-0.22***	0.8	0.22***	1.24
	(0.01)	(0.03)		(0.02)	
Woman's HI thru Her Spouse's Current Employer	0.06***	-0.15***	0.86	0.15***	1.17
	(0.01)	(0.04)		(0.03)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page.

Table 17 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Woman's HI thru a	-0.01	-0.03	0.97	0.01	1.01
Previous Employer	(0.06)	(0.14)		(0.11)	
Woman's HI thru Private Market	0.05*	-0.1	0.9	0.13**	1.14
	(0.03)	(0.07)		(0.06)	
Woman's HI thru Government	-0.003	0.02	1.02	-0.02	0.98
	(0.02)	(0.05)		(0.05)	
Child(ren)'s HI thru Mother's	-0.13***	0.43***	1.53	-0.39***	0.68
Current Employer	(0.01)	(0.03)		(0.03)	
Child(ren)'s HI thru Father's	-0.08***	0.31***	1.36	-0.29***	0.75
Current Employer	(0.02)	(0.05)		(0.05)	
Child(ren)'s HI thru Parent's	-0.03	0.19	1.21	-0.15	0.86
Previous Employer	(0.07)	(0.17)		(0.14)	
Child(ren)'s HI thru Private Market	0.01	0.11	1.11	-0.09	0.92
	(0.03)	(0.07)		(0.06)	
Child(ren)'s HI thru Government	0.02	-0.05	0.95	0.06	1.06
	(0.02)	(0.05)		(0.05)	
Health Insurance	0.01	-0.02	0.98	0.02	1.02
(Employer Provides)	(0.02)	(0.04)		(0.04)	
Maternity Leave	-0.01	0.01	1.01	-0.02	0.98
(Employer Provides)	(0.02)	(0.04)		(0.03)	
Child Care	0.01	-0.03	0.97	0.04	1.04
(Employer Provides)	(0.02)	(0.06)		(0.05)	
Flexible Work Schedule	0.01	-0.03	0.98	0.02	1.02
	(0.01)	(0.02)		(0.02)	
Part Time Worker	0.08***	-0.18***	0.84	0.19***	1.21
	(0.01)	(0.03)		(0.03)	
Full Time Worker	0.1***	-0.25***	0.78	0.26***	1.3
	(0.01)	(0.03)		(0.03)	
Self-Employed	-0.02	0.09	1.09	-0.07	0.93
	(0.02)	(0.05)		(0.05)	
Working Class	-0.02**	0.05**	1.05	-0.05**	0.95
	(0.01)	(0.02)		(0.02)	
Real Family	-0.0001	0.0003	1	-0.0003	1
Income ($1,000)	(0.0001)	(0.0003)		(0.0002)	
Real Respondent Wage	0.0004***	-0.001**	1	0.001***	1
Income ($1,000)	(0.0001)	(0.0003)		(0.0003)	
Unemployment Rate $3-5.9\%$	0.02	-0.06	0.95	0.05	1.06
	(0.02)	(0.05)		(0.04)	
Unemployment Rate $6-8.9\%$	0.005	-0.02	0.98	0.02	1.02
	(0.02)	(0.06)		(0.05)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page.

Table 17 – continued from previous page

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate $9-11.9\%$	0.005	-0.02	0.98	0.02	1.02
	(0.02)	(0.06)		(0.05)	
Unemployment Rate $12-14.9\%$	0.01	-0.04	0.96	0.03	1.03
	(0.03)	(0.06)		(0.05)	
Unemployment Rate $15\%+$	0.01	-0.05	0.95	0.03	1.03
	(0.03)	(0.07)		(0.05)	
Urban Location	0.04***	-0.12***	0.89	0.12***	1.12
	(0.01)	(0.03)		(0.02)	
Live in Northcentral	0.04***	-0.08***	0.92	0.08***	1.09
	(0.01)	(0.03)		(0.02)	
Live in South	-0.05***	0.11***	1.12	-0.12***	0.89
	(0.01)	(0.03)		(0.02)	
Live in West	0.03***	-0.07**	0.93	0.08***	1.09
	(0.01)	(0.03)		(0.03)	
N	46,445	46,445		232,225	0.89
R^2	0.5289	0.5552			
Adjusted R^2	0.5284	0.5835		0.6447	1.09

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Table 18: Continuous Ratio Stages ALA Results

Parameter	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
Intercept 0	-***	-***	-***	-***	-
	(4.18)	(1.53)	(-1.91)	(-1.57)	(-1.55)
	[0.48]	[0.36]	[0.37]	[0.52]	[1.03]
Number of Children Expected	3.58***	2.91***	3.07***	2.91***	2.45***
at time t	(1.27)	(1.07)	(1.12)	(1.07)	(0.89)
	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]
Number of Children		5.73***	2.98***	2.38***	2.3***
Younger Than 6		(1.75)	(1.09)	(0.87)	(0.83)
		[0.05]	[0.03]	[0.03]	[0.04]
Number of Children		5.97***	3.72***	2.91***	2.88***
6 and Older		(1.79)	(1.31)	(1.07)	(1.06)
		[0.05]	[0.03]	[0.03]	[0.05]
No. of Siblings	0.96***	0.99*	1.03***	1.04***	1.06***
	(-0.04)	(-0.01)	(0.03)	(0.04)	(0.06)
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Lived with Mother and Step-Father	0.93	0.86***	0.93	0.81***	0.68***
at age 14	(-0.08)	(-0.15)	(-0.07)	(-0.21)	(-0.39)
	[0.07]	[0.06]	[0.05]	[0.08]	[0.15]
Lived with Single Mother	0.77***	0.77***	0.84***	0.87***	0.94
at age 14	(-0.26)	(-0.26)	(-0.18)	(-0.14)	(-0.06)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.1]
Other Household Structure	0.89*	0.85***	1.07	0.89*	0.96
at age 14	(-0.11)	(-0.16)	(0.06)	(-0.12)	(-0.04)
	[0.07]	[0.05]	[0.05]	[0.07]	[0.12]
Mother, HS Grad	0.93	0.99	1.04	1.03	1.25**
	(-0.07)	(-0.01)	(0.03)	(0.03)	(0.22)
	[0.05]	[0.04]	[0.03]	[0.05]	[0.11]
Mother, Some College	1.02	1.07	1.18***	1.19**	1.34*
	(0.02)	(0.07)	(0.17)	(0.17)	(0.29)
	[0.07]	[0.06]	[0.05]	[0.08]	[0.15]
Mother, College Grad	1.03	1.02	1.1	1.24**	1.29
	(0.03)	(0.02)	(0.1)	(0.22)	(0.25)
	[0.09]	[0.07]	[0.06]	[0.09]	[0.2]
Father, HS Grad	0.96	0.99	1	0.94	1.09
	(-0.04)	(-0.01)	(0.001)	(-0.06)	(0.09)
	[0.05]	[0.04]	[0.04]	[0.05]	[0.1]
Father, Some College	0.96	1.03	1	1.14	1.17
	(-0.05)	(0.03)	(-0.001)	(0.13)	(0.15)
	[0.07]	[0.06]	[0.07]	[0.08]	[0.14]

The dependent variable is an indicator 'Advance' equal to 1 if the woman expects at least the number of children in each 'Stage,' which is set to 1, 2, 3, 4, and 5 or more children.
There are 46,445 women-year observations.

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 18 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Father, College Grad	1.01	1.16***	1.26***	1.01	1.02
	(0.01)	(0.15)	(0.23)	(0.01)	(0.02)
	[0.08]	[0.05]	[0.05]	[0.08]	[0.15]
Mother worked, 1979	0.99	1.02	0.94**	0.97	1
	(-0.01)	(0.02)	(-0.06)	(-0.03)	(0.002)
	[0.04]	[0.03]	[0.03]	[0.04]	[0.08]
Father worked, 1979	1.11*	0.98	1.04	0.87**	0.95
	(0.11)	(-0.02)	(0.04)	(-0.14)	(-0.05)
	[0.06]	[0.05]	[0.05]	[0.07]	[0.13]
Race Hispanic	1.72***	1	1.06	1.08	0.96
	(0.54)	(-0.001)	(0.05)	(0.08)	(-0.04)
	[0.07]	[0.05]	[0.04]	[0.07]	[0.12]
Race Black	2.09***	0.88***	0.85***	0.96	1.05
	(0.74)	(-0.13)	(-0.17)	(-0.04)	(0.05)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.1]
Religion Raised Roman Catholic	1.31***	1.21**	1.24***	1.21*	1.43*
	(0.27)	(0.19)	(0.22)	(0.19)	(0.36)
	[0.1]	[0.08]	[0.08]	[0.12]	[0.21]
Religion Raised Protestant	1.14	0.98	0.97	1.01	1.17
	(0.13)	(-0.02)	(-0.03)	(0.01)	(0.15)
	[0.1]	[0.08]	[0.08]	[0.11]	[0.2]
Religion Raised Other	0.97	1.09	1.26***	1.14	1.24
(Includes Jewish)	(-0.03)	(0.09)	(0.23)	(0.13)	(0.21)
	[0.11]	[0.09]	[0.08]	[0.12]	[0.22]
Age	0.74***	0.83***	0.87***	0.76***	0.67***
	(-0.31)	(-0.19)	(-0.14)	(-0.27)	(-0.4)
	[0.03]	[0.02]	[0.02]	[0.03]	[0.06]
Age Squared	1***	1***	1*	1***	1***
	(0.004)	(0.002)	(0.001)	(0.003)	(0.005)
	[0.0005]	[0.0004]	[0.0004]	[0.001]	[0.001]
Married	1.07	0.78***	0.8***	0.67***	0.68***
	(0.06)	(-0.25)	(-0.23)	(-0.4)	(-0.39)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.1]
Widowed, Separated or	0.91	0.52***	0.68***	0.64***	0.65***
Divorced	(-0.09)	(-0.65)	(-0.38)	(-0.44)	(-0.43)
	[0.06]	[0.05]	[0.05]	[0.07]	[0.12]
High School	1.28***	1.45***	1.19***	1.17***	1.1
	(0.24)	(0.37)	(0.17)	(0.16)	(0.1)
	[0.05]	[0.05]	[0.04]	[0.06]	[0.1]
Some College	1.35***	1.7***	1.59***	1.43***	1.47***
	(0.3)	(0.53)	(0.46)	(0.36)	(0.39)
	[0.07]	[0.05]	[0.05]	[0.07]	[0.12]
College Grad	1.66***	2.57***	2.04***	1.86***	1.46**
	(0.51)	(0.94)	(0.71)	(0.62)	(0.38)
	[0.08]	[0.06]	[0.06]	[0.09]	[0.18]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 18 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Current Student	0.83***	1.3***	1.16***	1.13**	1.32***
	(-0.18)	(0.26)	(0.15)	(0.13)	(0.28)
	[0.06]	[0.04]	[0.04]	[0.06]	[0.11]
Health Limits Work	1.27***	0.88**	1.27***	1.19**	1.17
	(0.24)	(-0.13)	(0.24)	(0.17)	(0.16)
	[0.08]	[0.06]	[0.06]	[0.08]	[0.13]
Woman's HI thru Her	1.04	1.27***	1.27***	1.28***	1.32***
Current Employer	(0.04)	(0.24)	(0.24)	(0.24)	(0.28)
	[0.06]	[0.04]	[0.05]	[0.07]	[0.1]
Woman's HI thru Her Spouse's	1.07	1.24***	1.14**	1.17**	1.26**
Current Employer	(0.06)	(0.22)	(0.13)	(0.16)	(0.23)
	[0.07]	[0.07]	[0.06]	[0.07]	[0.12]
Woman's HI thru a	0.63**	1.06	1.08	1.8*	1.86
Previous Employer	(-0.46)	(0.06)	(0.08)	(0.59)	(0.62)
	[0.21]	[0.2]	[0.23]	[0.34]	[0.75]
Woman's HI thru Private Market	0.92	1.36***	1.09	1.26	0.98
	(-0.08)	(0.31)	(0.08)	(0.23)	(-0.02)
	[0.12]	[0.11]	[0.09]	[0.15]	[0.28]
Woman's HI thru Government	1.17	0.95	0.93	0.87*	1.09
	(0.16)	(-0.05)	(-0.07)	(-0.14)	(0.09)
	[0.1]	[0.09]	[0.07]	[0.09]	[0.15]
Child(ren)'s HI thru Mother's	6.28***	0.39***	0.58***	0.55***	0.52***
Current Employer	(1.84)	(-0.93)	(-0.54)	(-0.59)	(-0.66)
	[0.11]	[0.07]	[0.05]	[0.08]	[0.15]
Child(ren)'s HI thru Father's	4.14***	0.52***	0.66***	0.64***	0.62***
Current Employer	(1.42)	(-0.65)	(-0.42)	(-0.45)	(-0.49)
	[0.08]	[0.1]	[0.08]	[0.07]	[0.13]
Child(ren)'s HI thru Parent's	5.31***	0.62*	0.75	0.34***	0.39
Previous Employer	(1.67)	(-0.47)	(-0.29)	(-1.08)	(-0.93)
	[0.4]	[0.28]	[0.26]	[0.42]	[0.77]
Child(ren)'s HI thru Private Market	4.84***	0.6***	0.83*	0.67**	0.76
	(1.58)	(-0.51)	(-0.19)	(-0.4)	(-0.28)
	[0.18]	[0.13]	[0.11]	[0.18]	[0.25]
Child(ren)'s HI thru Government	4.16***	0.68***	0.96	1.04	0.94
	(1.43)	(-0.39)	(-0.04)	(0.04)	(-0.06)
	[0.13]	[0.1]	[0.09]	[0.09]	[0.16]
Health Insurance	1.07	1.07	0.97	0.94	0.94
(Employer Provides)	(0.07)	(0.07)	(-0.03)	(-0.06)	(-0.06)
	[0.06]	[0.06]	[0.06]	[0.08]	[0.12]
Maternity Leave	0.99	0.99	0.98	0.97	0.92
(Employer Provides)	(-0.01)	(-0.01)	(-0.02)	(-0.03)	(-0.08)
	[0.07]	[0.05]	[0.05]	[0.08]	[0.11]
Child Care	0.99	1.04	1.1	1.03	0.86
(Employer Provides)	(-0.01)	(0.04)	(0.09)	(0.03)	(-0.15)
	[0.09]	[0.09]	[0.07]	[0.11]	[0.18]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 18 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Flexible Work Schedule	1.02	1.04	1.01	1.03	1.05
	(0.02)	(0.04)	(0.01)	(0.03)	(0.05)
	[0.05]	[0.03]	[0.03]	[0.05]	[0.17]
Part Time Worker	1.29***	1.36***	1.05	1.09	1.04
	(0.25)	(0.31)	(0.05)	(0.09)	(0.04)
	[0.07]	[0.05]	[0.05]	[0.07]	[0.15]
Full Time Worker	1.33***	1.52***	1.12**	1.07	1.06
	(0.28)	(0.42)	(0.11)	(0.07)	(0.06)
	[0.07]	[0.05]	[0.05]	[0.08]	[0.14]
Self-Employed	0.88	0.97	0.94	0.93	1.39*
	(-0.13)	(-0.04)	(-0.06)	(-0.08)	(0.33)
	[0.1]	[0.08]	[0.08]	[0.11]	[0.18]
Working Class	0.97	0.93**	0.96	0.98	0.93
	(-0.03)	(-0.07)	(-0.04)	(-0.02)	(-0.07)
	[0.04]	[0.03]	[0.03]	[0.06]	[0.09]
Real Family	1	1	1	1	1
Income ($1,000)	(-0.0003)	(-0.0004)	(-0.001)	(-0.004)	(-0.002)
	[0.001]	[0.0004]	[0.001]	[0.003]	[0.01]
Real Respondent Wage	1	1***	1	1	1
Income ($1,000)	(0.001)	(0.002)	(0.0005)	(0.0004)	(-0.0003)
	[0.001]	[0.001]	[0.0004]	[0.001]	[0.001]
Unemployment Rate $3-5.9\%$	0.93	1.05	1.08	1.23	1.22
	(-0.07)	(0.05)	(0.07)	(0.21)	(0.2)
	[0.09]	[0.08]	[0.09]	[0.13]	[0.24]
Unemployment Rate $6-8.9\%$	0.94	1.05	1	1.1	1.23
	(-0.06)	(0.05)	(-0.001)	(0.1)	(0.21)
	[0.1]	[0.08]	[0.09]	[0.13]	[0.25]
Unemployment Rate $9-11.9\%$	1.04	1.08	0.94	1.18	1.21
	(0.04)	(0.08)	(-0.07)	(0.16)	(0.19)
	[0.1]	[0.09]	[0.09]	[0.13]	[0.26]
Unemployment Rate $12-14.9\%$	1.1	1.06	1.03	1.05	1.12
	(0.1)	(0.06)	(0.03)	(0.05)	(0.11)
	[0.12]	[0.09]	[0.1]	[0.14]	[0.28]
Unemployment Rate $15\%+$	1.03	1.13	1.01	1.1	0.88
	(0.03)	(0.12)	(0.01)	(0.1)	(-0.13)
	[0.13]	[0.1]	[0.11]	[0.15]	[0.29]
Urban Location	1.17***	1.24***	1.04	1.02	1
	(0.15)	(0.21)	(0.04)	(0.02)	(0.005)
	[0.05]	[0.04]	[0.04]	[0.05]	[0.1]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 18 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Live in Northcentral	1.07	1.08	1.14***	1.16**	1.06
	(0.07)	(0.07)	(0.13)	(0.15)	(0.06)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.11]
Live in South	1.01	0.89***	0.85***	0.84***	0.92
	(0.01)	(-0.12)	(-0.17)	(-0.17)	(-0.09)
	[0.05]	[0.04]	[0.04]	[0.06]	[0.11]
Live in West	1.16**	1.05	1.03	1.26***	1.32**
	(0.14)	(0.05)	(0.03)	(0.23)	(0.28)
	[0.06]	[0.05]	[0.04]	[0.06]	[0.12]
Adjusted R^2	0.4865	0.5614	0.4438	0.2742	0.1273
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$	$< .0001$	$< .0001$	$< .0001$

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Table 19: AD Test Regression Results: OLS, Cumulative Logit, Continuous Ratio

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Intercept 0	0.85***	0.001		2.69***	
	(0.02)	(0.04)		(0.03)	
Intercept 1		1.51***			
		(0.04)			
Intercept 2		4.35***			
		(0.04)			
Intercept 3		6.37***			
		(0.05)			
Intercept 4		8.37***			
		(0.06)			
Stage				-2.15***	0.12
				(0.01)	
Number of Children Expected at time t	0.59***	-1.53***	0.22	1.36***	3.91
	(0.003)	(0.01)		(0.01)	
Change in Births at Interview	0.52***	-1.14***	0.32	1.14***	3.13
	(0.01)	(0.03)		(0.02)	
Years Since Last Interview	-0.11***	0.25***	1.28	-0.25***	0.78
	(0.01)	(0.01)		(0.01)	
Become Married	0.03*	-0.04	0.96	0.06**	1.06
	(0.01)	(0.03)		(0.03)	
Become Divorced or Separated	-0.1***	0.21***	1.24	-0.24***	0.79
	(0.02)	(0.05)		(0.04)	
Become Widowed	-0.45***	0.68***	1.96	-0.7***	0.5
	(0.11)	(0.26)		(0.21)	
Graduate From High School	0.12***	-0.23***	0.8	0.27***	1.3
	(0.02)	(0.05)		(0.04)	
Start/Return College	0.12***	-0.23***	0.79	0.25***	1.28
	(0.02)	(0.04)		(0.03)	
Leave College	0.01	-0.04	0.97	0.03	1.03
	(0.03)	(0.06)		(0.05)	
Graduate College	0.09***	-0.17***	0.84	0.18***	1.2
	(0.03)	(0.06)		(0.05)	
New Health Limitation	0.03	-0.11**	0.9	0.07**	1.08
	(0.02)	(0.05)		(0.04)	
Improved Health Limitation	-0.08***	0.2***	1.22	-0.19***	0.83
	(0.02)	(0.05)		(0.04)	

The dependent variable in (1) and (2) is the total number of children expected in period $t + 1$ and the dependent variable in (4) is an indicator for whether the woman expects at least the next number of children.
There are 46,445 women-year observations.

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 19 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Woman Lost Current Employer HI	-0.07**	0.15**	1.16	-0.16**	0.85
	(0.03)	(0.06)		(0.06)	
Woman Lost Other HI	0.12**	-0.29**	0.75	0.27**	1.31
	(0.05)	(0.11)		(0.1)	
Woman Gained New Current Employer HI	0.05*	-0.09*	0.91	0.11**	1.11
	(0.02)	(0.05)		(0.04)	
Woman Gained New Other HI	0.11***	-0.24***	0.79	0.24***	1.27
	(0.04)	(0.09)		(0.07)	
Woman Switched to Current Employer HI	0.05	-0.1	0.9	0.11	1.11
	(0.03)	(0.08)		(0.07)	
Woman Switched From Current Employer HI	-0.01	0.02	1.02	-0.02	0.98
	(0.02)	(0.05)		(0.04)	
Child Lost Current Employer HI	0.22***	-0.39***	0.67	0.47***	1.6
	(0.03)	(0.07)		(0.06)	
Child Lost Other HI	0.31***	-0.61***	0.54	0.7***	2.02
	(0.05)	(0.12)		(0.11)	
Child Gained New Current Employer HI	-0.09***	0.23***	1.26	-0.2***	0.82
	(0.02)	(0.04)		(0.03)	
Child Gained New Other HI	0.09***	-0.18***	0.84	0.21***	1.23
	(0.03)	(0.06)		(0.05)	
Child Switched to Current Employer HI	0.25***	-0.49***	0.61	0.55***	1.73
	(0.04)	(0.1)		(0.09)	
Child Switched From Current Employer HI	0.31***	-0.6***	0.55	0.68***	1.97
	(0.03)	(0.07)		(0.06)	
Gain Flexible Work Schedule	0.01	-0.01	0.99	0.01	1.01
	(0.02)	(0.04)		(0.04)	
Lose Flexible Work Schedule	-0.0005	0.001	1	-0.003	1
	(0.01)	(0.03)		(0.02)	
Gain Child Care (Employer Offered)	0.01	-0.03	0.97	0.03	1.03
	(0.04)	(0.08)		(0.08)	
Lose Child Care (Employer Offered)	0.01	-0.01	0.99	0.02	1.02
	(0.03)	(0.06)		(0.05)	
Gain Maternity Leave (Employer Offered)	-0.01	0.01	1.01	-0.01	0.99
	(0.02)	(0.03)		(0.03)	
Lose Maternity Leave (Employer Offered)	0.004	-0.01	0.99	0.01	1.01
	(0.02)	(0.04)		(0.03)	
Gain Employer Offered HI	0.01	-0.01	0.99	0.01	1.01
	(0.02)	(0.04)		(0.03)	
Lose Employer Offered HI	-0.01	0.01	1.01	-0.02	0.98
	(0.02)	(0.04)		(0.04)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 19 – continued from previous page

Parameter	OLS	Cum Logit Coef	Cum Logit Odds Ratio	Cont Ratio Coef	Cont Ratio Odds Ratio
	(1)	(2)	(3)	(4)	(5)
Work Hours Increase 8 or less	0.02	-0.02	0.98	0.03	1.03
	(0.01)	(0.03)		(0.02)	
Work Hours Increase 9-16	0.06***	-0.12***	0.88	0.12***	1.13
	(0.02)	(0.04)		(0.03)	
Work Hours Increase 17-24	0.03	-0.08	0.93	0.06	1.06
	(0.02)	(0.05)		(0.04)	
Work Hours Increase 25-32	0.07***	-0.1*	0.9	0.14***	1.15
	(0.03)	(0.06)		(0.05)	
Work Hours Increase more than 32	0.02	-0.06	0.94	0.06	1.06
	(0.02)	(0.05)		(0.04)	
Work Hours Decrease 8 or less	0.01	-0.03	0.97	0.03	1.03
	(0.01)	(0.03)		(0.02)	
Work Hours Decrease 9-16	-0.01	0.03	1.03	-0.02	0.98
	(0.02)	(0.04)		(0.03)	
Work Hours Decrease 17-24	-0.03	0.08	1.08	-0.08*	0.92
	(0.02)	(0.06)		(0.04)	
Work Hours Decrease 25-32	-0.02	0.06	1.06	-0.07	0.93
	(0.03)	(0.07)		(0.05)	
Work Hours Decrease more than 32	-0.06**	0.13***	1.14	-0.14***	0.87
	(0.02)	(0.05)		(0.04)	
Become Self-Employed	-0.02	0.07	1.08	-0.08*	0.92
	(0.03)	(0.06)		(0.05)	
Stop Being Self-Employed	-0.03	0.05	1.05	-0.08	0.93
	(0.03)	(0.07)		(0.06)	
Move into a Middle Class Occupation	0.02	-0.04	0.96	0.04	1.04
	(0.01)	(0.03)		(0.03)	
Move out of a Middle Class Occupation	0.01	-0.01	0.99	0.01	1.01
	(0.02)	(0.03)		(0.03)	
Change in Real Respondent Wage Income ($1,000)	-0.0001	0.0002	1	-0.0002	1
	(0.0001)	(0.0002)		(0.0002)	
Change in Real Family Income Minus Wage Income ($1,000)	-0.0001	0.0003	1	-0.0003	1
	(0.0001)	(0.0002)		(0.0002)	
Increase in the Unemployment Rate of the Region	0.01	-0.03	0.97	0.03	1.03
	(0.01)	(0.03)		(0.02)	
Decrease in the Unemployment Rate of the Region	-0.003	-0.001	1	-0.01	0.99
	(0.01)	(0.02)		(0.02)	
Move into an Urban Area	0.06**	-0.16***	0.86	0.15***	1.17
	(0.03)	(0.06)		(0.04)	
Move out of an Urban Area	-0.003	0.03	1.03	0.0004	1
	(0.02)	(0.05)		(0.04)	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Continued on next page

Table 19 – continued from previous page

Parameter	**OLS**	**Cum Logit Coef**	**Cum Logit Odds Ratio**	**Cont Ratio Coef**	**Cont Ratio Odds Ratio**
	(1)	(2)	(3)	(4)	(5)
Changed Region	-0.06***	0.1***	1.11	-0.13***	0.88
	(0.02)	(0.04)		(0.03)	
R^2	0.4623	0.4918			
Adjusted R^2	0.4617	0.5169		0.5742	
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$		$< .0001$	

*, **, *** denotes coefficients that are significant at the 10%, 5%, or 1% level.
Standard errors are in parenthesis under the coefficients.

Table 20: Continuous Ratio Stages AD Results

Parameter	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
Intercept	-	-***	-***	-***	-***
	(0.07)	(-1.29)	(-4.03)	(-5.76)	(-7.1)
	[0.06]	[0.05]	[0.06]	[0.08]	[0.15]
Number of Children Expected	4.02***	4.03***	4.08***	3.86***	3.37***
at time t	(1.39)	(1.39)	(1.41)	(1.35)	(1.22)
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]
Change in Births at Interview		5***	2.84***	2.44***	2.57***
		(1.61)	(1.04)	(0.89)	(0.94)
		[0.05]	[0.03]	[0.04]	[0.06]
Years Since Last Interview	0.78***	0.72***	0.81***	0.82***	0.83***
	(-0.25)	(-0.33)	(-0.21)	(-0.2)	(-0.19)
	[0.03]	[0.02]	[0.02]	[0.03]	[0.05]
Become Married	1.66***	1.13***	0.92*	0.86**	1.05
	(0.5)	(0.13)	(-0.08)	(-0.16)	(0.05)
	[0.07]	[0.05]	[0.04]	[0.07]	[0.11]
Become Divorced or Separated	0.63***	0.68***	0.9	0.99	1.28
	(-0.46)	(-0.39)	(-0.11)	(-0.01)	(0.24)
	[0.08]	[0.06]	[0.07]	[0.1]	[0.16]
Become Widowed	0.26***	0.39***	1	1.16	0.82
	(-1.33)	(-0.94)	(0.003)	(0.15)	(-0.2)
	[0.35]	[0.33]	[0.4]	[0.58]	[0.96]
Graduate From High School	1.72***	1.77***	1.01	1.14	1.09
	(0.54)	(0.57)	(0.01)	(0.13)	(0.09)
	[0.1]	[0.07]	[0.06]	[0.09]	[0.15]
Start/Return College	1.1	1.43***	1.21***	1.3***	1.31*
	(0.09)	(0.36)	(0.19)	(0.27)	(0.27)
	[0.08]	[0.06]	[0.06]	[0.08]	[0.14]
Leave College	1.25*	1.14	0.97	0.91	0.63*
	(0.22)	(0.13)	(-0.03)	(-0.09)	(-0.46)
	[0.13]	[0.09]	[0.08]	[0.13]	[0.25]
Graduate College	1.22	1.62***	1.09	0.94	0.61*
	(0.2)	(0.49)	(0.09)	(-0.07)	(-0.5)
	[0.13]	[0.1]	[0.08]	[0.13]	[0.26]
New Health Limitation	1.15	0.82***	1.28***	1.14	1.14
	(0.14)	(-0.2)	(0.25)	(0.13)	(0.13)
	[0.09]	[0.07]	[0.06]	[0.09]	[0.15]
Improved Health Limitation	0.79***	0.71***	0.95	0.99	0.88
	(-0.24)	(-0.35)	(-0.06)	(-0.01)	(-0.12)
	[0.09]	[0.07]	[0.07]	[0.09]	[0.15]

The dependent variable is an indicator 'Advance' equal to 1 if the woman expects at least the number of children in each 'Stage,' which is set to 1, 2, 3, 4, and 5 or more children.
There are 46,445 women-year observations.

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 20 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Woman Lost Current Employer	0.72**	0.79***	0.93	1.01	0.88
Health Insurance (HI)	(-0.33)	(-0.23)	(-0.07)	(0.01)	(-0.12)
	[0.12]	[0.08]	[0.07]	[0.1]	[0.19]
Woman Lost Other HI	1.25	1.05	1.39*	1.51**	1.47*
	(0.23)	(0.05)	(0.33)	(0.41)	(0.38)
	[0.21]	[0.18]	[0.16]	[0.19]	[0.23]
Woman Gained New Current	0.94	1.06	1.16***	1.29***	1.26
Employer HI	(-0.06)	(0.06)	(0.14)	(0.25)	(0.23)
	[0.1]	[0.07]	[0.06]	[0.09]	[0.19]
Woman Gained New Other HI	1.06	0.94	1.29**	1.68***	2.06***
	(0.06)	(-0.06)	(0.26)	(0.52)	(0.72)
	[0.16]	[0.14]	[0.12]	[0.14]	[0.19]
Woman Switched to Current	1.02	1.11	1.12	1.2	1.21
Employer HI	(0.02)	(0.1)	(0.12)	(0.18)	(0.19)
	[0.13]	[0.1]	[0.12]	[0.14]	[0.23]
Woman Switched From Current	0.89	0.97	1.03	1.07	1.03
Employer HI	(-0.11)	(-0.03)	(0.03)	(0.07)	(0.03)
	[0.13]	[0.12]	[0.08]	[0.14]	[0.24]
Child Lost Current Employer HI		1.64***	1.49***	1.14	1
		(0.49)	(0.4)	(0.13)	(-0.002)
		[0.09]	[0.09]	[0.11]	[0.2]
Child Lost Other HI		1.93***	1.8***	1.58*	2.01***
		(0.66)	(0.59)	(0.46)	(0.7)
		[0.19]	[0.15]	[0.25]	[0.25]
Child Gained New Current		0.71***	0.83***	0.66***	0.59***
Employer HI		(-0.34)	(-0.19)	(-0.41)	(-0.52)
		[0.05]	[0.06]	[0.07]	[0.16]
Child Gained New Other HI		0.88	1.28***	1.39***	1.54**
		(-0.13)	(0.25)	(0.33)	(0.43)
		[0.1]	[0.08]	[0.12]	[0.18]
Child Switched to Current		1.69***	1.61***	1.42***	1.39
Employer HI		(0.53)	(0.47)	(0.35)	(0.33)
		[0.16]	[0.13]	[0.13]	[0.27]
Child Switched From Current		1.91***	1.74***	1.59***	1.65***
Employer HI		(0.65)	(0.55)	(0.46)	(0.5)
		[0.12]	[0.1]	[0.12]	[0.17]
Gain Flexible Work Schedule	1.07	1.08	0.98	0.95	0.86
	(0.07)	(0.08)	(-0.02)	(-0.06)	(-0.15)
	[0.07]	[0.05]	[0.04]	[0.06]	[0.12]
Lose Flexible Work Schedule	1.01	1.05	0.98	0.93	0.88
	(0.01)	(0.05)	(-0.02)	(-0.07)	(-0.13)
	[0.07]	[0.04]	[0.04]	[0.06]	[0.11]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 20 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Gain Child Care (Employer Offered)	1.07	1.05	1.06	0.92	0.69
	(0.07)	(0.05)	(0.05)	(-0.09)	(-0.37)
	[0.13]	[0.1]	[0.11]	[0.12]	[0.27]
Lose Child Care (Employer Offered)	1.02	1.03	0.99	1.06	1.07
	(0.02)	(0.03)	(-0.01)	(0.06)	(0.07)
	[0.11]	[0.09]	[0.07]	[0.13]	[0.23]
Gain Maternity Leave	1.01	1.04	0.96	0.97	0.87
(Employer Offered)	(0.01)	(0.04)	(-0.04)	(-0.03)	(-0.14)
	[0.07]	[0.05]	[0.05]	[0.09]	[0.12]
Lose Maternity Leave	1.02	1.03	0.98	1.01	1.05
(Employer Offered)	(0.02)	(0.03)	(-0.02)	(0.01)	(0.05)
	[0.07]	[0.05]	[0.05]	[0.08]	[0.18]
Gain Employer Offered HI	0.99	1	1.02	1.03	1.12
	(-0.01)	(-0.002)	(0.02)	(0.03)	(0.12)
	[0.07]	[0.06]	[0.06]	[0.08]	[0.13]
Lose Employer Offered HI	0.91	0.97	1.03	1.01	0.95
	(-0.09)	(-0.03)	(0.03)	(0.01)	(-0.05)
	[0.08]	[0.07]	[0.05]	[0.08]	[0.19]
Work Hours Increase 8 or less	1.16***	1.22***	0.92**	0.84***	0.71***
	(0.15)	(0.2)	(-0.08)	(-0.18)	(-0.34)
	[0.06]	[0.04]	[0.04]	[0.06]	[0.11]
Work Hours Increase 9-16	1.15**	1.29***	1.08	0.99	0.82
	(0.14)	(0.25)	(0.08)	(-0.01)	(-0.19)
	[0.07]	[0.06]	[0.05]	[0.08]	[0.14]
Work Hours Increase 17-24	1.08	1.32***	0.93	0.92	0.7**
	(0.08)	(0.27)	(-0.08)	(-0.09)	(-0.35)
	[0.09]	[0.07]	[0.07]	[0.09]	[0.18]
Work Hours Increase 25-32	1.06	1.19**	1.13	1.17	0.98
	(0.06)	(0.17)	(0.13)	(0.16)	(-0.02)
	[0.11]	[0.08]	[0.08]	[0.11]	[0.18]
Work Hours Increase more than 32	1.04	1.15**	1.06	0.91	0.82
	(0.04)	(0.14)	(0.06)	(-0.09)	(-0.2)
	[0.09]	[0.07]	[0.06]	[0.09]	[0.15]
Work Hours Decrease 8 or less	1.14**	1.17***	0.97	0.87**	0.79**
	(0.13)	(0.15)	(-0.03)	(-0.14)	(-0.24)
	[0.06]	[0.04]	[0.04]	[0.06]	[0.11]
Work Hours Decrease 9-16	1.18*	1.04	0.96	0.82**	0.69**
	(0.16)	(0.04)	(-0.04)	(-0.19)	(-0.37)
	[0.08]	[0.06]	[0.06]	[0.09]	[0.16]
Work Hours Decrease 17-24	0.98	1	0.9	0.85	0.83
	(-0.02)	(-0.003)	(-0.1)	(-0.16)	(-0.19)
	[0.1]	[0.08]	[0.08]	[0.11]	[0.19]
Work Hours Decrease 25-32	1.14	0.93	1.01	0.81*	0.6**
	(0.13)	(-0.07)	(0.01)	(-0.21)	(-0.51)
	[0.14]	[0.1]	[0.09]	[0.13]	[0.23]

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.

Continued on next page

Table 20 – continued from previous page

Parameter	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Work Hours Decrease more than 32	1.02	0.88*	0.89	0.84*	0.66**
	(0.02)	(-0.13)	(-0.12)	(-0.17)	(-0.42)
	[0.09]	[0.07]	[0.07]	[0.1]	[0.18]
Become Self-Employed	0.77**	0.94	0.99	1	1.32
	(-0.26)	(-0.06)	(-0.01)	(0.003)	(0.27)
	[0.12]	[0.09]	[0.09]	[0.12]	[0.2]
Stop Being Self-Employed	0.68***	0.94	0.99	1.09	1.26
	(-0.38)	(-0.06)	(-0.01)	(0.09)	(0.23)
	[0.14]	[0.11]	[0.1]	[0.14]	[0.21]
Move into a Middle Class	0.95	1.02	1.08*	1.07	1.17
Occupation	(-0.06)	(0.02)	(0.08)	(0.07)	(0.15)
	[0.05]	[0.04]	[0.04]	[0.07]	[0.13]
Move out of a Middle Class	0.95	0.97	1.04	1.08	1.14
Occupation	(-0.05)	(-0.03)	(0.04)	(0.07)	(0.13)
	[0.07]	[0.05]	[0.04]	[0.06]	[0.12]
Change in Real Respondent Wage	1	1	1	1	1
Income ($1,000)	(0)	(-0.0001)	(-0.0003)	(-0.001)	(0.0004)
	[0]	[0.0003]	[0.0003]	[0.0004]	[0.001]
Change in Real Family Income Minus	1	1	1	1	1
Respondent Wage Income ($1,000)	(0)	(-0.00003)	(-0.0004)	(-0.0002)	(-0.0005)
	[0]	[0.0004]	[0.0003]	[0.0005]	[0.001]
Increase in the Unemployment Rate	1.18***	1.1***	0.92***	1.06	1.04
of the Region	(0.16)	(0.09)	(-0.08)	(0.06)	(0.04)
	[0.05]	[0.04]	[0.03]	[0.05]	[0.09]
Decrease in the Unemployment Rate	0.94	0.99	1.01	1.02	1.08
of the Region	(-0.06)	(-0.01)	(0.01)	(0.02)	(0.07)
	[0.04]	[0.03]	[0.03]	[0.05]	[0.08]
Move into an Urban Area	1.27**	1.19**	1.04	1.15	1.46**
	(0.24)	(0.18)	(0.04)	(0.14)	(0.38)
	[0.11]	[0.08]	[0.08]	[0.11]	[0.18]
Move out of an Urban Area	1.06	0.9	1.04	1.03	1.01
	(0.06)	(-0.11)	(0.04)	(0.03)	(0.01)
	[0.1]	[0.08]	[0.07]	[0.11]	[0.19]
Changed Region	0.82***	0.9*	0.92	0.83**	0.81
	(-0.2)	(-0.1)	(-0.08)	(-0.18)	(-0.22)
	[0.07]	[0.05]	[0.05]	[0.08]	[0.16]
Adjusted R^2	0.5488	0.5291	0.4007	0.457	0.1101
$H0 : \beta = 0$ p-value	$< .0001$	$< .0001$	$< .0001$	$< .0001$	$< .0001$

Log odds are reported first, coefficients underneath in parenthesis, and standard errors are last in brackets.
*, **, *** denotes odds ratios that are significant at the 10%, 5%, or 1% level.