The impact of birth-timing on long-term economic outcomes

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The impact of birth-timing on
long-term economic outcomes

by

Margaret Ann Fitzgerald

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Human Development and Family Studies
(Family Resource Management and Housing)

Major Professor: Mary Winter

Iowa State University
Ames, Iowa
1997

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This is to certify that the Doctoral dissertation of

Margaret Ann Fitzgerald

has met the dissertation requirements of Iowa State University

Signature was redacted for privacy.

Major Professor

Signature was redacted for privacy.

For the Major Program

Signature was redacted for privacy.

For the Graduate College
In loving memory of my father,

C. J. "Doc" Fitzgerald
# TABLE OF CONTENTS

LIST OF FIGURES vi

LIST OF TABLES vii

ACKNOWLEDGEMENTS viii

ABSTRACT xi

CHAPTER 1. INTRODUCTION AND NEED FOR THE STUDY 1

  Organization of the Dissertation 1

  The Need for the Study 2

CHAPTER 2. THEORETICAL FRAMEWORKS, REVIEW OF LITERATURE, AND HYPOTHESES 5

  Family Development Theory 5

  Human Capital Theory 12

  Factors Associated with Economic Well-being 17

  Correlates of Birth-timing 23

  Economic Consequences of Age at First Birth 28

  Hypotheses 40

CHAPTER 3: METHODS 43

  Data 43

  Sample 44

  Independent Variables 50

  Dependent Variables 56

  Statistical Analyses 59
### CHAPTER 4. RESULTS AND DISCUSSION

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Statistics</td>
<td>65</td>
</tr>
<tr>
<td>Endogenous Variables</td>
<td>76</td>
</tr>
<tr>
<td>Bivariate Relationships</td>
<td>80</td>
</tr>
<tr>
<td>Predicting Permanent Income Using Multivariate Analysis</td>
<td>87</td>
</tr>
<tr>
<td>Predicting Wealth Using Two-Stage Least Squares Regression Analysis</td>
<td>95</td>
</tr>
<tr>
<td>Scenarios and Estimates of Permanent Income and Wealth</td>
<td>100</td>
</tr>
<tr>
<td>Discussion</td>
<td>116</td>
</tr>
<tr>
<td>Theoretical Perspectives</td>
<td>117</td>
</tr>
</tbody>
</table>

### CHAPTER 5. SUMMARY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Findings</td>
<td>127</td>
</tr>
<tr>
<td>Hypotheses and Testing</td>
<td>128</td>
</tr>
<tr>
<td>Conclusions</td>
<td>131</td>
</tr>
<tr>
<td>Implications for Public Policy</td>
<td>132</td>
</tr>
<tr>
<td>Implications for Future Research</td>
<td>134</td>
</tr>
</tbody>
</table>

### REFERENCES

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFERENCES</td>
<td>135</td>
</tr>
</tbody>
</table>
vi

LIST OF FIGURES

Figure 3.1. Two-stage Least Squares Regression Model  63
# LIST OF TABLES

Table 4.1. Descriptive Statistics, Means and Percentages, Instrumental and Explanatory Variables, Women, Weighted Data  
66

Table 4.2. Descriptive Statistics, Means and Percentages, Instrumental and Explanatory Variables, Men, Weighted Data  
68

Table 4.3. Descriptive Statistics, Dependent Variables by Birth-timing Group, Women, Weighted Data  
77

Table 4.4. Descriptive Statistics, Dependent Variables by Birth-timing Group, Men, Weighted Data  
78

Table 4.5. Correlation Coefficients, Women, Weighted Data  
82

Table 4.6. Correlation Coefficients, Men, Weighted Data  
85

Table 4.7. Regression of Permanent Income on the Instrumental Variables, Women's Sample, (First Stage of Two-stage Least Squares Estimates)  
88

Table 4.8 Regression of Permanent Income on the Instrumental Variables, Men's Sample, (First Stage of Two-stage Least Squares Estimates)  
89

Table 4.9. Two-stage Least Squares Regression of Wealth on Explanatory Variables; Women, Weighted Data  
96

Table 4.10. Two-stage Least Squares Regression of Wealth on Explanatory Variables; Men, Weighted Data  
97

Table 4.11. Permanent Income Predictions: Women, Weighted Data  
103

Table 4.12. Two-stage Least Squares Regression Estimates of Wealth, Selected scenarios; Women's Sample, Weighted Data  
108

Table 4.13. Permanent Income Predictions: Men, Weighted Data  
111

Table 4.14 Two-stage Least Squares Regression Estimates of Wealth, Selected scenarios; Men's Sample, Weighted Data  
114
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ABSTRACT

The purpose of this study is to assess the impact of the age of a parent at the time of the birth of his or her first child on the household when he or she is 60 to 70 years of age. Parallel analyses of 519 women and 352 men in the 1989 wave of the Panel Study of Income Dynamics were conducted. Family development theory and human capital theory informed the hypothesis development. Two-stage least squares regression analysis is used in the prediction of economic well-being, measured by permanent income and wealth.

The results indicate that there are bivariate relationships between birth-timing and economic well-being for both men and women, but for men, there is no relationship between birth-timing and economic outcomes when other factors that influence economic well-being are controlled. In the first stage of the analysis, completed level of education, marital history, and labor force attachment are significant predictors of permanent income. Modified permanent income, current marital status, and residential location are significant predictors of wealth. The final model accounts for 28% of the variance in wealth (F = 22.65, p < .001).

The relationship between early birth-timing and lower economic well-being for women persists, however, controlling for other variables that influence economic well-being. Birth-timing, completed level of education, marital history, race, parity, and labor force participation are significant predictors of permanent income. Interestingly, number of births is positively associated with permanent income. Modified permanent income, current involvement in the paid labor force, marital status, and current family size are significant predictors of wealth. The model accounts for 38% of the variance in wealth (F
xii

$= 45.28, p < .001)$. The findings indicate that negative economic outcomes associated with early first birth persist for women, and it is suggested that different models be used for men and women to assess economic well-being in later years.
CHAPTER 1
INTRODUCTION AND NEED FOR THE STUDY

The purpose of this study is to assess the impact of the age of a parent at the time of the birth of his or her first child on the economic position of the individual and his or her household when the individual is 60 to 70 years of age. The purpose is achieved through parallel analyses of 519 women and 352 men in the 1989 wave of the Panel Study of Income Dynamics (PSID). Of particular interest is the comparison between “on-time” or normative childbearers, commonly defined as those who have their first child during their early twenties, and “off-time” parents, those who either had a child during their teen years, or delayed childbearing until they were in their late 20s or early 30s and beyond.

The unit of analysis in the study is the individual. Two household level variables, a proxy for permanent income, and household net worth, were used as outcome variables. Household rather than individual level variables were used as outcome measures because resources are usually shared within the family household, although the distribution may not be uniform or equal across members (Lazear & Michael, 1988). The 1989 wave of the PSID (Wave XXII) was analyzed because complete data were collected on household assets and debts in that wave, making it possible to examine household net worth.

Organization of the Dissertation

In this chapter, the need for the study is explained, with emphasis on the lack of research on the long-term economic outcomes of off-time first birth for both men and women. Overviews of the two theoretical frameworks that guide the study are presented
in Chapter 2, and are discussed in relation to the research; explanations of the factors associated with economic position also are discussed. Extensive reviews of studies that examine the economic outcomes of early and delayed childbearing are then presented. These reviews are followed by the presentation of the hypotheses. In Chapter 3, the data and methods, and an overview of the statistical analyses used in the study are presented. The results of the study, and a discussion of the findings, are found in Chapter 4. The summary and conclusions are found in Chapter 5.

The Need for the Study

Trends in fertility: Birth rates by age of the mother. Examination of recent trends in fertility indicates that changes have occurred with regard to "off-time" childbearing for women, the group typically emphasized in fertility statistics. It should be noted that the trends discussed here are for fertility in general, which is not the same as the age of a parent at the birth of the first child. Some percentage of the fertility rates at all ages are first births, however.

According to Bianchi and Spain (1996), women in their 20s continue to have the highest birth rates among all women, although birth rates for women ages 20 to 24 fell between 1990 and 1995 (from 117 to 110 births per 1,000), as did rates for women ages 25 to 29 (120 to 112 births per 1,000). Women in their thirties have shown the most persistent increase in birth rates. Between 1980 and 1995, the birth rate among women ages 30 to 34 rose from 62 to 83 births per 1,000 women. The increase was from 20 to 34 births per 1,000, for women ages 35 to 39. Women in their 40s continue to have low fertility rates (below 6 births per 1,000 women).
Teenage childbearing has declined in recent decades. Teen birth rates declined between 1960 and the mid-1980s, from 89 births per 1,000 teens in 1960, to 50 births per 1,000 (Bianchi & Spain, 1996). Rates increased to 62 births per 1,000 teens in 1991, but fell again to 57 by 1995.

A few studies have examined the long-term consequences of birth-timing (Hofferth & Moore, 1979; Hofferth, 1984; Robbins & Streetman, 1994), yet no studies encountered thus far have examined the impact of both early and delayed childbearing within the same analysis. Furthermore, the analyses that have been completed usually exclude men. This study examines the effects of birth-timing on long-term economic outcomes for both men and women between the ages of 60 and 70 in 1989. Although using data from older individuals to discuss today's childbearers is problematic because of numerous contextual factors that affect each generation and cohort, only recently have longitudinal data become available that permit researchers to examine the consequences of birth-timing in the long run (Hofferth, 1984). To analyze the effects of birth-timing over several decades in a cross-sectional analysis, older individuals must constitute the sample.

Research questions addressed in this study. Recent trends in fertility, and the relationship between age at first birth and educational attainment, one of the most powerful predictors of one's economic position, suggest the following research questions addressed by this study: When other factors that predict economic position are controlled, what are the consequences of off-time childbearing? Can early childbearers, for example, overcome the negative financial effects of early childbearing by limiting family size and attaining levels of education equivalent to on-time and late-childbearers? Can early entry
into the labor force counteract the effects of teenage childbearing? Do the costs of rearing
and educating young adults when one is nearing retirement age cancel the positive
economic effects of delayed childbearing?
CHAPTER 2
THEORETICAL FRAMEWORKS, REVIEW OF LITERATURE AND HYPOTHESES

This study was guided by two theoretical frameworks, family development theory and human capital theory. Each theory is summarized in this section and its relevance to the research proposed is discussed.

Family Development Theory

The first formulations of family development theory were written in 1948 by Duvall and Hill (White, 1991). In early formulations of the theory, it was suggested that, from family formation, marked by the couple’s marriage, to the death of the spouses, the family moved through various stages, each of which was accompanied by family developmental tasks that needed to be completed prior to moving to the next stage.

The early version of the theory did not prove to be a fruitful source of testable hypotheses. The theory was criticized because emphasis was placed on a single modal life cycle for all families (see Mattessich & Hill, 1987 and White, 1991 for reviews). By focusing the theory on one “normative” path of family development, other paths were ignored. For example, in the theory, the stages relevant to remarried or single-parent families were not addressed. Second, the theory was criticized for not considering the timing of critical life events and the duration of stages that might have been affected by historical context; family development theorists failed to consider change in relation to time-related factors such as age, cohort, and period effects. Third, the developers of the theory failed to specify the synchronization of the family career with other careers such as
work and education. Lastly, the theory was criticized because only modest correlations with dependent variables were found (Mattessich & Hill, 1987; Rodgers & White, 1993; White, 1991).

Because of shortcomings in the theory, Roy Rodgers, one of Reuben Hill's first students, and James White, one of Rodgers' students, reformulated the theory (Rodgers & White, 1993; White, 1991). It is the reformulation of family development theory that will serve as the basis for this study.

In the reformulation, Rodgers and White emphasize events, the dynamic processes in families, and the possibility for less-traditional life courses (remarriage, premature death of a spouse) than were present in earlier renditions of the theory. In the reformulation of the theory, the family moves through stages, as in earlier formulations, but these stages are probabilistic rather than deterministic. In other words, instead of proceeding in a predefined fashion, accompanying each new stage is a set of probabilities that suggest the likelihood of a given subsequent stage occurring. From the initial couple stage, for example, there is a given probability that the couple will have their first child, another probability that the couple will divorce, and a third probability that one of the members will die. Any given stage carries with it a set of probabilities that the family will move to any one of several different potential next stages, some of which have a high probability of occurring (the birth of the first child two to three years after marriage), and some of which have a low probability of occurring (the birth of a first child after fifteen years of marriage). The probability of a transition occurring between any two stages is determined, in part, by the duration of time spent in the preceding stage as well as by the nature of the
preceding stage (White, 1991). The probabilities are a function of the static norms governing conditions and behavior at the current stage and process norms governing movement between the stages.

Conceptualized this way, the theory can be useful in examining events that are normatively “off-time,” as in the case of early or late childbearing, and it is useful in analyzing how the family career is meshed with the careers of work and education. In the next section, the concepts defined within family development theory that will be most useful in this study are explained. Following these descriptions, the research issues related to family development theory are outlined. Although the unit of observation in family development theory is the individual, the level of analysis is not always the individual because individual behavior, taken in the aggregate, is a means of inferring norms for dyads or groups (White, 1991).

Family development theory emphasizes the processes that bring about change in families; the family is viewed as a social system that changes over time. As a family moves through the stages of its life course, its structure and membership change, as do the rules governing the roles and role relationships within the family. For example, when a child is born, the roles of mother and father are added to the individual’s roles of husband and wife. Norms are rules for the behavior associated with a social position. Norms “prohibit, permit, prefer or prescribe a specific behavior or set of behaviors for incumbents of a social position” (Rodgers & White, 1993, p. 232). Norms dictate what is expected for a particular family group and its members; they also set expectations for the structures that are in the appropriate sequence and “on time” with other life events.
Within an institution, there are two types of norms—static norms and process norms. Static norms regulate the role relationships and expectations that are appropriate within an age grouping or stage. For example, it is expected that mothers will be nurturant to their newborn babies, and that parents will support their offspring financially. Process norms govern the movement between stages by regulating the timing and sequencing of expectations and behavior. An example of a process norm is that marriage should precede the birth of the first child. Static norms govern how people should behave in given stages (that is, mothers should be nurturant), and process norms govern the sequencing of the life course (that is, marriage should precede childbearing).

Cross-institutional norms are process norms that are constructed from the conjunction of two or more norms from different institutions (Rodgers & White, 1993). These norms help individuals mesh expectations placed on them by their families and other institutions. If, for example, an accepted societal belief is that men should support their offspring financially, and an accepted belief related to education is that people must remain in school full-time until a certain age, the cross-institutional norm that is generated is that men should not have children until they have reached a certain age (White, 1991).

Cross-institutional norms are responsible for the synchronization of age-graded individual norms and stage-graded sequencing norms among social institutions to minimize the overlapping demands of a variety of institutions (such as work, family, and the educational system) (White, 1991). For example, people who finish their education, get a job, get married, then have children, spread out the normative demands of various institutions in a manageable time period (Rodgers & White, 1993). Those who prolong
their educations and/or invest heavily in their careers while choosing to delay childbearing in order to make these commitments violate traditional norms regarding birth-timing. For them, satisfying one set of expectations is counter to satisfying another.

Cross-institutional norms change over time and by gender (Rodgers & White, 1993). Women have experienced dramatic changes in cross-institutional sequencing norms for work and family in recent decades, whereas the norms for men have been relatively stable. The single most important development in the U.S. labor market since World War II has been the growth in the percentage of adult women between the ages of 20 and 54 who are working or seeking work (Hamermesh & Rees, 1993). The labor force participation rate of women in 1945 was 35.8 percent; by 1990 it had increased to 57.5 percent (Blau & Ferber, 1992). The changes in labor force participation rates are most dramatic for women with young children. Fifty-five percent of married women with children three years of age and under were in the labor market in 1988, compared to only 21 percent in 1966. Similarly, 61 percent of married women with children between the ages of three and five were in the labor force in 1988, compared to 29 percent in 1966 (Blau & Ferber, 1992). In this study, the economic position of men and women at age 60 and over will be examined to ascertain the long-term effects of on-time versus off-time childbearing. Cross-gender differences also will be assessed.

Stages, determined by the group structure and social norms for the family institution, are central to the theory of family development. A family “event” is used as an indicator of the family stage. Events are measures of family transitions or the transition points between stages (Rodgers & White, 1993). Events mark the end of the preceding
stage and the beginning of the subsequent stage (White, 1991). Thus, events mark the
beginning and the end of stages, but not all events are family transition events. Events are
valid as transition points when they demarcate changes in group structure that carry
distinct sets of institutional norms for that structure. The birth of a first child is a
developmental event because there are qualitatively different norms for the roles within the
family as a result of the event. The birth of the first child marks the beginning of the
family group as opposed to a marital dyad. Of interest in the study of the family career
are the sequencing, order and timing of events. Therefore, the birth of the first child can
be studied in relation to the duration of time between the events of marriage and the first
birth. The individual's age at the time of the event of the first birth is also an important
variable of interest, as is the "family's age" when the event occurred, which can be
measured as the length of the marriage prior to the first birth.

"Off-time" childbearers essentially violate the process norms for the transition from
one stage to another, either by giving birth too early or too late. Off-time transitions may
be more challenging than on-time experiences because those encountering them may be
less prepared for the transition, or may receive inadequate social support during the
transition (Hagestad & Smyer, 1982). Having children at older ages, or delaying
childbearing, has been shown to be related to higher childrearing difficulty (Rossi, 1980)
and difficulty in adjusting to parenthood (Daniels & Weingarten, 1982). The samples in
these studies were small and selective with little generalizability, however. Rossi (1980)
suggested that, although postponing the birth of the first child may help younger women
complete their educations and become established in a career, difficulties in the
childrearing role later on may occur. Yet recent research shows that delaying parenthood may be an effective strategy to coordinate successfully the demands of work and parenting due to the often “planned” nature of the transition (Cooney, Pedersen, Idelicato & Palkovitz, 1993).

Teenage parenting, in contrast, has been associated with the inability to cope with the economic and psychological demands of parenthood (Farrell, 1995). This inability to cope may result in child abuse and neglect, substance abuse, chronic depression, and low expectations for living standards. Enduring poverty and welfare dependence are also associated with teenage pregnancy. Although the ease or difficulty with which the parenting role is assumed will not be examined in this study, insight will be gained as to whether on- or off-time childbearing affects economic well-being at ages 60 and over.

Several different scenarios for off-time childbearing could be hypothesized based on the timing of first childbearing, completed family size, educational attainment, and labor force participation. Based on the family development framework, it could be hypothesized that individuals who violate process norms, in that the birth of their first child is “off-time,” either early or late, will experience differential consequences than those with “on-time” births. On one hand, early childbearing coupled with limited family size, the attainment of some minimum level of education, and long-term participation in the labor force could result in an individuals being in a good economic position at age 60 because the individual and his or her household would have had twenty or more years of freedom from childrearing, peak earning years during which the individual could be saving and investing for retirement. On the other hand, early childbearers who drop out of high
school, either do not marry or experience marital disruption, have large families, and who have little family support, may become dependent on public assistance, have difficulty finding jobs that pay well, and may face continual struggles to maintain an adequate level of living. For delayed childbearers, however, financial responsibility for young adults could deplete their retirement savings as they approach retirement, or delaying childbearing may give them control over the meshing of their family and occupational careers, allowing for smoother transitions throughout the life course. Delayed childbearers may be able to earn high levels of income throughout their working years as a result of high compensation for advanced education. They also may have high levels of asset accumulation due to increased saving and investing of disposable income and lengthy compounding periods of dividends and interest.

**Human Capital Theory**

Human capital theory suggests that activities or investments that affect future well-being take many forms such as education, on-the-job training, medical care and migration (Becker, 1975; Bryant, 1990; Schultz, 1961). Investment in human capital requires delayed gratification with the expectation of a large payback later on. The expected returns to human capital investments are a higher level of earnings, greater job satisfaction over one’s lifetime, and a greater appreciation of nonmarket activities and interests (Ehrenberg & Smith, 1991).

*Human capital theory, education, and employment.* A primary reason individuals invest in human capital through formal education is to augment their incomes in the future and to increase their total wealth (Bryant, 1990). An individual is thought to invest in
additional education only if the payoff to added schooling is higher than, or equal to, the payoff in an alternative investment. However, as the number of years of education increases, the rate of return to additional education falls. The individual will, in theory, compare the rate of return from added schooling with the market rate of interest, and invest in the opportunity with the higher rate of return.

Investing in human capital has been used to explain growth in income because more highly educated people almost always earn more than others. Education will increase the employee’s marginal product in market employment, resulting in higher real wages (Bryant, 1990). Further, through on-the-job experience, the individual’s marginal productivity continues to grow, and as it grows, real wage rates increase; hence, earnings continue to rise. Formal education and experience explain an important part of the age-earnings profiles of individuals (Bryant, 1990).

*Age-earnings profiles.* The shapes of age-earnings profiles for men and women display a fairly typical pattern. For males, the higher the level of education, the steeper the rise in earnings with age; for females, annual earnings do not rise as much with age (Bryant, 1990). The differences between male and female age-earnings profiles can be explained largely by differences in the labor force participation behavior by age between males and females. Males typically enter the labor force upon completion of their education and do not leave until retirement; therefore, their participation pattern is highly correlated with age. Some females drop out of the labor market when they marry and tend not to return unless they divorce or become widowed. More drop out to give birth to their children and return when adequate child care is found or when their children enter
school. Thus, the labor market experience of women is not as highly correlated with age as is that of men.

**Differences in the acquisition of human capital for men and women.** The career patterns of many married women have consisted of distinct stages (Ehrenberg & Smith, 1991). As stated previously, the path often begins with a period of employment preceding childbirth, followed by the birth of the first child and a period of nonparticipation in the labor force. There subsequently may be a return to labor market participation, often on a part-time or temporary basis.

The interrupted nature of many women's career paths has implications for their acquisition of education and training (Ehrenberg & Smith, 1991). First, because women's careers are shorter than men's, they have less time to reap the rewards of investments in human capital. Women may therefore be less likely than men to make human capital investments. Second, interruptions add further incentives to avoid certain kinds of investments because women's skills may depreciate when the continuity of experience is broken. Human capital theory, therefore, predicts that women will acquire less schooling and less training than men.

Women also tend to have fewer incentives than men to invest in job training (Ehrenberg & Smith, 1991). As a result, women have not found themselves in jobs with steep age-earnings profiles. A reason for the lack of job training may be their shorter and more interrupted careers as compared to men, which reduce both their incentives and the incentives of their employers to engage in such training.
Human capital theory suggests that women are likely to have substantial time investments in child-rearing and may choose to delay childbearing and opt for limiting family size when they have appreciable commitments to, and investments in, the paid labor force. Because child-related consumption is relatively intensive on the wife's time (Michael, 1973), increases in the value of her time raise the price of children and lower the quantity demanded. According to Michael (1973), increases in the value of the wife's time is perhaps the key economic explanation for the observed negative relationship between wives' educational levels and the (completed) number of children. Traditionally, husbands have been less involved in the rearing of children; therefore, the wife's education is generally more negatively related to fertility than the husband's education, although both parents' levels of education may affect their fertility behavior by raising the value of their time.

Human capital embodied in adults (especially women) affects fertility and the supply of labor (Schultz, 1961). There is strong accumulated evidence of the effects of education on wage rates and money income (Michael, 1973). Using human capital theory to explore the long-term consequences of birth-timing is a logical extension of the theory because previous studies have indicated that women who delay childbearing frequently do so to complete their educations (Baldwin & Nord, 1984; Bloom & Trussell, 1984), and delayed childbearing results in smaller family size (Hofferth, 1984). Additionally, it is known that women who give birth as teenagers are likely to have a high school education or less with little or no job skills (Farrell, 1995).
Unfortunately, little research has been done to examine the relationship between birth-timing, family size, education, earnings, and wealth accumulation for men (Michael, 1973). For the most part, the study of the timing of fatherhood has included only small, select samples (Roosa, 1988; Daniels & Weingarten, 1982; Nydegger, 1973). There is some evidence that late fathers are more secure than early fathers about their financial resources because they are more experienced in the labor force and are earning higher salaries as a result of being more established in their jobs and careers (Daniels & Weingarten, 1982; Nydegger, 1973). Nydegger (1973) reported that those who became fathers after age 32 experienced fewer financial and career pressures compared to early fathers (defined in the study as those who became fathers before age 25). Early fathers expressed greater disadvantages of economic insufficiency and career pressures than did late fathers. Using representative data from the Survey of Families and Households, Cooney and colleagues (1993) were able to confirm that men who became fathers for the first time at age 30 or after had higher levels of education and higher incomes than their early childbearing and on-time counterparts.

It is likely that some men and women consider the timing of their children in light of their future economic well-being. In particular, postponing parenthood may be undertaken by those who want to spend their early adult years completing their educations and becoming established in careers. Teenage parents and/or pregnant teens are likely to experience a lower level of future economic well-being because of smaller investments in human capital unless they attain levels of education equal to or greater than their nonchildbearing counterparts. Additionally, if teenage childbearers have continuous long-
term participation in the paid labor force, they may experience wage increases and other benefits of seniority that allow them to achieve a long-term level of economic well-being equal to their peers.

Factors Associated with Economic Well-being

*The measurement of economic well-being.* Economic well-being has been assessed in a variety of ways. Commonly used measures include current income (Lino & Ray, 1992; Robbins & Streetman, 1994), an income-to-needs ratio (Butler, 1992; Hofferth & Moore, 1979; Hoffman, Foster & Furstenberg, 1993), and net worth (Greenwood & Wolff, 1988; Hofferth, 1984). Current income is a measure of the flow of economic resources. An income-to-needs ratio is a measure of the relationship between resources and the degree to which current resources meet minimum needs. Wealth is an assessment of the stock of economic resources. Each of these measures can be calculated for an individual or a family. Because an individual who lives in a family household typically shares financial and other types of resources, using information about the household, rather than information solely from the individual, is likely to be more reflective of the true level of living that the individual experiences. Many consumption decisions are made within the context of the household, and there is a great deal of commonality in the level of living within the household (see Laazear & Michael, 1988 for discussion).

Although income and income-to-needs ratios are most frequently used to measure economic well-being, including wealth as a measure of economic well-being adds insight into an individual’s circumstances because it includes not only the contributions to income that assets add (such as interest and dividends), but also gives an indication of the level of
resources that can be drawn upon for consumption, for example, in times of need. On a less tangible level, wealth contributes to a feeling of security and success.

Numerous factors influence economic outcomes for men and women, and for individuals living within a family. Because the economic position of the family includes both the contributions and assets of the individual, to assess individual economic well-being without considering the person within the context of the family misses relevant information. In this section, the influence of marital status, education, labor force participation, and parity on economic position is examined. Studies of birth-timing and economic outcomes will be reviewed at length in a later section of the chapter.

Marital status. A factor strongly associated with economic position for individuals with children is marital status. Studies have indicated that men's level of living following a divorce may actually increase, but divorce reduces the level of living for women (Corcoran, Duncan & Hill, 1984; Holden & Smock, 1991; Peterson, 1996). Divorce has proven to be particularly detrimental to women's income. Weiss (1984) studied the income levels of separated and divorced mothers in the year before their marriage ended and five years after the marital dissolution. The findings indicated that marital dissolution brought about reductions of income in every income category; reductions were greatest where the marital income had been highest. Once incomes dropped, they remained relatively constant unless remarriage took place.

Moreover, differences in levels of net worth are found between female-headed households and married couple households, as well as between blacks and whites. Studies have indicated that "blacks have anywhere from $8.00 to $19.00 of wealth for every
$100.00 that whites possess" (Oliver & Shapiro, 1995, p. 97). The median net worth of a white female-headed household in 1984 was $22,500, whereas the median net worth for a white married couple was twice as high, $54,184. Black female-headed households had a median net worth of $671, compared to $13,061 for black married couples (Marshall, 1991; Mishel & Simon, 1988). According to Oliver and Shapiro (1995), economic barriers such as historically low wages, limited access to human capital, the rise of the modern suburb, and ghetto poverty have impaired the ability of blacks to accumulate wealth. Interestingly, death rates for men with higher permanent incomes are lower than for those with lower income, regardless of race (Menchick, 1993).

The poverty rate among female-headed households is high. The rate of poverty for female-headed households with children under the age of 18 (44.5%) is almost six times greater than the rate for married-couple families with children under 18 years (7.8%), and more than twice the rate for such families headed by male householders (18.8%) (U. S. Bureau of the Census, 1991). The poverty rates for black and hispanic-origin female-headed families with children under the age of 18 are even higher at 56.1 percent and 58.2 percent, respectively. For women aged 65 and over, being nonwhite, nonmarried, and living in a rural area are associated with low economic well-being (Kivett & Schwenk, 1994).

Teenage mothers are particularly vulnerable economically because they are less likely than older mothers to be married when their first child is born (Butler, 1992). Black teenagers are less likely than white teenagers to marry as a result of pregnancy (Hofferth & Moore, 1979). According to Bennett, Bloom and Miller (1995), women who bear a
child out of wedlock in their teenage years are about two to three times as likely not to marry by age 35 as those who do not bear a child out of wedlock. Getting married and staying married have been found to lead to positive outcomes specifically for early childbearing women (Furstenberg, Brooks-Gunn & Morgan, 1987).

When female adolescents do marry however, they tend to have less stable marriages than other women (see Butler, 1992 and Farrell, 1995, for reviews). Births to married teens declined 62 percent from 1970 to 1990, whereas births to unmarried teens increased by 80 percent during the time period (Bennett, Bloom & Miller, 1995). The proportion of births to unmarried teenage women rose from 30 to 68 percent between 1970 and 1990. Marital instability has been associated with both adolescent marriage and adolescent childbirth, although in a study by Teti and Lamb (1989), more positive marital outcomes were experienced by women who both married and gave birth in adolescence than by women who married in adolescence but never had children. Males who marry as adolescents may not catch up educationally, financially or occupationally to their same-aged, same-race peers who marry as adults, even after 30 to 40 years (Teti, Lamb & Elster, 1987).

**Labor force participation, education, and economic well-being.** In 1940, 28 percent of women were in the labor force. By 1990, the figure had risen to 58 percent with nearly 3/4 of women between the ages of 25 and 54 as labor force participants (Blau & Ferber, 1992). The most notable change is the increase in the participation rates of married women with small children. In 1960, only 19 percent of women with children under the age of 6 worked outside of the home. By 1988, 52 percent of married mothers
with infants a year old or less were in the labor force. Male labor force participation rates began to decline in the 1950s, from 87 percent in 1950 to 77 percent in 1990; however, participation rates for men ages 25 to 54 remain extremely high at over 90 percent.

A noteworthy factor explaining the increase in female labor force participation over time is education. As women receive more education, the wage rate they are able to earn increases, making labor force participation relatively more attractive. Between 1940 and 1987, the proportion of women who had completed at least four years of high school increased from 26 to 75 percent (Blau & Ferber, 1992). The increase for men was even greater, from 22 to 76 percent. During the same period, the proportion of women who completed four or more years of college increased from 3.7 to 16.5 percent, whereas for men the proportion rose from 5.4 to 23.6 percent.

An examination of age-earnings profiles from 1990 indicates that males with four years of college earned $55,000 annually during their peak earning years, whereas males with four years of high school earned only $32,000. Females with four years of college had peak earnings around $30,000 whereas females with four years of high school earned less than $20,000 during their peak earning years (Blau & Ferber, 1992). Black and white males who marry as adolescents complete fewer years of schooling, earn less, and have lower status occupations than their peers who marry as adults (Teti, Lamb, & Elster, 1987).

**Parity.** Parity, or number of births, is related to both labor force participation and birth-timing. Women who are more committed to the labor market and who face more attractive labor market opportunities may choose to have fewer children than other
women (Blau & Ferber, 1992). In relation to birth-timing, women who have their first child as teenagers tend to have more children than other women, have them closer together, have more out-of-wedlock births, and bear more unwanted children than do women who do not start having children in their teenage years (Bumpass, Rindfuss & Janosik, 1978; Millman & Hendershot, 1980; Trussell & Menken, 1978). Young mothers, however, may conclude childbearing by the time they reach their late 20s or early 30s, and those who do have small families may adapt more “successfully” to early childbearing (Furstenberg, Brooks-Gunn, & Morgan, 1987, p. 70). Women who delay childbearing have lower subsequent fertility than other women (see Bloom, 1984 for review), and delaying first birth has implications for later family size (Hofferth, 1984). On average, women who delay first births have smaller families, in part, at least, because of the curtailing of the number of childbearing years. Furthermore, women who delay may delay permanently. Some project that as many as 25 percent of white women born during the 1950s may remain childless despite plans to the contrary, either because they find that they are unable to have children, or because the same reasons that caused them to postpone childbearing lead them to forego children altogether (Thornton & Freedman, 1983).

In summary, there are a number of personal and family factors associated with economic well-being. Parity, investments in education, and labor market participation are likely to be related to decisions to invest in human capital formation. Individuals may choose to invest in additional education when they see that the pay-off to that investment in the labor market is worthwhile. Those with high levels of education are more likely to
participate in the paid labor force because of the high wages they can earn. Additionally, those with greater earning potential in the paid labor force may choose to have smaller families, or no children at all, so that they can devote a greater proportion of their time to market work than individuals with lower earning potential. Marital status and changes in marital status are appropriate to examine using family development theory because there are norm and role expectations associated with being married or changing marital status. Furthermore, it is evident from the preceding review of literature that changes in marital status can have profound effects on economic well-being.

**Correlates of Birth-timing**

*Early childbearing.* Adolescent pregnancy and childbearing have been studied extensively; therefore the body of literature pertaining to early births is voluminous. For this reason, early childbearing is discussed succinctly in this review. The literature on the factors associated with teenage pregnancy is outlined in this section with emphasis given to reviews by Farrell (1995) and Voydanoff and Donnelly (1990). Many of the factors associated with early childbearing are noneconomic in nature, and tend to be influenced by individual and family factors. In contrast, motivation to delay childbearing is often influenced by the desire to enhance one's economic status.

Farrell (1995) outlined several characteristics of women most at risk for teenage pregnancy. The characteristics include having reached puberty before age 13, the early initiation of "single" dating and frequently seeing boyfriends alone, having a steady boyfriend over the age of 20, being involved with a counter-culture peer group (or gang), using drugs and alcohol, being sexually active without using, or infrequently using, birth
control, or being married or cohabiting. Nonvoluntary sex is a strong predictor of earlier voluntary sex for women, which increases the vulnerability for early parenthood (Moore, Morrison & Glei, 1995). There is also a cohort effect associated with early intercourse, with later-born youth (both boys and girls) being more likely to report early intercourse than earlier cohorts (Moore, et al., 1995).

Adolescent women who are most at risk for teenage pregnancy are more likely to view premarital sex as acceptable behavior, view the use of contraceptives as unacceptable, view teenage pregnancy as acceptable or the norm within the family or subculture, have the perspective that having a child is more important than achieving other goals, such as education or acquiring job skills, lack future plans or goals, have low self-esteem, and see few economic opportunities (Farrell, 1995). There are racial differences with regard to adolescent pregnancy as well. Younger age at first birth, and an increased likelihood of having unwanted births is most notable among blacks (Trussell & Menken, 1978). Black adolescents are twice as likely to become pregnant as white adolescents (see Farrell, 1995 for review).

**Family factors.** Adolescents from lower-class families are more likely than those from middle- and upper-class families to become pregnant outside of marriage because they tend to become sexually active at younger ages, and are less likely to use contraceptives effectively (see Voydanoff & Donnelly, 1990 for review). In terms of family structure, pregnancy among teenage women is more likely to occur in father-absent single parent families than in other types of families (Voydanoff & Donnelly, 1990), and both boys and girls whose biological parents ever separated or divorced bear a heightened
risk of early sexual initiation, and thus are at greater risk of teenage parenthood (Moore, et al., 1995). The age of a boy's mother when she first gave birth is a significant predictor of early sexual initiation, as well, with sons of younger mothers initiating sexual activity at younger ages than sons of older mothers.

**Educational and occupational factors.** Adolescent women with low educational aspirations and attainments are more likely to become pregnant than those with high aspirations and attainments (Voydanoff & Donnelly, 1990). The risk of adolescent pregnancy is associated with having a high school education or less, and having no job or job skills (Farrell, 1995). Both men and women who experience problems with school are more likely than those who do not have problems in school to be involved in a nonmarital adolescent pregnancy (Farrell, 1995; Voydanoff & Donnelly, 1990). Moreover, teenage pregnancy seems to result in greater educational deficits for young mothers than for young fathers, although both teenage mothers and fathers have substantially less education than their classmates (Card & Wise, 1978). Less than 50 percent of teen mothers finish high school, and only about 2 percent complete college (Center for Population Options, 1987).

Most female dropouts cite a teenage pregnancy as their primary reason for leaving school (Dillard & Pol, 1982), and many girls find that the time, energy and financial demands of having a young child are not conducive to completing their formal educations (Caldas, 1993). Adolescent pregnancy also may be tied to perceptions of limited opportunities following high school, in areas of high unemployment, for example, or feelings that a degree is unattainable for those having difficulties in school (Voydanoff & Donnelly, 1990). It has been documented, however, that early-childbearing individuals
often return to school following the birth of the first child although they may never catch up to their delaying counterparts in terms of total years of education (Furstenberg, et al., 1987). Again, it should be stressed that most of these studies are centered on women rather than men.

**Delayed childbearing.** In this section, a brief review of literature on the factors associated with the trend toward delayed childbearing is provided. Improvements in birth control technology and the availability of safe, legal abortions have given couples greater control over the initiation of childbearing (Baldwin & Nord, 1984; Rindfuss, Morgan & Swicegood, 1988). Related to greater control over the timing of first birth is the possibility that the social definition of "too old" to have children has changed (Chen & Morgan, 1991). Norms have become modified in response to delayed marriage, increased education, and greater labor force participation for women. As a result, there is more approval toward those who begin childbearing later than among earlier cohorts.

**Delayed marriage and delays after marriage.** Much of the current delay in childbearing is due to delayed marriage. Delayed childbearers seem to marry at older ages relative to their nondelaying counterparts (Roosa, 1988). Some individuals also are likely to defer childbearing after they marry (Baldwin & Nord, 1984). Delayed childbearers in particular display longer delays between marriage and parenting (Daniels & Weingarten, 1982).

**Education.** The positive relationship between later childbearing and educational achievement is well established in the literature (Rindfuss, Bumpass & St. John, 1980; Roosa, 1988). In 1992, 49 percent of women aged 30-49 years having their first child
were college graduates, twice the proportion in the general population (Ventura, Martin, Taffel, Mathews, & Clark, 1994).

Bloom and Trussell (1984) used three data sets, the second cycle of the National Survey of Family Growth (NSFG), conducted in 1976, the National Longitudinal Study (NLS), conducted in 1978, and the Census Bureau's Current Population Survey (CPS), conducted in 1980, to estimate the determinants of age at first birth in the United States. They found that women with higher levels of education (who ultimately bear children) are more likely to delay childbearing than women with lower levels of education and that the effect of education was greater for more recent cohorts than for earlier cohorts.

Data from the Advanced Report of Final Natality Statistics (1988) indicate that rates of college graduation were especially high among older women who delayed the birth of their first child. Among women aged 30 and over, 49 percent had completed at least four years of college. For the most part, they were women who postponed marriage and childbearing to complete their educations and become established in their careers.

**Employment.** Women’s motivations to delay marriage and childbearing because of educational pursuits and job commitments can enhance job prospects and increase the likelihood of continuous employment after giving birth (Coltrane, 1990). Later childbearing is associated with greater income (Daniels & Weingarten, 1982; Rindfuss, et al. 1980; Roosa, 1988) and delayed-childbearing women are more likely to have career commitments than normative childbearers (Bloom, 1984; Daniels & Weingarten, 1982). In addition, delayed childbearing women return to work following the birth sooner than nondelaying mothers (Daniels & Weingarten, 1982).
Because of women's greater investments in education, responsibilities for children are deferred while investing in opportunities to improve professional qualifications and become established in long term careers (Wilkie, 1981; Baldwin & Nord, 1984). Many young women have delayed having children because they believe that time out for childbearing could jeopardize their career ambitions (Thornton & Freedman, 1983). Furthermore, because women's familial and nonfamilial roles demand time and energy, these roles are often assumed sequentially. The timing of parenthood may be shifted to older ages more easily than certain competing roles. Some couples have reported that it is taken for granted that the mother will continue to be involved in the paid labor force after the birth of a child (Chen & Morgan, 1991).

Thus, the factors that contribute toward delayed childbearing center on issues such as investing in education, participation in the paid labor force, increasing labor force attachment for women, and the desire to explore new roles and opportunities prior to childbirth. It appears that, in recent years, the norms regarding women's participation in higher education and the paid labor force have been modified. There also is societal acceptance of the decision to delay parenthood.

**Economic Consequences of Age at First Birth**

The timing of the first birth has an impact on women's career paths, the accumulation of assets in the household, the risk of subsequent marital dissolution, the number and timing of additional births, and other socioeconomic outcomes (Teachman, Polonko & Scanzoni, 1987). Less is known about the impact of the timing of the first birth on men's lives. It is important to study the timing of the first birth for all age groups
to understand the impact that "on-" and "off-time" births have on economic well-being. For example, parents who postpone the birth of their first child have had more time to pursue their educations and become established in their careers, but they also carry the economic responsibilities of childrearing into their later years. Birth-timing, then, may have a variety of implications in terms of planning for children's college educations, saving for retirement, and paying for long-term care. On the other hand, having a child during teenage years may force a young parent to forego educational or employment opportunities that would lead to greater earning potential and financial security later on. Yet, early childbearing may contribute to higher earnings over a lifetime due to longer employment histories. Young childbearers who receive support in returning to school from parents or other relatives who assist with childcare may, in fact, be better off than on-time or delayed childbearers because the child may be on his or her own prior to the parent's peak earning years of 45-54.

Many of the factors affecting economic position and age at childbearing are the same. The relationships between birth-timing and educational attainment are examined in this section with emphasis on the economic ramifications of delayed and early childbearing. Studies that have explored the long-term economic outcomes of both early and late childbearing are reviewed at length.

*Early childbearing.* Adolescent childbearing has extensive and long-term negative effects on the socioeconomic attainment of women, but less information is available about men (Voydanoff & Donnelly, 1990). Teenage mothers typically do not complete as much education as women who postpone childbearing until they are in their 20s or later,
although high school graduation rates for teenage mother have increased in recent years (Upchurch & McCarthy, 1989; see Butler, 1992 for review). Research indicates that, although adolescent mothers achieve lower levels of education than women bearing their first child in their 20s (Furstenberg, 1976; Teti & Lamb, 1989), longitudinal studies have indicated that a small proportion of early-childbearing women will continue schooling into their late 20s and early 30s, once the demands of childrearing are reduced (Furstenberg, Brooks-Gunn, & Morgan, 1987). Adolescent parenthood is also associated with low educational attainment for men (Voydanoff & Donnelly, 1990). Given the relationship between education and income, education is the key to improved economic well-being. Although not a direct measure of economic well-being, education is one of the most important predictors of current and permanent income. Age at childbearing affects economic position because it affects educational attainment, which, in turn affects economic position.

There is a strong association between having a child during one’s teenage years and becoming poor and welfare dependent (Schorr, 1988). Data from the Panel Study of Income Dynamics indicate that 50 percent of women who had an out-of-wedlock birth received Aid to Families with Dependent Children (AFDC) for some period of time during the three years following the birth (Bennett, Bloom & Miller, 1995), although long-term welfare dependence is not common (Voydanoff & Donnelly, 1990). Marital and childbearing history may be more influential than educational and occupational factors in predicting whether or not a mother receives welfare over the long-term because subsequent births to the women limit educational and occupational opportunities.
Adolescent childbearing is associated with low employment levels, low skill levels, and low earnings for both men and women (Voydanoff & Donnelly, 1990). As noted previously, early childbearers complete less schooling than individuals who delay childbearing beyond their teenage years (Furstenberg, 1976), which may lead to disadvantages in the job market. On the positive side, early childbearers may find it possible to "get the childbearing stage over" and establish permanent or steady labor force participation (Hofferth & Moore, 1979, p. 785). Work experience often leads to high wages and job seniority that may reduce the likelihood of unemployment for both men and women. Early childbearing may also mean fewer work interruptions for subsequent childbearing after an individual becomes established in the paid labor force.

More is known about the social and economic consequences of early birth-timing than late childbearing, yet few studies have followed teenage parents over several decades. It is often believed that teenage parents are destined to suffer severe economic disadvantages, yet research has shown that there are both hardships and advantages to early birth (Furstenberg, 1976). In this section, studies of early childbearing and its relationship to economic well-being are reviewed.

Butler (1992) used data from the Panel Study of Income Dynamics to examine how the effect of teenage childbearing on women's economic well-being changed during the period 1968-1987. Her sample consisted of 992 black women and 1,240 white women. The dependent variable, economic well-being, was defined as the total family
income divided by the family's needs measured in the year that the woman was 25 years old. Butler (1992) chose 25 for two reasons: to capture childbearers while the children were still relatively young, and to have women who were likely to be independent of their parents.

The independent variables of interest were age at first birth and calendar year. Four dummy variables represented age at first birth (Butler, 1992). They were coded as ages 15-17, 18-19, 20-24 and no child by age 25. The year variable was calculated by subtracting 1968 from the year in which economic well-being was being measured (1968-87). Values on the year variable ranged from 0 to 19.

Between 1968 and 1987 the economic well-being of women who began childbearing as teenagers declined more steeply than did the economic well-being of women who delayed childbearing until at least their 20s (Butler, 1992). The economic well-being of women who had no child by age 25 did not decline. Controlling for age at first birth and family background variables, black women had significantly lower economic well-being than white women; the decline of economic well-being was significantly steeper for black than white women who began childbearing at age 15-17. In addition, the negative effects of having lived with a single parent as a child and of having many siblings, and the positive effect of mother's education on economic well-being were all significantly stronger for black than for white women.

Butler (1992) interpreted her finding that white and black women who had their first child at age 15-17 were worse off economically at age 25 over the 1968-87 period as occurring because having a child as a teenager reduced educational attainment, and the
consequences of lower education became increasingly negative on economic well-being over the two-decade period. Reduced educational attainment coupled with more stringent eligibility criteria for welfare programs and the decrease in wages for low-skilled jobs made it harder for both young men and young women to support a family.

Hoffman, Foster and Furstenberg (1993) examined economic outcomes for sister-pairs between the ages of 21-33 in 1987 using PSID data. Sister-pairs were used to distinguish the effect of teen childbearing from family background. Approximately one-fifth of the women in the sample had given birth before the age of 20. Their findings indicated that a teen birth lowered a woman’s income-to-needs ratio by more than 30 percent, nearly doubled the probability that she was poor, and reduced the probability that she was at least middle class by more than half.

Hofferth and Moore (1979) compared 27-year-old women who bore a child as teenagers to 27-year-old women who postponed their first birth to their early twenties. The subsample used in the analysis (Hofferth & Moore, 1979) was composed of young women who turned 27 during the years of the survey (aged 20 to 24 in 1968) and who had ever had a child. Early childbearers were included in the subsample, but late childbearers (beyond the age of 27) were excluded from the analysis; therefore, the effects of an early first birth may be underestimated.

Three dependent variables were used in the analysis: the respondent’s income at age 27, the incomes of other family members, and whether or not the respondent’s household fell below the poverty line using an income-to-needs ratio. Separate path analyses were conducted on respondents whose age at first birth was less than or equal to
Early childbearers had completed less education, and were more likely to be poor at age 27 than those who had postponed childbearing. Additional results of the study indicate that the age at which a woman bore her first child had important effects on her later economic well-being (Hofferth & Moore, 1979). The later childbearers were better off at age 27 than the early childbearers (Hofferth & Moore, 1979). The most important indirect effect of delaying a first birth was that total family size at age 27 was reduced. As a result, total work experience, hours worked, and earnings of women and their husbands or other family members were higher. Later first birth increased the work experience the woman obtained, which increased her hours worked and her earnings, suggesting that women who work before marriage or between marriage and having a child do build up human capital compared to those who have a child before entering the labor force.

Although this study did follow women over time, at age 27 they are still relatively young. As Hofferth and Moore (1979) point out, most will have more children, some may return to school, and most will work. Therefore, the effects of age at first birth at the end of the childbearing period or in later years is unknown.

Robbins and Streetman (1994) first surveyed seventh grade students in Texas' Houston Independent School District in 1971 with a self-administered questionnaire. They then did follow-up interviews and mail back questionnaires with the original sample between 1980 and 1988. Of the 9,335 respondents in the original sample, 6,074 (65%) completed the adult follow-up study.
Nonmarital adolescent pregnancy was determined by the response to the following questions, “Did you (your girlfriend) become pregnant outside of marriage?” “(If yes) When did it happen?” Respondents were included in the analysis if the pregnancy occurred before the respondent reached age 21. Both men and women were included in the analysis. Three resolutions to adolescent pregnancy were then coded based on life-events questions: the adolescent pregnancy was ended by abortion, the respondent married or cohabitated and became a parent, the respondent became a parent but did not marry or cohabitate. Respondents who never experienced an adolescent pregnancy were also included in the analysis.

Choosing parenthood had a negative impact on the level of education achieved for women, and also for men who married or cohabitated as a result of adolescent pregnancy. Women who married or became single mothers were more likely than other women to be unemployed and not in school. Those who worked were in low status jobs and expected to remain in low-status jobs. Men who married or lived with their child’s mother completed less education than men who had not experienced an adolescent pregnancy. Although their incomes were not significantly lower, they were less likely to anticipate high status jobs in the future.

The studies reviewed in this section indicate that adolescent childbearing does have a negative impact on the future economic well-being of women, and may have negative affects on men who marry or cohabitate as a result of childbearing. What is still unknown however, is whether the adverse effects of teenage childbearing can be overcome over a
longer period of time if the parents return to school and/or participate continuously in the paid labor force.

**Late childbearing.** Despite the preponderance of the trend toward delayed childbearing, little is known about the social and economic consequences of the decision to postpone the first birth, or the impact that the postponement of childbirth has on the parent’s economic status over time. Literature on delayed childbearers is typically descriptive in nature, concentrating on demographic characteristics.

The impact of a child on level of living for a delayed childbearer is likely to be different than the impact of the birth on an average age childbearer, yet little is known about long term consequences of delayed childbearing and small family size (Hofferth, 1984), or about the effects of aggregate economic conditions on first birth timing (Teachman & Schollaert, 1989).

It is likely that delayed childbearers will be able to accumulate more economic assets before the first birth because both parents have generally been working longer and at better paying jobs than early childbearers (Baldwin & Nord, 1984). Assets acquired early in life will accumulate added value over the longer growth period. The children are also being reared at a time when parents have higher earnings. Delayed childbearing could affect the financial position of parents at retirement, however (Thornton & Freedman, 1983). Although having children later in life could enable a couple to accumulate assets before they start their family, the burden of college expenses close to parental retirement may deplete retirement savings. Delayed childbearing also could require difficult adjustments in the lifestyle enjoyed while childless.
Delaying the first birth may increase subsequent expenditures on children more in higher-income families than in middle- or low- income families (Baldwin & Nord, 1984). Parents may be able to provide their children with more opportunities and advantages (Thornton & Freedman, 1983). In addition, small families may mean that parents have more time and resources for activities other than childrearing. Parents may have additional time to pursue education or leisure.

Only one study has looked at the long-term economic consequences of delayed childbearing (Hofferth, 1984) and it will be reviewed at length because the present study, to a certain degree, replicates and extends this work. Using data from the ninth wave (1976) of the Panel Study of Income Dynamics, Hofferth (1984) examined the relationships between delayed childbearing, completed family size, and economic well-being for women aged sixty and over in 1976. Hofferth selected 1976 as the focus year because in that wave, both the husband and wife in a household were interviewed. She selected 60 as her age of interest because by age 60, even the children of delayers have typically reached age 18, and women’s employment declines sharply after age 60 (Hofferth, 1984).

Family economic well-being was measured using family income and assets. Income was measured using total family income including public transfer income and income from relatives outside the household; therefore, measures of income were quite comprehensive but cross-sectional. Assets constituted a separate measure of economic well-being in the study. The only measure of assets used was home equity, however. Data on liquid assets were not available in the 1976 wave of the PSID. For most adults,
the greatest component of their wealth is home equity (Hofferth, 1984). In a sample of retired or nearly retired individuals, however, liquid assets may be substantial.

Two estimates of income equivalence were used in the study to assess standard of living (Hofferth, 1984): the ratio of income-to-needs or the Orshansky scale, and the single person-real-income equivalent per capita (Lazear-Michael) scale. The Orshansky scale is based on the ratio of income to consumption “needs.” Those needs are derived from the cost estimates of a market basket of nutritionally adequate foods for a variety of household types. The Lazear-Michael scale converts a family of a given size, age and sex composition into an equivalent number of homogeneous units based on consumption behavior, and then constructs the ratio of family income to homogeneous unit.

Hofferth (1984) defined the number of children in the study as the number of children ever born to, or raised by, the woman. She used a single dummy variable to indicate whether a woman who had children bore her first at age 30 or older. A second set of dummy variables indicated the number of children born to a woman whose first birth was at age 30 or older.

Control variables used in the analysis included family background, race, education, occupation, whether the woman had physical limitations, the type of household, and whether she had had a premarital birth. One attitudinal variable was included in the analysis, that of efficacy. Macrolevel variables included region of residence and degree of urbanization. Labor market variables such as whether the woman was employed and annual labor force hours were also included in the analysis. Age was not included in the analysis due to its collinearity with length of marriage and age at first birth.
The results of the study indicated that women who delayed a first birth until age 30 or over had higher family incomes and higher levels of living than women who had their first birth before age 30. Women who delayed childbearing were able to accumulate assets to a greater level than other women but the differences were not statistically significant. This finding may occur because home equity alone is not a good measure of assets for the elderly; some of the women may have sold their homes. It also is a limited measure of net worth for people with substantial levels of other types of assets. Married women had substantially more household assets than those who were not married. In addition, women with the highest levels of education were able to accumulate the most assets.

In deciding to limit the sample to include only women in the analysis, Hofferth (1984) made the common assumption that birth-timing is important only for women. Hofferth (1984) justifies her decision because the household level data, such as total household income and asset level, would be the same for both a man and the woman in the household. However, predictor variables such as age at first birth, level of education, race, annual number of hours worked outside the home, and whether one had ever been divorced may or may not have been the same for each member of the husband-wife pair. This study deals with one of the shortcomings of the Hofferth (1984) study by including both men and women in the analysis. More comprehensive measures of income and net worth are included, as well.
Hypotheses

Much of the literature on birth-timing, particularly delayed childbearing, is descriptive in nature and focuses on fertility patterns. Researchers have identified factors that contribute to early or late childbearing, although little is known about the long-term effects of birth-timing particularly in relation to economic well-being. In this study, two indicators of economic well-being, permanent income and household net worth, are used to assess the long-term outcomes of birth-timing. The unit of analysis in the study is the individual but household level variables will be used as outcome variables in the study because household members typically share resources and goals, and it is therefore inappropriate to look only at individual outcomes.

Of particular interest in the study will be the economic outcomes for those who had their children “off-time.” The long-term economic consequences for men and women who bore children relatively early will be examined to ascertain factors associated with “recovery” from the financial difficulties associated with early childbearing. The economic outcomes for delayed childbearers will be assessed to ascertain if, in fact, they do attain higher levels of income and wealth in later years as is often speculated. By controlling for factors that are known to affect economic well-being such as education, race, labor force participation, and marital status, a better understanding of the relationship between birth-timing and economic outcomes will be acquired. In other words, the question becomes, is the relationship between birth-timing and economic outcomes spurious with regard to other relevant variables suggested by human capital and family development theory?
Based on the premises of family development theory, human capital theory, and the review of literature, three general hypotheses will be tested in this analysis. They are as follows:

1. There are differences among early, on-time, and late childbearing groups on the variables that predict economic well-being such as years of education, parity, race, marital history, pre- or postmarital first birth, and labor force participation. Specifically, early childbearing men and women are expected to have less education, more children and more unstable marital histories than their on-time and delayed childbearing counterparts. They are also more likely to be nonwhite and have premarital first births. Delayed childbearing men and women are expected to have more education, fewer children, and more involvement in the paid labor force than their early and on-time childbearing counterparts.

2. There is a relationship between economic well-being and birth-timing. “Off-time” childbearing men and women are expected to have different levels of economic well-being at age 60 and beyond than their “on-time” childbearing counterparts. Early childbearing men and women are expected to have lower levels of economic well-being than their on-time childbearing counterparts. Delayed childbearers are expected to have higher levels of economic well-being than their on-time childbearing counterparts.

3. There is no relationship between economic outcomes and birth-timing when the other factors that influence economic well-being such as educational level, race, labor force
participation, martial status and marital history, residential location and current family size are controlled.
CHAPTER 3

METHODS

The data, methods, variables, and analyses used in the study are presented in this chapter. Decisions made in data preparation and analyses are highlighted in comparison to potential alternatives.

Data

Data for this study are from the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal survey of a representative sample of U.S. individuals and the families in which they live. Data have been collected annually since 1968 and emphasize the dynamic aspects of economic and demographic behavior (Hill, 1992). The study is done by the Survey Research Center, Institute for Social Research at the University of Michigan. By 1988, there was information on 37,500 individuals and 7,000 family units (Hill, 1992). Data are collected on all persons residing in the family unit but only one person (usually the head) responds.

Those originally interviewed in 1968 have been interviewed again each subsequent year (Duncan & Morgan, 1975). As new households are formed, the heads of the new households are added to the sample. For the first five years, the interviews were conducted face-to-face. In later years the interviews have been conducted by telephone. Because the original focus of the study was on the dynamics of poverty, the initial sample consisted of a disproportionately large number of households in poverty during the late 1960s, yielding a sizable subsample of blacks (Duncan & Hill, 1991). The study has a high response rate, with 97 percent of the prior-year sample continuing to participate from one
year to the next (Duncan & Hill, 1991). Approximately 55 percent of the still-living original sample of individuals were participating in the study in 1989. The PSID contains information on wealth (assets, pensions and savings) from the 1984 and 1989 supplements, income sources and amounts, family structure and family planning or fertility, in addition to many other areas, and therefore is a suitable data set to use for this study.

Sample

Men and women aged 60 to 70 in 1989 were included in the sample used in the analyses. The 1989 wave (Wave XXII) was selected for the present study because complete data were collected on household assets and debts, making it possible to examine household net worth. Parallel analyses were conducted for men and women.

*The choice of a cohort.* Hofferth (1984) used women aged 60 and over in 1976 from the PSID data set for her analysis of the long-term economic outcomes of delayed childbearing, reasoning that the employment of men and women declines sharply after age 60, and by age 60, the children of even very late childbearers will have reached age 18. Hofferth chose the year 1976 for her analysis because in that year both heads of households and wives were interviewed, thus providing good information on women.

The decision to use the cohort of individuals aged 60 to 70 in this study rather than using everyone aged 60 and over, as Hofferth did, was made for two reasons. First, the economic status of persons age 60 to 70 can be very different than for those who are 75, 85 or even 95, due to the extended time living on post-retirement income, and changes in health status. For example, it has been shown that individuals 75 years of age and older
spend much more, on average, on medical care than those aged 65 to 74, and that the level of living for the "very" old can be different from the "newly" old because each group worked during different periods in history; thus each group's final earnings and resulting levels of living prior to retirement are different (Schulz, 1995, p. 13). The incomes of those more recently retired are frequently better than those who have been retired for a longer period of time because the younger group's earnings were typically higher, and pensions based upon them are better; the age group of 75-80 and older has consistently been found to be economically less well-off than the "young old."

The second related reason for choosing the subsample based on cohorts is that cohorts acquire varying amounts of education, accumulate different types of labor market experience, have different numbers of children, and mature in different social climates (Goldin, 1990), thus distinguishing the cohort from others coexisting at the same time. Cohorts share common experiences, may have different options available to them in dealing with life events, share normative events, and may share nonnormative events as well. In addition, using a cohort of individuals rather than trying to define a sample based on retirement age, for example, is more manageable due to the increasing popularity of early retirement in the United States, and the select few who choose to work beyond a normative age for retirement, 65.

The individuals included in these analyses were born between 1919 and 1929, and can be included in the group referred to as the "parents of the baby boomers," born between 1916 and 1935 (Bianchi & Spain, 1996). Numerous historical occurrences affected this cohort, most notable were the Great Depression, World War II, and the
Korean War. The oldest people in the sample were 22 when World War II was declared; the youngest were 22 at the start of the Korean War.

Economic depression and wars tend to reduce the fertility rate, but after a war, the birth rate generally increases (Ferris, 1971). The birthrate during the depression years of the 1930s was relatively low, and the birthrate remained low during the war years. There was a sharp increase in births in 1946 and 1947 with an unusually high birth rate for the first child in 1947 following World War II. Histograms showing the year of the birth of the first child in this sample (not shown) illustrate similar trends for the men's and women's samples used in these analyses. The number of first births for the cohort of individuals included in these samples dropped slightly in 1942, at the height of United States involvement in the war, climbed in 1945 and 1946, and peaked in 1947 during the early post-war years.

By the 1950s, women in the United States were marrying younger and having large families (Anderson, 1981). For many people, the return of the servicemen meant war-deferred marriages and childbearing. The increase in birth-rates during the post-war period is said to reflect a return toward "normalcy" including traditional roles for men and women (Blau & Ferber, 1992, p. 106). From 1946 to 1950, birth-rates rose steadily and remained high until the early 1960s. At the height of the babyboom, women averaged three births.

World War II affected not only birth-rates for men and women, but employment as well. During the war, the employment of large numbers of women and minority men became mandatory to maintain production (Anderson, 1981; Reskin & Padavic, 1994).
For example, in July of 1944, 19 million women were employed—an increase of 47% over the March 1940 level (Anderson, 1981). Married women, often the wives of servicemen away from home, constituted a larger proportion of the wartime increase in female labor force participation than did single women, many of whom were already in the paid labor force (Anderson, 1981; Blau & Ferber, 1992). The war is said to have undermined the sex-segregated labor market; women were often able to escape low-paying female dominated occupations and some pay inequities disappeared (Anderson, 1981; Lipman-Blumen, 1975), but more than half of the war entrants into the labor force exited before 1950 (Goldin, 1991).

Although post-war employment levels for women were lower than at the war-time peak, many women did stay in the labor force after the war, although at lower pay and skill levels than during the war (Anderson, 1981). Some argue, however, that World War II had little long-run effect on the division of paid work between the sexes (Reskin & Padavic, 1994), and had only a modest effect on women's employment overall (Goldin, 1991).

During the babyboom years, birthrates and labor force participation rates for women increased (Blau & Ferber, 1992). Although young women with small children remained at home during the 1940 to 1960 period, the rising labor force participation rates for women were due in large part to the entry of women over the age of 35 with school age or grown children (Blau & Ferber, 1992). As their children became more self-sufficient (and often needed money for college), these fairly well-educated women were attracted into the labor force by relatively high real wages and good economic conditions.
The war proved to be influential for the life-course of men, as well. Veterans had higher divorce rates than nonveterans (see Lipman-Blumer, 1975 and Pavalko & Elder, 1990 for discussions). Military service and G.I.-Bill training also provided an avenue for men from lower socioeconomic backgrounds to achieve enhanced occupational status, job stability and economic well-being (Sampson & Laub, 1996).

Levy and Michel (1991) reported that members of the cohort born between 1919 and 1928 increased their wealth significantly between 1953 and 1983, although not quite to the extent of the 1929 to 1938 cohort. Individuals growing up in the 1930's were likely to have been influenced by the conservative attitudes toward consumption and saving developed as a result of living through the Great Depression and World War II, and these individuals experienced strong periods of economic growth in the U.S. that fostered growth in their incomes and accumulated assets, home equity in particular. Despite the fact that the cohort born between 1929 and 1938 experienced the most positive effects of these influences, the factors undoubtedly facilitated positive outcomes for the 1919 to 1929 group, as well.

Sample size. The sample consists of 519 women and 352 men aged 60 to 70 in 1989 who had had a child, and for whom data were available on the year of the first or only birth. Two cases were eliminated from the women’s sample because the first birth was recorded as having occurred before age 12; no outlying values on this variable were present in the men’s sample.

Also excluded from the sample were cases that had missing or senseless values on the variables, number of years worked since age 18 in both the women’s and men’s
samples, and *number of years worked full-time since age 18* in the men's sample, because these variables were critical in assessing labor force involvement. Specifically, one case with an extreme value (78) in the women's sample on the variable, *number of years worked since age 18*, was eliminated from the sample, and 13 cases were removed from the sample because of missing data on the variable. Thirteen cases with missing data on the variable, *number of years worked since age 18*, and 17 cases with missing data on the variable, *number of years worked full-time since age 18*, were excluded from the men's sample. The two labor force variables in the men's sample were used to calculate a labor force involvement ratio. Because of the large percentage of women who reported that they spent zero years working since age 18 (50.7 percent of the sample), this same ratio was not calculated for the women. A description of the labor force coding schemes is provided later in this chapter.

Cases with missing data on the variable, *year of first marriage*, were also excluded from the analyses because this information was crucial in determining whether or not the birth of the first child occurred before or after marriage. Twenty-five women and 19 men had missing data on this variable.

Individuals with no children were included in preliminary analyses, but the decision was made to exclude them from the analyses reported here because information was not available on whether or not they were voluntarily childless or involuntarily childless, a factor that may have influenced economic decisions and outcomes. Forty-six women and 29 men were eliminated from the sample because they did not have children.
Independent Variables

**Age at first birth.** The age-at-first birth variable was created by subtracting the year that the individual was born from the year that the first child was born. The age-at-first-birth variable initially was used as a continuous variable in the regression analyses, and a squared term was included in the preliminary regression analyses to assess whether or not there was a curvilinear relationship between age at first birth and each of the dependent variables, but the age-at-first-birth squared term proved to be nonsignificant.

To make comparisons between on- and off-time births, the variable was coded using the age distribution and interquartile range of the sample after Cooney et al. (1993) in a study of first-time fathers. In that study, early fatherhood was defined as having the first child at or below the age at which the respondents had their first child in the twenty-fifth percentile of the sample (age 23 in their study), and late fatherhood was defined as having the first child at or above the age at which the respondents had their first child by the seventy-fifth percentile of the sample and above (age 30 in their sample). The interquartile range of the sample thus became the range for on-time fatherhood (ages 24 to 29). Representing age at first birth this way allows for variations in age at first birth for men and women that result because men often marry women younger than themselves; thus, the timing of family careers may not begin at the same age for men and women.

In this study, early childbearing for women was defined as having a first child between the ages of 12 and 19 (at or below the twenty-fifth percentile of the sample). On-time or normative childbearing occurred between the ages of 20 and 24, the interquartile range of
The sample, and late childbearing ranged from 25 to 41 (the seventy-fifth percentile of the sample and above).

The definitions of early, on-time, and late childbearing proved to be slightly different for men. Early childbearing was defined as having a first child between the ages of 14 and 22 (at or below the twenty-fifth percentile of the sample). On-time or normative childbearing occurred between the ages of 23 and 27, the interquartile range of the sample, and late childbearing ranged from ages 28 to 39 (the seventy-fifth percentile of the sample and above).

**Current employment status.** This variable was measured using reported employment status in 1989 and was dummy coded into three categories in the women's sample: those who were still involved in the paid labor force (working now, laid off, or unemployed but looking for work), those who were retired or permanently disabled, and those who were housewives. The housewives are coded with zeros on the two dummy variables. In the men's sample, the dummy codes were: those who were still involved in the paid labor force (working now, laid off, or unemployed but looking for work), and those who were retired or permanently disabled. There were no “housewives” in the men's sample. The retired group represents the eliminated category.

**Completed education.** This variable measured the actual grade of school completed, including post-graduate work. Missing data for 6 women and 3 men (1.2% and .9% of the respective samples) were imputed using the mean value on this variable.

**Parity.** The total number of live births to the individual was used to assess parity. The limitation of using total number of live births is that this variable is an
overestimate of completed family size because it may include children given up for
adoption or lost through death. In her discussion of women who began childbearing as
teensagers, Butler (1992) explained that teens who became mothers prior to 1971 (before
abortions were a widely available) may have been more likely to give their children up for
adoption. Therefore, this issue is relevant in this study of individuals aged 60 and over.
There also is evidence that births of children who are put up for adoption are
underreported in surveys (McCarthy & Mencken, 1979). There is, however, no way to
correct the number to reflect giving a child up for adoption or losing one or more children
through death. In spite of the limitations, number of live births is the variable traditionally
used to assess parity (Freedman, Freedman & Thornton, 1980; Hofferth, 1984).

*Last known marital status.* Last known marital status was dummy coded into two
levels, married in 1989 (coded as 1 on the dummy variable) or not married in 1989 (coded
as zero on the dummy variable).

*Marital history.* The number of marriages the respondent had ever had was
dummy coded into two levels, having had one marriage (coded as 1 on the dummy
variable), or having had more than one marriage, or no marriage (coded as zero on the
dummy variable).

*Rural or urban location.* Rural or urban location was measured using 1988 PSID
codes categorized into three levels to indicate if the respondent lived in or near a
metropolitan area of 1 million people or more (coded as 1 on the first set of dummy
variables), in a semi-urban area of less than 1 million people (coded as 1 on the second set
of dummy variables), or in a more rural-like area with less than 20,000 people (coded as 0
in both sets of dummy variables). There was one value of zero in the women’s sample indicating foreign residence at the time of the interview, which was recoded to the modal response in the sample (in or near a large metropolitan area of one million people or more). The same was done for one foreign residential value and one missing value in the men’s sample.

**Race.** The race of the head of the household was used as the race variable for both men and women in the study because data were available only on the head of the household. Although all of the men were reported to be the head of the household, only 185 women were the reported heads of household. Therefore, the race of male respondents is accurate; however, the race of the woman may or may not be the same as the reported race of the head of household. It is, however, the best indicator of race in the data set. The race variable was dummy coded into two levels to reflect white and nonwhite respondents.

**Family size.** Family size was measured as family size in 1989.

**Premarital or Postmarital first birth.** Information on the year of first marriage and the year of first birth, and the month of first marriage and month of first birth, was used to create a dummy coding scheme to indicate whether the first birth occurred before or after the first marriage. The creation of the coding scheme was done in two steps. First, the year of first marriage was subtracted from the year of first birth. Those with negative numbers were coded as having had a birth that preceded the first marriage, those with positive numbers were coded as having had a first birth after the first marriage.
The second step involved coding the responses for individuals with zero on the year of first birth minus the year of first marriage variable (54 women and 44 men). Zeros on this variable indicate that the first birth and the first marriage occurred in the same year. For these individuals, the month of first marriage was subtracted from the month of first birth. Those with negative numbers were coded as having had a birth that preceded the first marriage, those with positive numbers were coded as having had a birth that followed the first marriage, and those with zeros on this variable were coded as having had the first birth prior to marriage using the justification that if the birth and the marriage occurred in the same month, conception preceded marriage. Only 2 woman and 6 men had the first birth and first marriage in the same month. This variable emphasizes premarital birth and not premarital conception except in those 8 cases. Having been married before the first birth occurred was coded as 1 in a dummy variable.

Before these calculations were made, 6 of the women's responses and 12 of the men's responses that were missing data on the variable, month that the first or only child was born, were imputed using the modal response, September. Twenty-two women's responses, and 28 men's responses were imputed on the variable, month first or only marriage began, using the modal response for the samples, June. It should be stressed that, for the majority of the sample, calculating premarital or postmarital first birth could be done using the year of first marriage and year of first birth information without the information on month of first marriage or month of first birth.

Work history. The variable, years worked since age 18, was used to assess women's labor force participation. Because 263 women (50.7 percent of the sample)
reported zero years of work since age 18 and 274 women (54.3 percent of the sample) reported zero years of full-time work, the decision to assess women's labor force participation based only on the years worked since age 18 was made. Two dummy variables represent women's labor force involvement. About 25 percent of the women (141 women) in the sample reported having worked between 1 and 20 years since age 18. These cases were coded as 1 on the first dummy variable. Another 25 percent (115 women) reported having worked between 21 and 46 years since age 18. These women were coded as 1 on the second dummy variable. The 50.7 percent of the women who had reported zero years of labor force participation were the eliminated category on both dummy variables. By coding the variable this way, the economic outcomes of women with no labor force experience were compared to those with participation of intermediate length and relatively long duration of employment.

Because very few men reported zero on either years of work since age 18 (n=3) or zero on years of full-time work since age 18 (n=4), both of these variables were used to calculate a ratio of men's labor force involvement by dividing the variable years of full-time work since age 18 by the variable, years of work since age 18. The closer the ratio was to 1.0, the more involved the individual was in the paid labor force.

Because four men did report zero years of work since age 18, these values were recoded to .01 to avoid having a zero in the denominator for the ratio calculation. Twenty-nine values greater than one on the ratio were recoded to equal 1, because a listing of the cases indicated that the values on the initial variables had likely been transposed. In one case for example, the value on the variable, years worked since age 18,
was 38, and the value on the variable, \textit{years worked full-time since age 18}, was 40, indicating that some type of reporting or recording error had occurred. The ratio was then used in the regression analyses for men.

\textit{Weighting:} The samples were weighted using the PSID calculated 1989 individual weight as a fractional weight. The fractional weight was calculated by dividing the individual weight factor by the mean of the weight variable separately for men and women.

\textbf{Dependent Variables}

\textit{Permanent income.} The permanent income hypothesis posits that consumers smooth their lifetime consumption patterns by saving during periods of high income and dissaving when income is low (Friedman, 1957). The lifecycle permanent income hypothesis expands this premise to include the idea that consumption in any one time period is viewed as a function of life-time resources rather than simply current income (Ando & Modigliani, 1963). Utility maximization is then subject to current and future earnings and current net worth. Individuals make current consumption decisions based on information about future events and income, and assets serve as inputs into consumption decisions. Consumption depends on all resources available to the consumer during his or her lifetime. The use of permanent income is superior to using only current income as an assessment of economic well-being because economic well-being is dependent not only on current income, but on assets and future income as well. Because permanent income is not observable, a proxy that is likely to be highly correlated with
permanent income is often used in measuring permanent income (Koelln, Rubin, & Picard, 1995; Langemeier & Patrick, 1993; Mullis, 1992; Shaw, 1994).

In this study, a proxy for permanent household income was developed using the average of summed PSID-calculated variables for total money income in the ten-year period, 1979 through 1988. In each year, the taxable income of the head and "wife," total transfers of the head and "wife," total prorated income of others in the family unit, and total prorated transfers of others in the family unit were summed by the PSID staff. This measure includes income from: wages, farms and businesses, bonuses and commissions, professional practices and trade, marketing garden produce, income from roomers and boarders, AFDC, SSI, other welfare, social security, VA pensions, pensions, annuities, unemployment compensation, worker's compensation, child support, and help from relatives, for up to five people in the household.

In this study, the total income from each of the years 1979 through 1988 was converted to constant dollars (using 1989 as the reference year to be consistent with the measure of wealth) and summed, and then divided by the number of years for which income was available, yielding a proxy for permanent income in 1989 dollars. One case in the women's sample was missing 3 years of data, and one case in the men's sample was missing 5 years of data; the remainder had no missing data. Permanent income has been measured in a variety of ways, including total expenditures (Koelln, Rubin, & Picard, 1995) and consumption (Langemeier & Patrick, 1993). The method used here resembles that used by Mullis (1992) and Shaw (1994), who averaged multiple years of income data converted to constant dollar equivalents to approximate permanent income. The natural
log of the permanent income variable was used in the final regression analyses for women and men due to the skewed nature of the distributions on this variable.

**Household net worth.** The total family unit's wealth in 1989 was calculated in the PSID data set using the sum of the net equity in a main home, other real estate, vehicles, farm/business, stocks, savings accounts and other assets, less debt. Missing values were imputed by the PSID staff so there are no missing data on the variable. Negative and zero values on this variable were recorded to 1 so that the variable could be transformed using the natural log to attain a more normal distribution on the variable. Preliminary analyses were conducted with those who had negative or zero net worth removed from the sample, thus normalizing the distribution on the wealth variable, but t-tests comparing those with negative or zero net worth to those with positive values of net worth on several key variables indicated that those with no net worth were significantly different than those with positive net worth, therefore all cases were included in the final analyses, despite the violation of one of the assumptions of least squares regression, that the errors on the dependent variable are normally distributed. Twenty-eight women and 13 men reported either negative or zero net worth.

**Average of the income-to-needs ratio.** The analyses reported in Chapter 4 were also conducted using a third measure of economic well-being, the average of the income-to-needs ratio for a ten year period. An average of the income-to-needs ratio was calculated using annual family income for the ten year period, 1979 to 1988, divided by the relative standard of need for the household in each of those respective years. The results of the regression analyses are not reported in Chapter 4, however, because the
results were very similar to the results using permanent income as an endogenous variable in terms of amount of variance explained and significant predictor variables. The similarity of results between the permanent income regressions and the regressions using the average of the income-to-needs ratio are probably due to the fact that both were calculated using annual family income, but the small family size of the respondent’s households in 1989 rendered the findings virtually identical to permanent income findings.

*Individual income.* Individual income, calculated by the PSID staff by summing the amount of money earned from employment and the total transfer income that the individual received in each year, including money income from social security, pensions, welfare, interest, gifts and “anything else” was included as a fourth measure of economic well-being in preliminary analyses. Because 277 women (53.4 percent of the sample) and 78 men (22 percent of the sample) reported having no individual income in the year 1988 alone, the decision was made not to use this variable in the final analyses reported in Chapter 4. It is evident in the men’s and women’s samples that income is shared among the members of the household.

**Statistical Analyses**

Preliminary data analyses for the study included frequency distributions on all independent and dependent variables, and the calculation of cross-tabulations and correlations to assess the relationships between each variable and other variables. The distributions of the dependent variables were also plotted to assess skewness. Although the results of the crosstabulations are not reported in this document, correlation tables for
men and women on the variables used in the final analyses are reported and discussed in
Chapter 4.

Two-stage least squares regression analyses was used for the final results reported
in Chapter 4. Two-stage least squares regression was used because permanent income
and wealth are simultaneously determined. In simultaneous-equation models, there are
endogenous, or jointly determined variables, and exogenous, or determining variables
(Maddala, 1977). Income and wealth are endogenous variables, meaning that their values
are determined within the model (Wonnacott & Wonnacott, 1981), or that they are
causally dependent on other variables in the model (Norusis, 1994). There is a feedback
effect between wealth and permanent income because increases or decreases in one can
foster increases or decreases in the other. Two-stage least squares (2SLS) regression
analysis is preferred to ordinary least squares regression analysis in such cases of
nonrecursive simultaneous equations because ordinary least squares (OLS) regression
does not give consistent estimates of the parameters. If OLS regression analysis is
applied to solve a system of equations containing reciprocally causal endogenous
variables, parameter estimates will be inconsistent because each endogenous variable will
be correlated with the errors from the regression equations in which it is regressed on the
other endogenous variables (Wonnacott & Wonnacott, 1970, p. 152). This problem can be
eliminated if that endogenous variable is purged of its dependence on the error; this
purging is the first stage in a two-stage least squares regression analysis.

The method of 2SLS analysis used in this analysis is similar to that outlined by
Maddala (1977, p. 232). The method is as follows:
\[ y_1 = \beta_{11} y_1 + \gamma_{11} z_1 + \gamma_{12} z_2 + u_1 \]
\[ y_2 = \beta_{21} y_1 + \gamma_{22} z_2 + \gamma_{23} z_3 + u_2 \]

Here, \( y_1 \) and \( y_2 \) are modified endogenous variables and \( z_1, z_2, z_3 \) and \( z_4 \) are the exogenous variables. In 2SLS, reduced-form equations are first estimated using OLS. In this example, \( y_1 \) and \( y_2 \) are modified by taking the predicted values from the respective regressions of \( y_1 \) and \( y_2 \) on \( z_1, z_2, z_3, \) and \( z_4 \). As a result, \( \hat{y}_1 \) and \( \hat{y}_2 \), the respective estimated values of \( y_1 \) and \( y_2 \), are calculated from these reduced-form equations. In the second stage of 2SLS, \( y_1 \) is regressed on \( \hat{y}_2, z_1 \) and \( z_2 \) and \( y_2 \) on \( \hat{y}_1, z_3 \) and \( z_4 \). Thus, the estimated values from the reduced-form equations are substituted into the right hand side of the equations above. According to Maddala (1977), the basic idea in 2SLS is to get consistent estimates for the parameters by substituting for endogenous variables, which are correlated with the residuals, linear functions of all the exogenous variables. The "troublesome" endogenous variable is replaced with a similar variable that is hopefully almost as good at predicting a dependent variable, such as wealth, but is theoretically not correlated with the error term in the equation. In this case, the strategy is to replace the "troublesome" endogenous predictor variable with a similar variable that, as it turns out, is almost as good as permanent income in predicting wealth, but is theoretically not correlated with the error term in the prediction of wealth.

Instrumental variables are available exogenous variables that influence one or more endogenous variables, but are (at least theoretically) unassociated with the error terms associated with these endogenous variables. Except in theory, one cannot be sure if an instrument is correlated with the unobserved error term. When no instrument is available
among time series data, the lagged value of the endogenous variable is often used because, even though this value may be correlated with the lagged error, it may not be correlated with the current error. In the analyses reported in Chapter 4, it was difficult to find variables that would only predict permanent income, but not wealth, and vice versa, because of their interrelated nature. However, because there were variables known to predict permanent income, whose influence or outcome preceded or occurred concurrently with the measurement of permanent income in time, these variables were used as the instrumental variables. Figure 3.1 shows the model tested in the analyses reported in Chapter 4.

The instrumental variables that were used to compute the predicted value of permanent income in the first stage of the 2SLS analyses included race, birth-timing group, years of education, marital history, the number of births to the individual, whether or not the first birth occurred pre- or post-maritally, and participation in the labor force. In the second stage of the 2SLS process, the estimated value of permanent income, the region of the individual’s residence in 1989, the person’s employment and marital status in 1989, and his or her reported family size in 1989 were used to predict the level of wealth in 1989. These variables, referred to as explanatory variables in Chapter 4, are known to influence wealth but could not have been causally prior to modified permanent income, which was calculated as a linear combination of conditions from previous years. The 2SLS analyses was conducted using the saved predicted values from an OLS regression (e.g. predicted income for permanent income), using two stages of OLS (see Greene, 1995).
Figure 3.1. Two-stage Least Squares Regression Model
When using a 2SLS regression analysis, it is important to look at the results of an OLS analysis with the same data, as well (Maddala, 1977). OLS is more robust than 2SLS against specification errors, and the predictions from equations estimated using OLS often are similar with those obtained from equations estimated by 2SLS. Therefore, OLS equations were also run, although the results are not reported in Chapter 4.
CHAPTER 4

RESULTS AND DISCUSSION

The results of the study are presented and discussed in this chapter. In each section, the findings related to each hypothesis are reported and interpreted within either the framework of human capital theory or family development theory. Descriptive statistics on the birth-timing groups are presented first, followed by the results of correlational analyses. A discussion of the influence of the instrumental variables on permanent income for both women and men is next, followed by a review of the results of the second stage of the 2SLS analyses, the regression of wealth on the linear estimates of permanent income and the other explanatory variables. Finally, estimates calculated to conceptualize the factors that can help early childbearing women and men off-set the negative economic impacts of early first birth are discussed. Similar estimates for men were calculated to illustrate the differentials between high and low levels of education and stable versus unstable marital histories.

Descriptive Statistics

Descriptive statistics for the exogenous instrumental and explanatory variables are presented first, followed by the descriptive statistics on the endogenous variables, permanent income and wealth.

Instrumental and explanatory variables. Descriptive statistics on the instrumental and explanatory variables are presented for the women's and men's samples, respectively, in Tables 4.1 and 4.2. In reviewing these statistics, it is evident that there are significant differences among birth-timing groups for both men and women on some of the variables.
Table 4.1. Descriptive Statistics; Means and Percentages, Instrumental and Explanatory Variables, Women, Weighted Data

<table>
<thead>
<tr>
<th></th>
<th>Early Childbearers n=120</th>
<th>On-time Childbearers n=240</th>
<th>Late Childbearers n=159</th>
<th>Overall Sample n=519</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Age (1989)</td>
<td>63.82</td>
<td>64.06</td>
<td>65.14</td>
<td>64.33</td>
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</tr>
<tr>
<td>Age at First Birth</td>
<td>17.94</td>
<td>22.18</td>
<td>28.37</td>
<td>23.09</td>
<td>1.33</td>
</tr>
<tr>
<td>Number of Births</td>
<td>4.50</td>
<td>3.82</td>
<td>2.81</td>
<td>3.67</td>
<td>2.66</td>
</tr>
<tr>
<td>Education</td>
<td>10.16</td>
<td>11.19</td>
<td>12.54</td>
<td>11.68</td>
<td>2.73</td>
</tr>
<tr>
<td>Years Worked Since Age 18</td>
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<td>10.83</td>
<td>12.80</td>
<td>11.48</td>
<td>13.64</td>
</tr>
<tr>
<td>Family Size (1989)</td>
<td>1.99</td>
<td>1.95</td>
<td>1.90</td>
<td>1.95</td>
<td>1.09</td>
</tr>
<tr>
<td>White</td>
<td>95</td>
<td>222</td>
<td>149</td>
<td>466</td>
<td>79.20</td>
</tr>
<tr>
<td>Post-Marital Birth</td>
<td>102</td>
<td>225</td>
<td>156</td>
<td>483</td>
<td>84.60</td>
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<tr>
<td>Stable Marital History</td>
<td>85</td>
<td>202</td>
<td>130</td>
<td>416</td>
<td>70.30</td>
</tr>
</tbody>
</table>

Chi-Square

**p < 0.05
***p < 0.001
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<tr>
<th>Status</th>
<th>Marital Status</th>
<th>Age</th>
<th>Education</th>
<th>Income</th>
<th>Social Class</th>
<th>Location</th>
<th>Significance</th>
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<tr>
<td>Married (1989)</td>
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<td>65.40</td>
<td>169</td>
<td>70.40</td>
<td>110</td>
<td>69.40</td>
<td>.96</td>
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<tr>
<td>Employed (1989)</td>
<td>25</td>
<td>20.80</td>
<td>75</td>
<td>31.10</td>
<td>36</td>
<td>22.60</td>
<td>23.03***</td>
</tr>
<tr>
<td>Retired (1989)</td>
<td>72</td>
<td>59.70</td>
<td>88</td>
<td>36.80</td>
<td>62</td>
<td>38.90</td>
<td>23.03***</td>
</tr>
<tr>
<td>Housewives</td>
<td>23</td>
<td>19.50</td>
<td>77</td>
<td>32.10</td>
<td>61</td>
<td>38.50</td>
<td>23.03***</td>
</tr>
<tr>
<td>Urban Residence</td>
<td>40</td>
<td>33.50</td>
<td>96</td>
<td>40.00</td>
<td>77</td>
<td>48.70</td>
<td>9.73*</td>
</tr>
<tr>
<td>Semi-Urban Residence</td>
<td>44</td>
<td>36.90</td>
<td>96</td>
<td>39.80</td>
<td>48</td>
<td>30.60</td>
<td>9.73*</td>
</tr>
<tr>
<td>Rural Residence</td>
<td>36</td>
<td>29.60</td>
<td>49</td>
<td>20.20</td>
<td>33</td>
<td>20.70</td>
<td>9.73*</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; *** p < .001
Table 4.2. Descriptive Statistics; Means and Percentages, Instrumental and Explanatory Variables, Men, Weighted Data

<table>
<thead>
<tr>
<th></th>
<th>Early Childbearers</th>
<th>On-time Childbearers</th>
<th>Late Childbearers</th>
<th>Overall Sample</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>n=92</td>
<td>n=165</td>
<td>n=96</td>
<td>n=352</td>
</tr>
<tr>
<td></td>
<td>Mean, SD</td>
<td>Mean, SD</td>
<td>Mean, SD</td>
<td>Mean, SD, F</td>
</tr>
<tr>
<td>Age</td>
<td>63.35, 2.68</td>
<td>64.32, 3.12</td>
<td>64.06, 2.98</td>
<td>64.00, 2.99, 3.14*</td>
</tr>
<tr>
<td>Age at First Birth</td>
<td>20.68, 1.30</td>
<td>24.94, 1.36</td>
<td>31.55, 3.44</td>
<td>25.63, 4.55, 627.15***</td>
</tr>
<tr>
<td>Number of Births</td>
<td>4.56, 2.89</td>
<td>3.79, 2.26</td>
<td>2.59, 1.49</td>
<td>3.66, 2.38, 18.01***</td>
</tr>
<tr>
<td>Education</td>
<td>10.31, 3.19</td>
<td>12.21, 3.19</td>
<td>13.07, 3.25</td>
<td>11.95, 3.36, 18.33***</td>
</tr>
<tr>
<td>Labor Force Ratios</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment</td>
<td>.94, .18</td>
<td>.97, .09</td>
<td>.96, .13</td>
<td>.96, .13, .83</td>
</tr>
<tr>
<td>Family Size (1989)</td>
<td>2.35, .99</td>
<td>2.25, .87</td>
<td>2.32, .83</td>
<td>2.30, .89, .45</td>
</tr>
</tbody>
</table>

|                    | N, %               | N, %                 | N, %              | N, %          | Chi-Square |
|--------------------|--------------------|----------------------|-------------------|---------------|
| White              | 79, 86.10          | 158, 96.10           | 89, 92.40         | 326, 92.50, 8.45** |
| Post-Marital Birth | 83, 91.10          | 161, 97.80           | 93, 96.90         | 337, 95.80, 7.02** |
| Stable Marital     | 63, 68.90          | 141, 85.60           | 83, 86.80         | 287, 81.60, 13.27** |
| History            |                    |                      |                   |               |            |
Table 4.2. (continued)

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Married (1989)</td>
<td>84</td>
<td>91.20</td>
<td>154</td>
<td>93.30</td>
<td>92</td>
<td>95.70</td>
<td>329</td>
<td>93.50</td>
<td>1.56</td>
<td></td>
</tr>
<tr>
<td>Employed (1989)</td>
<td>34</td>
<td>36.80</td>
<td>58</td>
<td>35.40</td>
<td>34</td>
<td>35.80</td>
<td>126</td>
<td>35.90</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Retired (1989)</td>
<td>58</td>
<td>63.20</td>
<td>106</td>
<td>64.60</td>
<td>61</td>
<td>64.20</td>
<td>226</td>
<td>64.10</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Urban Residence</td>
<td>39</td>
<td>43.00</td>
<td>72</td>
<td>43.70</td>
<td>40</td>
<td>41.80</td>
<td>151</td>
<td>43.00</td>
<td>.31</td>
<td></td>
</tr>
<tr>
<td>Semi-Urban Residence</td>
<td>32</td>
<td>35.50</td>
<td>56</td>
<td>33.80</td>
<td>36</td>
<td>37.10</td>
<td>124</td>
<td>35.10</td>
<td>.31</td>
<td></td>
</tr>
<tr>
<td>Rural Residence</td>
<td>20</td>
<td>21.50</td>
<td>37</td>
<td>22.50</td>
<td>20</td>
<td>21.10</td>
<td>77</td>
<td>21.90</td>
<td>.31</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
that predict economic well-being such as years of education, number of births, race, pre-
or postmarital first birth and marital history. There are also significant differences by
birth-timing group for women on the variables current employment status and residential
location. The differences among birth-timing groups are discussed in detail in the next
section.

**Age at first birth.** The average age of first birth for women in the sample is 23.09.
Looking at age at first birth separately for each group of women indicates that early
childbearing women have an average age of first birth of 17.94 years, on-time
childbearers have an average age-of-first-birth of 22.18 years, and late childbearing
women have an average age of first birth of 28.37 years.

The average age-of-first-birth for men is 25.63. The average age at first birth for
men by birth-timing group is as follows: 20.68 for early childbearers, 24.94 for on-time
childbearers, and 31.55 for late childbearing men. On average, men in each group (early,
on-time, and late childbearers) were older at the time of the first birth than were women in
the corresponding groups.

Although present age was not used as a predictor variable in the regression
analyses, descriptive statistics regarding the ages of the men and women in the samples
will be reviewed here. The average age for women in the sample discussed in this study is
64.33. Women who were classified as early childbearers have an average age of 63.82,
on-time childbearers have an average age of 64.06, and late childbearing women in the
sample have an average age of 65.14. Analysis of variance indicates statistically
significant differences in age by birth-timing group (F = 7.84, p < .001).
Statistically significant differences in age by birth-timing group are also found in the men's sample ($F = 3.14, \ p < .05$). The average age of men in the sample is 64.00. Early childbearing men have an average age of 63.35, on-time childbearing men of 64.32, and late childbearing men of 64.06.

**Parity.** As expected, based on the review of literature, early childbearing men and women have, on average, a greater number of births than on-time or late childbearers in this sample. The women have, on average, 3.67 children, and analysis of variance indicates that there are statistically significant differences in the number of births by birth-timing group ($F = 23.33, \ p < .001$). Early childbearing women have, on average, 4.50 births, on-time childbearers have, on average, 3.82 births, and late childbearers have, on average, 2.81 births.

Reports for men in relation to number of births are similar. The men, on average, have 3.66 children. Early childbearing men reported fathering 4.56 children, on-time childbearing men reported 3.79 births, and late childbearing men reported 2.59 births, on average. Analysis of variance indicates statistically significant differences in the number of births by birth-timing group for men, as well ($F = 18.005, \ p < .001$).

**Completed education.** Women in the sample have 11.68 years of education, on average. Early childbearing women have the lowest average years of completed education, 10.16 years. Late childbearing women have the highest average completed education with 12.54 years, and on-time childbearing women have 11.89 years of completed education. Analysis of variance indicates statistically significant differences in completed education by birth-timing group ($F = 28.42, \ p < .01$).
Men, on average, have higher levels of completed education than women, with an average of 11.95 years. Early childbearing men have the lowest number of years of completed education, 10.31, compared to other groups of men. Late childbearing men have the highest average number of years of completed education, 13.07, and on-time childbearing men have an average of 12.21 years of completed education. Analysis of variance also indicates statistically significant differences in education by birth-timing group for men ($F = 18.332, p < .001$).

*Work history.* The average number of years worked since age 18 for all women is 11.48 years. Analysis of variance of birth-timing group by years worked since 18 indicates no statistically significant difference between years worked according to birth-timing group. Analysis of variance indicates no significant differences in the labor force attachment ratio for men according to birth-timing group. Men have an average labor force attachment ratio of .96. Ratios are .94, .97, and .96 for early, on-time, and late childbearing groups, respectively. As expected, men, on average, have long and stable work histories.

*Family size.* The average family size in 1989 in the women's sample is 1.95, and analysis of variance indicates no statistically significant differences in family size by birth-timing group. The average family size in the men's sample is 2.30, and analysis of variance indicates no significant differences in family size by birth-timing group for men, either.
Race. Both the women's and men's samples were composed of predominately white respondents (89.9% and 92.5%, respectively), although chi-square analysis indicates significant differences in race by birth-timing group (Chi-square = 19.91, p < .001, for women, and chi-square = 8.45, p < .05, for men). There is a lower percentage of whites in the early childbearing groups (79.2% in the women's sample, and 86.1% in the men's sample) when compared to on-time and later childbearing groups.

Post-marital first birth. The majority of first births for the women and men in these samples occurred within the context of marriage (93% of first births for women, and 95.8% of first births for men), although chi-square analysis indicates statistically significant differences by birth-timing group on the incidence of premarital first birth (Chi-square = 21.04, p < .001 for women, and Chi square = 7.02, p < .05 for men). Early childbearing men and women have a lower percentage of postmarital first births when compared to on-time and later childbearers.

Marital history. Four hundred and sixteen women (80.2% of the sample), and 287 men (81.6% of the sample) report stability in marital status over time. Chi-square tests indicate statistically significant differences in marital stability by birth-timing group, however. The chi-square value in the women's sample is 10.01, p < .01, and in the men's sample it is 13.27, p < .01. Only 70.3 percent of the early childbearing women and 68.9 percent of the early childbearing men report having only one marriage, whereas 84 percent of the on-time childbearing women and 85.6 percent of the on-time childbearing men report having had only one marriage. A slightly lower percentage of late childbearing
women (82.0%), and a slightly higher percentage of late childbearing men (86.8%), report marital continuity over time.

**Marital status.** There are no significant differences in current marital status (or marital status in 1989) by birth-timing group. Approximately 69 percent of the women and 94 percent of the men were married at the time the data were gathered.

**Employment status.** One hundred and thirty six women (26.1% of the sample) were still involved in the paid labor force in 1989, 222 (42.7% of the sample) were retired, and 162 (31.1% of the sample) were housewives in 1989. The chi-square of birth-timing group by current employment status indicates that statistically significant differences in current employment status by birth-timing group exist (Chi-square = 23.03, p < .001). As shown in table 4.1, 59.7 percent of the early childbearing women were retired in 1989, whereas only 36.8 percent and 38.9 percent of the on-time and late childbearing women, respectively, were retired in 1989. Also, only 19.5 percent of the early childbearers were reported to be housewives in 1989, whereas 32.1 percent of the on-time childbearers and 38.5 percent of the late childbearers were reported to be housewives.

One hundred and twenty six men (35.9% of the sample) were involved in the labor force in 1989, and 226 (64.1% of the sample) were retired in 1989. The chi-square test indicates no significant differences in current employment status by birth-timing group for men.

**Residential location.** More than two-fifths (41.1%) of the women and 43 percent of the men live in or near large metropolitan areas, 36.3 percent of the women and 35.1 percent of the men live in or near mid-size metropolitan areas, and 22.6 percent of the
women and 21.9 percent of the men live in rural areas. Chi-square tests showed no statistically significant differences for men by birth-timing group in terms of locality. The chi-square value in the women's sample is statistically significant (9.73, p < .05), however, indicating a difference in residential location by birth-timing group with a higher percentage of early childbearing women living in rural areas, and a higher percentage of delayed childbearers living in urban areas.

**Summary of descriptive statistics on exogenous instrumental and explanatory variables.** The findings support the hypothesis that there are differences among early, on-time, and delayed childbearing groups on many of the variables that predict economic well-being. Statistically significant differences exist on the following variables in the women's sample by birth-timing group: age; age-at-first-birth; parity or number of births; level of completed education; race; pre- versus post-marital first birth; marital history; current employment status and residential location. There are no statistically significant differences by birth-timing group for women on the number of years worked since age 18; family size in 1989; or marital status in 1989.

Statistically significant differences exist on the following variables in the men's sample by birth-timing group: age; age-at-first birth; parity or number of births; level of completed education; race; pre- versus postmarital first birth; and marital history. There are no statistically significant differences by birth-timing group for men on the labor force attachment ratio; family size in 1989; marital status in 1989; employment status in 1989; or residential location in 1989. As predicted in the first hypothesis, early childbearing men and women do have lower average levels of education, more births, and more unstable
marital histories than their on-time and delayed childbearing counterparts. They are also more likely to be nonwhite and have a lower percentage of postmarital first births. Delayed childbearers have higher levels of education and fewer births than their on-time and early childbearing counterparts, on average. Delayed childbearing women report working more years in the paid labor force than their early and on-time childbearing counterparts, but delayed childbearing men have a slightly lower labor force attachment ratio, on average, than their on-time childbearing counterparts.

**Endogenous Variables**

*Permanent income.* The descriptive statistics for permanent income and wealth for women and men, respectively, are presented in Tables 4.3 and 4.4. The mean of the permanent income variable in the women’s sample is $38,649.05, and the median is $31,079.34. Statistically significant differences using analysis of variance are found on permanent income when comparing early, on-time and late childbearing women (F= 14.581, p < .001). Early childbearing women have a permanent income average of $24,439.81, on-time childbearing women have a permanent income average of $43,050.95, and delayed childbearing women have a permanent income average of $42,758.69. Median levels on the variable by birth-timing group are $19,911.40, $33,878.34, and $36,770.58, respectively. Early childbearing women have the lowest mean and median values on this variable, with on-time childbearers having the highest mean, and delayed childbearers having the highest median level. In the regression analyses reported in this chapter, the natural logs of the permanent income variables are used as the
Table 4.3. Descriptive Statistics: Dependent Variables by Birth timing Group, Women, Weighted Data

<table>
<thead>
<tr>
<th></th>
<th>Early Childbearers n=120</th>
<th>On-Time Childbearers n=240</th>
<th>Late Childbearers n=159</th>
<th>Overall Sample n=519</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
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<td>95,859.26</td>
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<td>225,214.83</td>
<td>370,418.46</td>
</tr>
<tr>
<td>Permanent Income</td>
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<td>15,854.99</td>
<td>43,050.95</td>
<td>39,911.59</td>
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*p < .05; **p < .01; ***p < .001.
Table 4.4. Descriptive Statistics: Men, Dependent Variables by Birthtiming Group, Weighted Data

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<th>Late Childbearers n=96</th>
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*p <.05; ** p <.01; *** p <.001
dependent variables for men and women due to the skewed nature of the distributions on these variables.

The mean of the permanent income proxy in the men’s sample is $49,667.08 with a median of $42,160.22. Statistically significant differences are found using analysis of variance for men in relation to birth-timing group and permanent income (F = 6.284, p < .01). Early childbearing men have a permanent income average of $39,637.83, on-time childbearing men have a permanent income average of $55,384.81, and delayed childbearing men have a permanent income average of $49,428.83. There is one on-time childbearing individual who reported relatively high levels of both permanent income and wealth. The decision was made to recode this outlier using permanent income and wealth amounts three standard deviations above the respective means; the recoding was done because the reported values on the variables are likely to be legitimate, but are extreme in the distribution. Median levels of permanent income are $35,121.29 for early childbearing men, $47,805.12 for on-time childbearing men, and $42,267.22 for delayed childbearing men. On-time childbearing men have a higher level of permanent income than early or late childbearing men, on average. Like early childbearing women, early childbearing men had the lowest average level of permanent income in comparison to the other birth-timing groups.

Household net worth. The mean level of net worth for women is $198,134.36. Statistically significant differences using analysis of variance are found in net worth between birth-timing groups (F = 7.947, p < .001). Early childbearing women have a mean level of wealth of $95,859.26, on-time childbearing women have a mean level of wealth of
$225,214.83, and delayed childbearing women have an mean level of wealth of $234,690.79. Median levels of net worth were $52,182.71, $118,946.47, and $148,625.23, respectively. Thus, on average, late childbearing women in this sample have higher levels of net worth than both early and on-time childbearing women.

The mean level of net worth for men is $256,749.16. Statistically significant differences using analysis of variance to compare net worth by birth-timing group are found for men ($F = 5.800, p < .01$), although no differences among birth-timing groups are found on the transformed version of this variable (Table 4.4). The transformation smoothed the distribution of the variable, “pulling in” the extreme values that were significantly different. Early childbearing men have a mean level of wealth of $144,643.09, on-time childbearing men have an average level of wealth of $294,094.78, and delayed childbearing men have the highest average level of net worth of $299,733.08. Yet, the median level of net worth is higher for the on-time childbearing men than for the late childbearing men. The values are $167,001.65 and $149,314.54, respectively. The median level of net worth for early childbearing men is $100,000.00.

The descriptive statistics indicate that there are different levels of permanent income and wealth for early, on-time, and delayed childbearing groups of men and women. The relationship between birth-timing and economic outcomes suggested in the second hypotheses is discussed in the next section on bivariate relationships.

**Bivariate Relationships**

The second hypothesis tested in this study, that there is a relationship between economic well-being and birth-timing is supported in the correlation analysis presented in
Tables 4.5 and 4.6. As indicated in the correlation table for women (Table 4.5), there is a relationship between birth-timing and economic well-being. There are small but significant positive relationships between permanent income and birth-timing for delayed and on-time childbearing women ($r = .12, p < .01$; and $r = .11, p < .05$, respectively), and small but significant relationships between birth-timing and wealth, as well ($r = .09, p < .05$; and $r = .09, p < .05$), indicating that delayed and on-time childbearing are associated with higher levels of income and wealth in later years. There are also small but significant negative relationships between early childbearing and economic well-being for women. Early childbearing is associated with lower levels of permanent income ($r = -.26, p < .001$) and wealth ($r = -.21, p < .001$) for women in later years. Thus, delayed and on-time childbearing are associated with higher levels of economic well-being in later years, and early childbearing is associated with lower levels of economic well-being in later years.

The results in the men’s sample do not support the second hypothesis, that there is a relationship between economic well-being and birth-timing, for all birth-timing groups, however. Although on-time first birth is positively and significantly associated with higher levels of permanent income in later years ($r = .13, p < .05$), there is no relationship between having an on-time first birth and wealth. There is also a significant negative relationship between early first birth and permanent income ($r = -.18, p < .01$), but there is no relationship between early birth-timing and wealth in the men’s sample. There is no relationship between delayed childbearing and permanent income or wealth for men. Therefore, on-time first birth is associated with higher levels of permanent income in later years for men, and early first birth is associated with lower levels of permanent income;
Table 4.5. Correlation Coefficients: Women, Weighted Data

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* p < .05, ** p < .01, *** p < .001
Table 4.6. Correlation Coefficients; Men, Weighted Data

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<td>.02</td>
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<td>-.01</td>
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<td>18. Family size (1989)</td>
<td>.08</td>
<td>.17**</td>
<td>.02</td>
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Table 4.6. (continued):

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<td></td>
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<tr>
<td>3. Delayed childbearing</td>
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<td></td>
<td></td>
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<tr>
<td>8. Number of births</td>
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<td></td>
<td></td>
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<tr>
<td>9. White</td>
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<td></td>
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</tr>
<tr>
<td>10. Labor force attachment</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. Premarital birth</td>
<td>-.14*</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Urban residence</td>
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<td>.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Semi-urban residence</td>
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<td>-.64***</td>
<td>1.00</td>
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<tr>
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<td>.00</td>
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<tr>
<td>15. Employed (1989)</td>
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<td>.06</td>
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<td>1.00</td>
<td></td>
<td></td>
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<tr>
<td>16. Retired (1989)</td>
<td>-.00</td>
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<td>.02</td>
<td>-.06</td>
<td>.05</td>
<td>-.100***</td>
<td>1.00</td>
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<tr>
<td>17. Married (1989)</td>
<td>.19***</td>
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<td>-.03</td>
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<td>.13*</td>
<td>-.13*</td>
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</tr>
<tr>
<td>18. Family size (1989)</td>
<td>.00</td>
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<td>.09</td>
<td>-.09</td>
<td>-.00</td>
<td>.09</td>
<td>-.09</td>
<td>.31***</td>
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</table>

*p < .05, **p < .01, ***p < .001
however, there is no relationship between birth-timing and wealth for men in later years, nor are there relationships between permanent income and wealth for delayed childbearing men.

The third hypothesis, that there is no relationship between birth-timing and economic outcomes when other factors contributing to economic well-being are controlled, was tested using multivariate two-stage least squares analysis. The results are discussed in the next section.

**Predicting Permanent Income Using Multivariate Analyses**

Tables 4.7 and 4.8 show the results of the regression analyses of permanent income on the instrumental variables for women and men, respectively. The comparison group in each analyses represents nonwhite early childbearing individuals with a premarital first birth and unstable marital history or no marriage. In the women's model, the constant also includes women with no involvement in the paid labor force. In the following discussion, on-time and delayed childbearers are compared to that profile.

As stated previously, permanent income is an endogenous variable that is being used to predict wealth in a system of simultaneous equations. The first analysis (Table 4.7) shows the regression of permanent income on the instrumental variables in the women's sample. The model explains approximately 44% of the variance in permanent income ($F = 44.33403, p < .001$). The results presented in Table 4.8 show the similar analysis for men. The model explains approximately 34% of the variance in permanent income ($F = 22.23973, p < .001$).
Table 4.7. Regression of Permanent Income on the Instrumental Variables, Women's Sample (First Stage of Two-Stage Least Squares Estimates)

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE b</th>
<th>Beta</th>
<th>t</th>
<th>Sig t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed Childbearing</td>
<td>.173</td>
<td>.079</td>
<td>.102</td>
<td>2.192</td>
<td>.029</td>
</tr>
<tr>
<td>On-Time Childbearing</td>
<td>.197</td>
<td>.070</td>
<td>.125</td>
<td>2.797</td>
<td>.005</td>
</tr>
<tr>
<td>Stable Marital History</td>
<td>.259</td>
<td>.067</td>
<td>.132</td>
<td>3.871</td>
<td>.001</td>
</tr>
<tr>
<td>White</td>
<td>.195</td>
<td>.092</td>
<td>.075</td>
<td>2.113</td>
<td>.035</td>
</tr>
<tr>
<td>Number of Births</td>
<td>.030</td>
<td>.013</td>
<td>.083</td>
<td>2.294</td>
<td>.022</td>
</tr>
<tr>
<td>Postmarital Birth</td>
<td>.065</td>
<td>.107</td>
<td>.021</td>
<td>.607</td>
<td>.544</td>
</tr>
<tr>
<td>Moderate Labor Force</td>
<td>.679</td>
<td>.068</td>
<td>.410</td>
<td>10.805</td>
<td>.001</td>
</tr>
<tr>
<td>Long-term Labor Force</td>
<td>.649</td>
<td>.068</td>
<td>.358</td>
<td>9.565</td>
<td>.001</td>
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<tr>
<td>Participation</td>
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</tr>
<tr>
<td>Years of Education</td>
<td>.098</td>
<td>.010</td>
<td>.350</td>
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<tr>
<td>Constant</td>
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<td>.174</td>
<td></td>
<td>46.226</td>
<td>.001</td>
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</table>

Model Statistics:

\[ r^2 = .439 \]

Degrees of Freedom

Regression = 9
Residuals = 509

\[ \text{Adj. } r^2 = .429 \]

\[ F = 44.334, p < .001 \]
Table 4.8. Regression of Permanent Income on the Instrumental Variables, Men’s Sample  
(First Stage of Two-Stage Least Squares Estimates)

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE b</th>
<th>B</th>
<th>t</th>
<th>Sig t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed Childbearing</td>
<td>-.096</td>
<td>.082</td>
<td>-.068</td>
<td>-1.160</td>
<td>.247</td>
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<tr>
<td>On-Time Childbearing</td>
<td>.042</td>
<td>.071</td>
<td>.034</td>
<td>.592</td>
<td>.554</td>
</tr>
<tr>
<td>Years of Education</td>
<td>.101</td>
<td>.009</td>
<td>.547</td>
<td>11.639</td>
<td>.001</td>
</tr>
<tr>
<td>Stable Marital History</td>
<td>.224</td>
<td>.072</td>
<td>.140</td>
<td>3.100</td>
<td>.002</td>
</tr>
<tr>
<td>White</td>
<td>-.078</td>
<td>.108</td>
<td>-.033</td>
<td>-.722</td>
<td>.471</td>
</tr>
<tr>
<td>Number of Births</td>
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<td>.012</td>
<td>.032</td>
<td>.660</td>
<td>.510</td>
</tr>
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<td>Postmarital Birth</td>
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<td>.138</td>
<td>.060</td>
<td>1.347</td>
<td>.179</td>
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<tr>
<td>Labor Force Attachment</td>
<td>.514</td>
<td>.219</td>
<td>.107</td>
<td>2.343</td>
<td>.020</td>
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<tr>
<td>Constant</td>
<td>8.608</td>
<td>.278</td>
<td>30.945</td>
<td>.001</td>
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</table>

Model Statistics:

\[ r^2 = .342 \]

Degrees of Freedom
Regression = 8
Residuals = 343

\[ \text{Adj. } r^2 = .326 \]

\[ F = 22.240, \ p < .0000 \]
Birth-timing and permanent income. Interestingly, the third hypothesis, that there is no relationship between birth-timing and economic outcomes when the other factors that influence economic well-being are controlled, was not supported in the women's sample in relation to the prediction of permanent income by birth-timing group. On-time and delayed childbearing women have small but significantly higher levels of permanent income on average than early childbearing women as illustrated in Table 4.7 (b = .197, p < .01, and b = .173, p < .05, respectively) when controlling for other variables in the model suggested by human capital and family development theory. When controlling on the other variables that affect economic well-being such as marital history, race, number of children ever born, labor force participation and years of education, the positive relationship between on-time and delayed childbearing and permanent income persists. Therefore, for the women in this sample, there is something unique about birth-timing apart from investments in human capital that contributes to economic well-being. For on-time childbearers, following the normative path of family formation may have facilitated positive outcomes. Delayed childbearing women may have benefited from their maturity and stability in other aspects of life that provided resources despite the violation of birth-timing norms. A separate regression analysis (not shown) comparing on-time to delayed childbearing women indicated no significant differences between the two groups on permanent income. When comparing the Betas (or standardized slopes) of the birth-timing variables to those of some of the human capital indicators, to assess the relative explanatory value of variables after adjusting for other variables, the betas for moderate and long-term labor force participation (B = .410 and B = .350, respectively) and
education \((B = .350)\) are greater than for birth-timing, suggesting that although birth-timing is significant, it is not the most influential determinant of economic well-being in later years.

The hypothesis that there is no relationship between birth-timing and economic outcomes when controlling for other factors that influence economic well-being is supported in the men's analysis. Delayed and on-time childbearing men do not have higher levels of permanent income when compared to early childbearing men (Table 4.8). Rather, it is marital history, education and labor force attachment that are significant.

**Education, labor force participation and permanent income.** As expected, investments in human capital through education and labor force participation are associated with higher levels of permanent income for women. Education is a statistically significant positive predictor of permanent income for women \((b = .098, p < .001)\) when controlling for other variables in the model. Women with higher levels of education were likely to have been qualified for higher paying occupations. They may have married men who were highly educated with greater earning potential, as well. Labor force participation also had a statistically significant positive impact on permanent income for women when controlling for other variables in the model. Women with a moderate number of years in the paid labor force had higher permanent income than women with no labor force experience \((b = .679, p < .001)\). Those women with the greatest number of years in the paid labor force also had higher levels of permanent income \((b = .649, p < .001)\) than women with no years of labor force participation. Women's participation in the paid labor force enhanced their human capital through increased skill level and
seniority on the job, which likely had an overall positive effect on permanent income in later years.

As is true for women, investments in human capital through education have a positive and statistically significant impact on permanent income for men ($b = .101, p < .001$) when controlling for other variables in the model. Education also is the most influential variable in the model on permanent income ($B = .547$). Higher levels of education probably allowed men to secure positions that were likely to have paid higher salaries, and perhaps provided better benefits such as pensions or retirement plans. More educated men also may have married more educated women who were able to contribute greater earnings to the family.

Labor force participation also is significantly and positively related to permanent income when controlling on other variables in the model. Although most men in the sample have long histories of participation in the paid labor force, those with the most years of work, and also the most years of full-time work, as measured by the labor force attachment ratio, have higher levels of permanent income on average ($b = .514, p < .05$). Experience and seniority undoubtedly facilitated the attainment of higher levels of permanent income.

The first hypothesis, already discussed in relation to the descriptive statistics for the sample, suggested that there would be differences in economic outcomes for on- and off-time birth-timing groups on variables such as marital history, number of births, and whether or not the first birth occurred pre- or postmaritally. As outlined in family development theory, the occurrence, sequencing, and duration of various life events will
affect probable outcomes for the individuals involved. Although there were missing data on the key variable that would have allowed the examination of the sequencing of education and childbearing, it is possible to ascertain the number of children ever born and whether or not the first birth occurred pre- or postmaritally.

**Marital history and permanent income.** The first hypothesis was supported in the multivariate analysis in relation to marital history for women and men. Women who had stable marital histories (who married once and stayed married to that individual) had higher levels of permanent income than women with unstable marital histories or those who never married (b = .259, p < .001). The same was true for men: having had a stable marital history was positively associated with the level of permanent income (b = .224, p < .01). These results are consistent with the results of other studies citing that separation, divorce and losing a spouse through death can have a negative impact on economic well-being (see Holden & Smock, 1991 for review; Weiss, 1984). Men and women who married once and remained married to that person were less likely to have experienced the division of assets and changes in household income experienced by individuals who separate or divorce, or to have experienced the possible loss of household income that can occur with the death of a spouse. Individuals with more than one marriage also may have had to support more than one family. Thus, in the long-run, those with more stable marital histories had higher permanent incomes on average than those who had experienced marital disruption or who never married and combined incomes and assets with a spouse. Off-time changes in marital history, such as early death or marital
dissolution cost because norms are violated. In spite of high divorce rates in the United States, the norm in our society is one of life-long marriage.

**Parity and permanent income.** It was expected that a lower number of births would be associated with higher permanent income; for women however, the result was the opposite. There is a small, but significant relationship between the number of children ever born and permanent income (b = .030, p < .05) when controlling for other variables in the model. At the time these women were in their childbearing years, those who could afford to have more children may have done so, as average family sizes were larger during these years as compared to today. The relationship between number of children ever born and permanent income was not significant in the men’s sample.

**Postmarital first birth and permanent income.** Having had a postmarital, rather than premarital first birth, was not a significant predictor of permanent income for women or men. Comparing the incidence of premarital and postmarital first birth for this particular cohort may not add a great deal of insight into economic outcomes because, in this era, men and women who were involved in a premarital pregnancy were likely to have married as a result of the pregnancy, or they may have given the child up for adoption. It was socially less acceptable for a single parent to have and raise a child at that time. This finding can be explained using family development theory in that the probability of marriage following a premarital pregnancy was greater in the period when these men and women were having children than it is today. Although the incidence of premarital first birth was higher for both early childbearing men and women in the sample relative to their delayed and on-time childbearing counterparts, the likelihood of a marriage resulting from
a pregnancy was high, no matter what the age of the childbearer. The role expectations for men and women mandated that they not keep and raise a child out of wedlock.

**Race and permanent income.** White women have greater permanent income than nonwhite women when controlling for other variables in the model, and the results are statistically significant (b = .194, p < .05). White women have historically had better access to educational opportunities than black women and could develop greater human capital in this respect. Although black women have had a greater level of involvement in the paid labor force, they often worked in lower paying occupations with fewer opportunities for advancement. Also, white women are usually married to white men who generally have higher incomes. Race was not a significant predictor of permanent income in the men's sample, however.

**Predicting Wealth Using Two-Stage Least Squares Regression Analyses**

Tables 4.9 and 4.10 show the results of the two-stage least squares regression of wealth on the linear estimates of permanent income and the other explanatory variables in the women's and men's samples, respectively. In the women's model (Table 4.9), because of the way the dummy variables are coded, the constant represents the estimated wealth of housewives living in rural areas who were not married in 1989. The explanatory variables in the women's sample accounted for approximately 38% of the variance in wealth (F = 45.28158, p < .001). In the men's model, the constant represents retired men living in rural areas who were not married in 1989. The explanatory variables in the men's sample accounted for approximately 28% of the variance in wealth (F = 22.65125, p < .001).
Table 4.9. Two-stage Least Squares Regression of Wealth on Explanatory Variables; Women, Weighted Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE b</th>
<th>Beta</th>
<th>t</th>
<th>Sig t</th>
</tr>
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<td>.520</td>
<td>12.170</td>
<td>.001</td>
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<td>Urban</td>
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<td>-.035</td>
<td>-.770</td>
<td>.442</td>
</tr>
<tr>
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<td>.281</td>
<td>4.630E-04</td>
<td>.010</td>
<td>.992</td>
</tr>
<tr>
<td>Currently Working</td>
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<td>.280</td>
<td>.119</td>
<td>2.909</td>
<td>.004</td>
</tr>
<tr>
<td>Currently Retired</td>
<td>.194</td>
<td>.254</td>
<td>.032</td>
<td>.765</td>
<td>.445</td>
</tr>
<tr>
<td>Currently Married</td>
<td>1.130</td>
<td>.291</td>
<td>.174</td>
<td>3.878</td>
<td>.001</td>
</tr>
<tr>
<td>Current Family Size</td>
<td>-.333</td>
<td>.137</td>
<td>-.094</td>
<td>-2.431</td>
<td>.015</td>
</tr>
<tr>
<td>Constant</td>
<td>-19.353</td>
<td>2.406</td>
<td></td>
<td>-8.470</td>
<td>.001</td>
</tr>
</tbody>
</table>

Model Statistics:

\[ r^2 = .383 \]

Degrees of Freedom
Regression = 7
Residuals = 511

\[ \text{Adj. } r^2 = .374 \]

\[ F = 45.282, p < .0000 \]
Table 4.10. Two-stage Least Squares Regression of Wealth on Explanatory Variables; Men, Weighted Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE b</th>
<th>Beta</th>
<th>t</th>
<th>Sig t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Permanent Income</td>
<td>2.914</td>
<td>.289</td>
<td>.370</td>
<td>7.593</td>
<td>.001</td>
</tr>
<tr>
<td>Urban</td>
<td>.631</td>
<td>.271</td>
<td>.145</td>
<td>2.331</td>
<td>.020</td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>.536</td>
<td>.276</td>
<td>.119</td>
<td>1.938</td>
<td>.053</td>
</tr>
<tr>
<td>Currently Working</td>
<td>.272</td>
<td>.208</td>
<td>.060</td>
<td>1.302</td>
<td>.194</td>
</tr>
<tr>
<td>Currently Married</td>
<td>2.286</td>
<td>.424</td>
<td>.263</td>
<td>5.390</td>
<td>.001</td>
</tr>
<tr>
<td>Current Family Size</td>
<td>.017</td>
<td>.117</td>
<td>.007</td>
<td>.144</td>
<td>.886</td>
</tr>
<tr>
<td>Constant</td>
<td>-14.513</td>
<td>3.007</td>
<td></td>
<td>-4.826</td>
<td>.001</td>
</tr>
</tbody>
</table>

Model Statistics:

\[ r^2 = .283 \]

Degrees of Freedom
Regression = 6
Residuals = 345

\[ \text{Adj. } r^2 = .270 \]

\[ F = 22.651, p < .0000 \]
**Modified permanent income and wealth.** As expected, for both women and men, modified permanent income was a positive predictor of wealth \( (b = 3.00, p < .001 \text{ and } b = 2.91, p < .001, \text{ respectively}) \) when controlling for the influence of other variables in the model. Higher levels of income allow people to accumulate greater levels of net worth through saving and investing. These assets may then appreciate in value, which further enhances overall wealth.

**Marital status and wealth.** Being married, as compared to not being married in 1989, is also a significant positive predictor of wealth for both women and men \( (b = 1.13, p < .001 \text{ and } b = 2.29, p < .001, \text{ respectively}) \). Being married allows individuals to combine assets such as retirement or pensions plans, investments, owner occupied housing and other durables. The income generated from these assets can be used to generate more wealth that may be shared, as well.

**Family size and wealth.** Family size in 1989 was a significant, but negative, predictor of wealth for women. Larger family size was associated with lower levels of net worth for women \( (b = -.333, p < .05) \). It may be that larger family size and lower net worth are associated because elderly women with low incomes and little net worth are living with other family members for supplemental support. The lower levels of net worth in larger families may also be due to the fact that more people are depending on income generated from limited levels of assets. If adult children are living with their aging parent or parents, it may be because they are unable to support themselves financially, and may be draining, rather than enhancing, the economic level of the household, or the parent may be helping the children become established, which also may deplete assets. Individuals
with later first births may be faced with launching their children from home and
contributing financially to the support of children, while trying to adjust to living on a
reduced retirement income, for example. Family size in 1989 was not a significant
predictor of wealth for men.

*Current employment and wealth.* Current employment, as opposed to being a
housewife, was a positive predictor of wealth for women (b = 1.13, p < .05), although
being retired was not related to wealth. Women who are still involved in the paid labor
force may still be contributing to retirement or pension plans that increase net worth as
value accumulates. These women may also be younger and in higher paying jobs that
facilitate the accumulation of wealth through investment opportunities, for example.
Employment status in 1989 is not a significant predictor of wealth for men.

*Residential location and wealth.* Residential location in 1989 is not a significant
predictor of wealth for women. Residential location is a significant predictor of wealth for
men, however. Men living in urban and semi-urban areas have higher levels of net worth
than men living in rural areas (b = .631, p < .05 and b = .536, p < .05). In explaining this
finding for men, it may be that men with higher wealth were able to accumulate that
wealth because they lived in urban and semi-urban areas and were exposed to higher
paying jobs, more opportunities, and greater home appreciation during their wealth
accumulation years. It is also possible that wealthier men moved to more urban or semi-
urban areas upon retirement to take advantage of greater offerings in larger communities
because they could afford this type of lifestyle.
Scenarios and Estimates of Permanent Income and Wealth

The second step in this analysis was to use the coefficients from the two-stage least squares regression analyses from the men's and women's samples to estimate the results in economic well-being of changes in influencing conditions such as marital status, level of education acquired, involvement in the paid labor force, and limiting fertility. There is a great deal of speculation regarding the long-term impacts for an individual who has a first birth during his or her teenage years, and whether or not the economic difficulties associated with early birth discussed in the previous review of literature can be overcome. Findings from the two-stage least squares analysis indicate that early childbearing women do not catch up economically to their on-time and delayed childbearing counterparts, but that men do. The following estimates illustrate economic outcomes given a variety of scenarios, with emphasis given to the factors that improve the economic well-being of early childbearing men and women. The purpose of the estimates is to show the potential results of investments in human capital and life-decisions on economic status.

Although estimates of permanent income and wealth were calculated for a variety of different scenarios, only those with the greatest relevance to public policy are reported here. Granted, this cohort of individuals was having children in a completely different social and economic climate than the early childbearers of later cohorts, but much can be learned from their life scenarios that may still be relevant in making policy decisions for individuals today. As stated previously, it is not possible to study the long-term outcomes for youth and young adults of today with data currently available, so the best use of
existing data must be made. The estimates of permanent income and wealth are presented and discussed for women first, followed by similar estimates for men.

Estimates of permanent income: Women's sample. The predicted outcomes for white and nonwhite early childbearing women due to changes in marital status, the acquisition of greater levels of education, and participation in the paid labor force are shown in Table 4.11 on page 103. The original scenario was developed using the multiple regression equation of permanent income on the instrumental variables of birth-timing group, level of education, marital history, number of births, race, work experience and pre- or postmarital first birth. Zeros were used for the dummy variables to create a scenario in which a permanent income prediction is made for an early childbearing female with a premarital first birth, more than one marriage, and no involvement in the paid labor force. For the variables in the equation that are not dummy variables—education and number of births—the mean level of education for early childbearers in the sample, 10.16 years, and the average number of births for early childbearers in the sample, 4.5 births, was used. Solving the regression equation generated the natural log of permanent income, which was converted to dollar figures. Thus, the estimated annual permanent income for a nonwhite woman under these conditions is $9,509.42, and for a white woman $11,550.74. Although this original scenario may not be the “worst case scenario,” (the estimate of permanent income would be even lower using an eighth-grade education, for example), emphasized in the original scenario are the factors associated with lower levels of economic well-being. The descriptive scenario is one of a woman who followed a nonnormative life course relative to other women in her cohort, with the possible
exception of nonparticipation in the paid labor force, which was common in this sample of women.

The first scenario change presented shows the effect of postmarital, rather than premarital birth, on permanent income, the only change made to the estimating equation (Table 4.11). There is a slight improvement in predicted permanent income for both a nonwhite and a white woman over the original scenario (increases of $640.66 and $778.18, respectively), but pre- or post-marital first birth was not a significant predictor of permanent income in the regression equation reported in Table 4.7. Most of the subsequent estimates were made using the assumption that the birth is a premarital birth. Because there were no significant differences between pre- and post-marital first birth in level of permanent income in the women’s sample, arguably, either pre- or post-marital first birth could have been used in making these estimates. The decision to use premarital first birth in most of the estimates was made to keep the figures conservative. Although the majority of the women in the cohort studied either married because of the pregnancy or were already married when the child was conceived, current cohorts of youth and young adults are less likely to marry as a result of an early pregnancy.

The second scenario change shown illustrates a striking difference in relation to the number of births to women of this cohort when compared to women of today. Nowadays, smaller family size is associated with higher levels of economic well-being, and curtailing number of births is seen as a way of overcoming the negative consequences of early childbearing. In this sample of women, however, fewer births were associated with slightly
Table 4.11. Permanent Income Predictions: Women, Weighted Data

*Original Scenario:* Early childbearing female with a premarital first birth, more than one marriage, and no involvement in the paid labor force. Original estimates were made using the mean level of education for early childbearing women in the sample, 10.16 years, and the average number of births for early childbearing women in the sample, 4.5.

<table>
<thead>
<tr>
<th>Scenario Change</th>
<th>Estimated Annual Permanent Income</th>
<th>Estimated Change in Annual Permanent Income Compared to Original Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-white</td>
<td>White</td>
</tr>
<tr>
<td>1. Postmarital Birth*</td>
<td>$10,150.08</td>
<td>$12,328.92</td>
</tr>
<tr>
<td>2. Premarital birth, fewer births</td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of births equivalent to average on-time childbearer</td>
<td>$9,319.27</td>
<td>$11,320.21</td>
</tr>
<tr>
<td>number of births equivalent of average delayed childbearer</td>
<td>$9,043.85</td>
<td>$10,985.65</td>
</tr>
<tr>
<td>3. Premarital Birth, more education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>education equivalent of average on-time childbearer</td>
<td>$11,272.12</td>
<td>$13,692.36</td>
</tr>
<tr>
<td>education equivalent of average delayed childbearer</td>
<td>$12,051.81</td>
<td>$14,595.73</td>
</tr>
<tr>
<td>4. Premarital birth, involvement in paid labor force:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate length involvement in paid labor force</td>
<td>$18,753.28</td>
<td>$22,779.79</td>
</tr>
<tr>
<td>Long-term involvement in paid labor force</td>
<td>$18,190.81</td>
<td>$22,096.55</td>
</tr>
</tbody>
</table>
lower levels of permanent income.

The number of births used to estimate the original scenario was 4.5, the mean for early childbearers in the sample. If the estimate is made using the average number of births for on-time childbearers in the sample, 3.82, permanent income estimates drop by $190.15 for a nonwhite, and $230.53 for a white woman. If the mean level of births for delayed childbearers, 2.81, is used in the equation, permanent income estimates drop by $465.57 and $565.09 respectively. In this cohort, normative family size was larger than it is today, and people may have felt it was desirable to continue having children as long as they could afford them. The greater number of children born to early, as opposed to late, childbearers is probably a reflection of fertility as well. Women who start having children at younger ages have a longer span of time available under which they can have children.
The third scenario change illustrates the increase in estimated permanent income that results when more education is acquired (Table 4.11). A woman who completes the average level of education of on-time childbearing women in the sample, 11.89 years, has a predicted increase in permanent income of $1,762.70 for a nonwhite, and $2,141.62 for a white woman. Therefore, an increased level of education (not even the equivalent of a high school degree), despite being combined with the more negative factors associated with economic well-being, has the effect of approximately a $2,000 a year increase in income. A woman who earns the average education of delayed childbearing women in the sample, 12.54 years, despite the other negative factors, experiences an increase in permanent income of $2,506.39 if non-white, and $3,044.98, if white, over the original scenario.

Increases in permanent income as a result of participation in the paid labor force, as shown in the fourth scenario, are even more dramatic. Using the average level of education for early childbearing women in the sample, 10.16 years, and intermediate length involvement in the paid labor force, rather than no participation, leads to increases in estimated permanent income of $9,243.86 for a nonwhite, and $11,229.05 for a white woman. Long-term labor force participation is associated with slightly lower increases in estimates of permanent income of $8,681.39 for a nonwhite, and $10,545.82 for a white woman over the original scenario with the resulting level of permanent income for a nonwhite woman of $18,190.81, and $22,096.55 for a white woman. For women of this cohort, the effects of participation in the paid labor force were even more profound than those of education at the high school level.
The fifth scenario shows the effect that increased education combined with labor force participation can have. Having a high school degree and an intermediate level of involvement in the paid labor force increased predicted permanent income over the original scenario, by $12,961.67 for a nonwhite woman, and $15,745.11 for a white woman, with the resulting predicted levels of permanent income being $22,471.09 and $27,295.85, respectively. Obtaining at least a high school degree and being involved in the paid labor force for an intermediate number of years more than doubled the level of permanent incomes compared to the original scenario.

More dramatic effects are shown in the final scenario change (Table 4.11). For the woman who followed a relatively normative life course and had a postmarital first birth, and a stable marital history, estimates of permanent income increase by $3,642.91 for a nonwhite, and $4,425.52 for a white woman, as compared to the original scenario. These estimates were made assuming 10.61 years of education and no labor force participation. If the woman earned a high school degree, had three children, and participated in the paid labor force for a moderate number of years, increases in estimated permanent income were $20,215.62 for a nonwhite, and $24,556.55 for a white woman over the original scenario. The same scenario with a college degree rather than a high school degree facilitated increases over the original estimates of permanent income of $34,533.55 for a non-white woman, and $41,948.68 for a white woman. Although education and labor force participation facilitated greater economic well-being for women in this cohort, being married and staying married added to the levels of permanent income.
Estimates of wealth: Women’s sample. Estimates of wealth generated using the two-stage least squares regression equation for wealth are shown in Table 4.12. The original scenario estimating permanent income in Table 4.11 was used to generate the estimates of permanent income in the calculation of the predictions of wealth. The natural log of permanent income and the natural log of wealth were used in the calculation and then the wealth estimate was converted to dollars. The original scenario was estimated by setting the dummy variables to zero, which means the woman is a housewife in 1989, is not currently married, and is living in a rural area. The average family size in 1989 used in the regression was 1.99, the mean for early childbearers in the sample. As in the estimates of permanent income, the original scenario may not be the “worst case scenario,” but represents the outcome for a woman enduring the factors associated with lower levels of wealth. The construction of a scenario that assigns every negative factor to a woman explains the low level of wealth in the original scenario of $619.16 for a nonwhite, and $1,109.48 for a white woman.

The first scenario change shows the predicted wealth of a woman who had two children after marriage, but who also had more than one marriage, and who is married in 1989, with her children no longer at home. With a high school degree, the increases in wealth over the original scenario were $2,577.75 for a nonwhite woman, and $5,656.82 for a white woman. A college degree, rather than a high school degree, evidenced an estimated increase of $9,777.22 in wealth for a nonwhite woman over the original scenario, and $17,521.89 for a white woman. Improvement is evident.
Table 4.12. Two-stage Least Squares Regression Estimates of Wealth, Selected Scenarios; Women's Sample, Weighted Data

Original Scenario: Early childbearing female with a premarital first birth, an unstable marital history, and no involvement in the paid labor force, who in 1989 is a housewife, not currently married, living in a rural area. Original estimates of wealth were made using the average family size for early childbearing women in the sample, 1.99. Original estimates of permanent income were made using the mean level of education for early childbearing women in the sample, 10.16 years, and the average number of births, 4.5. Estimated Permanent Income: Nonwhite = $9,509.42; White = $11,550.74.

Estimated Wealth: Nonwhite = $619.16; White = $1,109.48

<table>
<thead>
<tr>
<th>Scenario Change</th>
<th>Estimated Wealth</th>
<th>Estimated Change in Wealth Compared to Original Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-white</td>
<td>White</td>
<td>Non-white</td>
</tr>
<tr>
<td>1. Postmarital birth, 2 children, more than one marriage, married in 1989, family size of 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high school degree</td>
<td>$3,196.91</td>
<td>$6,766.30</td>
</tr>
<tr>
<td>college degree</td>
<td>$10,396.38</td>
<td>$18,631.37</td>
</tr>
<tr>
<td>2. To the above add moderate labor force participation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high school degree</td>
<td>$24,508.76</td>
<td>$43,922.21</td>
</tr>
<tr>
<td>college degree</td>
<td>$79,702.80</td>
<td>$142,835.56</td>
</tr>
<tr>
<td>3. Early childbearer, premarital birth, 8th grade education, stable marriage, 3 children, long-term labor force participation. Married and employed, living in semi-urban area with family size of 2 in 1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$30,394.44</td>
<td>$54,469.95</td>
</tr>
</tbody>
</table>
Table 4.12. (continued)

4. Delayed childbearer, 
high school degree, 
postmarital first birth, 
one child, stable marriage, 
moderate labor force 
participation. Married, 
retired and living in a 
rural area in 1989, family 
size of 2  

$99,546.68  $178,398.31  +$98,927.52  +$177,288.83

As shown in the second scenario change, moderate labor force participation, rather 
than no labor force participation increased wealth over the original scenario by $23,889.60 
for a nonwhite woman with a high school degree, and $42,812.71 for a white woman with 
a high school degree. Improvements for those with a college degree were over three-
times that of those with a high school degree with increases of $79,083.64 for a nonwhite, 
and $141,726.08 for a white woman.

Scenarios three and four show the complex interplay of factors that can have 
dramatic effects on wealth accumulation. For example, the third scenario shows the 
predicted wealth for a woman with less education than in the original scenario (8 years 
rather than 10.61 years), who follows the normative path of on-time childbearing, long-
term marital stability, and three children, but participates in the labor force for many years 
and is still working in 1989. She is married and living with her husband in a semi-urban 
area. The scenario illustrates that predicted wealth would be $29,775.28 higher than the 
original scenario for a nonwhite woman, and $53,360.47 higher for a white woman. On-
time childbearing and a long and stable marital history combined with investment in human
capital through labor force participation, fostered the accumulation of wealth.

The fourth scenario illustrates that a delayed childbearer with a high school degree,
postmarital first birth, and only one child, along with one long-term marriage, moderate
labor force participation and subsequent retirement in a rural area, has an estimated
increase in net worth of $98,927.52 if nonwhite, and $177,288.83 if white compared to
the original scenario. This scenario shows that substantial net worth can be accumulated,
particularly for a white woman, who has an off-time, but delayed first birth, who pursued
what is considered today to be a minimum level of education (high school), but
participated in the paid labor force and was involved in a long-term marriage. These
scenarios also illustrate that inequality still exists between black and white women despite
that fact that their investments in human capital and life-decisions may be very similar.

*Permanent income predictions: Men's sample.* To be consistent with the
women's estimates, the predicted outcomes for white and nonwhite men are shown in
Tables 4.13 and 4.14, even though race was not a significant predictor of permanent
income in the men's sample. The original scenario for men was developed using the
multiple regression equation of permanent income on the instrumental variables birth-
timing group, level of education, marital history, number of births, race, work experience
and pre- or postmarital first birth (Table 4.13). Zeros were used for the dummy variables
to create a scenario in which a permanent income prediction is made for an early
childbearing male with a premarital first birth and more than one marriage. For the
variables in the equation that are not dummy variables—education, number of births,
Table 4.13. Permanent Income Predictions: Men, Weighted Data

Original Scenario: Early childbearing male with a premarital first birth and an unstable marital history. Estimates were made using the mean level of education for early childbearing men in the sample, 10.31 years, the average number of births for early childbearing men in the sample, 4.56, and the average labor force attachment ratio for early childbearing men in the sample, .94.

Estimated Permanent Income: Nonwhite = $26,146.69; White = $28,256.82

<table>
<thead>
<tr>
<th>Scenario Change</th>
<th>Estimated Annual Permanent Income</th>
<th>Estimated Change in Annual Permanent Income Compared to Original Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-white</td>
<td>White</td>
</tr>
<tr>
<td>1. Stable Marital History</td>
<td>$32,696.33</td>
<td>$35,335.03</td>
</tr>
<tr>
<td>2. Unstable marital history, more education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>education equivalent of average on-time childbearer</td>
<td>$31,687.58</td>
<td>$34,244.80</td>
</tr>
<tr>
<td>education equivalent of average delayed childbearer</td>
<td>$34,567.77</td>
<td>$37,357.43</td>
</tr>
<tr>
<td>3. Unstable marital history, more education and greater involvement in paid labor force:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and labor force attachment of on-time childbearer</td>
<td>$52,165.78</td>
<td>$56,375.62</td>
</tr>
<tr>
<td>Education and labor force attachment of delayed childbearer</td>
<td>$56,615.61</td>
<td>$61,184.55</td>
</tr>
<tr>
<td>4. Stable marital history, more education, and greater labor force involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and labor force attachment of on-time childbearer</td>
<td>$65,233.08</td>
<td>$70,497.46</td>
</tr>
</tbody>
</table>
and labor force attachment, the mean level of education for early childbearers, 10.31, the average number of births for early childbearers, 4.56, and the average labor force attachment ratio, .94 are used. The estimated annual permanent income for a nonwhite male under these circumstances is $26,146.69, and for a white male is $28,256.82, considerably higher than the comparable estimates for women.

The first scenario change presented shows the effect of a stable marital history on permanent income, the only change made to the estimating equation (Table 4.13). There is a substantial improvement in permanent income for both white and nonwhite men over the original scenario (increases of $7,078.21 and $6,549.67, respectively). Stable marital history is a significant and positive predictor of permanent income as shown in Table 4.8.

The second scenario change illustrates the result of an unstable marital history, as in the original scenario, combined with the acquisition of more education, which is also a positive and significant predictor of permanent income. In this example, predicted permanent income is calculated using the educational level of on-time and delayed childbearing men. The results are increases in estimated permanent income of $5,540.89 for nonwhites, and $5,987.98 for whites. The corresponding increases for nonwhites and whites with educational levels equivalent to delayed childbearers, on average, are $8,421.08 and $9,100.61.
Scenario number three shows the effects of combining the above levels of education with increased labor force involvement. Substituting the labor force attachment ratio as well as the educational level of the average on-time childbearer in the equation results in permanent income increases of $26,019.09 for nonwhites, and $28,118.80 for whites. Using the labor force attachment ratio and the educational level of the average delayed childbearer in the sample results in increases of $30,468.92 for nonwhites and $32,927.73 for whites in permanent income. Clearly, the combination of human capital investments in education and labor force involvement pay-off for men.

The final scenario (Table 4.13) shows the results of combining investments in education and labor force participation with the normative path of marital stability. Nonwhites who combine marital stability with the educational level and labor force attachment ratios of on-time childbearers can expect increases in permanent income of $39,086.39 over the original scenario. The corresponding increase for whites is $42,240.64. Acquiring even more education, equivalent to that of the delayed childbearers in the sample in conjunction with the labor force attachment ratio of delayers on average, and a stable marital history leads to increases in permanent income of $44,650.88 for nonwhites and $48,254.20 for whites.

Estimates of wealth: Men's sample. In Table 4.14, the estimates of wealth generated using the two-stage least squares regression equation are shown. The original scenario (Table 4.13) was used to develop the estimate of modified permanent income that is subsequently used to calculate the initial wealth scenario. In this scenario, the average family size of the average early childbearer is used in the estimating equation
Table 4.14. Two-stage Least Squares Regression Estimates of Wealth, Selected Scenarios; Men’s Sample, Weighted Data

Original Scenario: Early childbearing male with a premarital first birth, and an unstable marital history, who in 1989 is retired, not currently married, living in a rural area. Original estimates of wealth were made using the average family size for early childbearing men in the sample, 2.35. Original estimates of permanent income were made using the mean level of education for early childbearing men in the sample, 10.31 years, the average number of births for early childbearing men in the sample, 4.56, and the average labor force participation ratio of early childbearing men in the sample, .94. Estimated Permanent Income: Nonwhite = $26,146.69; White = $28,256.82.

Estimated Wealth: Nonwhite = $2,549.29; White = $3,022.55

<table>
<thead>
<tr>
<th>Scenario Change</th>
<th>Estimated Wealth</th>
<th>Estimated Change in Wealth Compared to Original Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-white</td>
<td>White</td>
</tr>
<tr>
<td>1. Residential location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>living in semi-urban area in 1989</td>
<td>$4,356.38</td>
<td>$5,165.11</td>
</tr>
<tr>
<td>living in an urban area in 1989</td>
<td>$4,793.11</td>
<td>$5,682.80</td>
</tr>
<tr>
<td>2. Married in 1989</td>
<td>$25,075.56</td>
<td>$29,730.66</td>
</tr>
<tr>
<td>3. More education, more labor force experience, stable marriage</td>
<td>$49,697.16</td>
<td>$58,922.83</td>
</tr>
<tr>
<td>education and labor force experience of delayed childbearer, currently employed widower, living in rural area</td>
<td>$348,364.63</td>
<td>$413,033.95</td>
</tr>
</tbody>
</table>
(2.35), and it is assumed that the individual is retired, not currently married, and is living in a rural area. As was true with the estimates for women, the initial wealth scenario for men represents the outcomes for a man enduring several of the factors associated with lower levels of wealth. In the original scenario, the estimated wealth is $2,549.29 for a nonwhite male and $3,022.55 for a white male.

The first scenario (Table 4.14) illustrates the improvements associated with living in a semi-urban or urban area as opposed to living in a rural area. Increases in wealth of $1,807.09 for nonwhites and $2,142.56 for whites over the original scenario result from a semi-urban residence. Greater increases in wealth are associated with urban residence. The corresponding increase in permanent income is $2,243.72 for nonwhites and $2,660.25 for whites over the original scenario using rural residence in the estimate.

The second scenario shows the increase in wealth that results from being married in later years. Increases of $22,526 for nonwhites and $26,708.11 for whites over the original scenario are due to the change in marital status from not married in 1989 in the original scenario to married in 1989. As was shown in the women's wealth estimates, combining income and assets with a spouse in later years has a tremendous impact on wealth. Individuals often do not have control over the events that may render them single, such as death of a spouse, or lack of a suitable marriage partner, however.

The third scenario shows the results of more education, greater labor force involvement, and a stable marital history combined with different situations that may occur in later years. The first example gives the wealth estimate of an individual who had the educational equivalent of the average delayed childbearer in the sample, and a relatively
strong labor force attachment ratio, who was still employed in 1989, but was widowed, and living alone in a rural area. As a nonwhite, his estimated wealth would be $49,697.16, the figure would be $58,922.83 if he were white. Circumstances associated with a substantial level of wealth are illustrated in the final example, which shows the wealth of an individual who had the educational level and labor force attachment ratio of the average on-time childbearer in the sample, who was married with a family size of 2, retired and living in an urban area in 1989. Estimated wealth would be $348,364.63 for a nonwhite male and $413,033.95 for a white male, increases of $345,815.34 and $410,011.40, respectively over the original scenario. Clearly, there can be substantial variation in the level of wealth for older men as determined by educational level, labor force involvement, marital history and current marital status, and residential location.

Discussion

In this section, the results of the study are summarized and discussed in relation to family development and human capital theory. The strengths and limitations of the study are reviewed, and ideas for future research are presented within the course of the discussion.

*Predicting long-term economic outcomes for women and men.* It is evident in this study that different variables predict permanent income and wealth for men and women in later years. Although birth-timing was not a significant predictor of permanent income for men, women with early first births were more likely to have lower levels of permanent income in later years than their on-time and delayed childbearing counterparts. Although men may be able to overcome the negative economic impacts associated with an early first
birth, the relationship between early childbearing and lower economic well-being persists for women. It is also important to note that, although there are some commonalities, different variables predict permanent income and wealth for men and women, suggesting that different models are needed to predict economic well-being for each sex. Labor force participation, education, and stable marital history were significant positive predictors of permanent income for women and men, but birth-timing, number of children ever born, and race were significant only for women. Postmarital rather than premarital first birth was not a significant predictor of permanent income for either men or women. Modified permanent income and current marital status were positive predictors of wealth for women and men, but family size and current involvement in the paid labor force added to the explanatory power of the model for women only. Residential location, on the other hand, was a significant predictor of wealth for men, but not for women. In future analyses, researchers may want to model the factors predicting economic well-being for men and women differently.

Theoretical Perspectives

*Family development theory.* As indicated in the first stage of the two-stage least squares regression analysis in the women's sample, women who had their children “on-time” rather than early had higher levels of permanent income, controlling for other variables in the model, than their early childbearing counterparts. These women followed the norms and expectations related to birth-timing that were prevalent during their childbearing years and subsequently experienced positive economic outcomes. Early childbearing women who violated process norms with an off-time first birth experienced
lower levels of economic well-being than both their on-time and delayed childbearing counterparts. Both on-time childbearing men and women had higher levels of permanent income on average than their off-time childbearing counterparts as indicated in the descriptive statistics from the samples. Delayed childbearing women also had higher levels of permanent income than their early childbearing counterparts, despite the fact that they violated birth-timing norms for their cohort. Perhaps these women were able to take advantage of educational or labor force opportunities that off-set the difficulties associated with off-time birth, or they were later childbearers not by choice but because other circumstances such as war or economic recession prevented them from marrying and having children “on-time.” They were able to overcome the violation of process norms because of the widespread social acceptance of these reasons for delay.

Birth-timing was not a significant predictor of permanent income for men, probably because the cross-institutional norms demanding participation in the paid labor force and support for one’s family were so strong that birth-timing became irrelevant for them. Early childbearing men with family responsibilities undoubtedly felt obligated to provide for their families and seize economic opportunities as did their on-time and delayed childbearing counterparts in the “breadwinner” role. The fact that early childbearing men were older, on average, than early childbearing women may also have meant there were more opportunities available to them, as well.

The process norm that marriage should precede the birth of the first child was adhered to strongly in both the men’s and women’s samples. There were very few premarital first births reported, and this variable was not a significant predictor of
economic well-being in later years, probably because most of the individuals were either married at the time their first child was conceived, or they married as a result of the pregnancy. Unwed parenting is more common today than it was for this cohort, and therefore this may be a better indicator of economic outcomes for more recent cohorts. It is also possible that pre- or postmarital first birth is irrelevant for this cohort because those who did have a premarital first birth were able to overcome the negative economic factors years before these economic measures were made.

The norm of marital stability is very strong in society, particular for older cohorts as compared to younger cohorts, which accept divorce more readily. Stable marital history proved to be a positive predictor of permanent income for both women and men, and currently being married was a positive predictor of wealth for both genders.

Interestingly, parity was a significant predictor of permanent income for women but not for men, however the direction of influence was the opposite of what was expected. It was expected that fewer births would be associated with higher levels of permanent income, but number of births was positively associated with permanent income. Women of this cohort who could afford to have more children may have been expected to do so, which might explain the association. This variable was not significant in the men’s sample, perhaps because the decisions regarding family issues were often the domain of the women in this cohort, and more influential in their life-course.

Current family size was not a significant predictor of wealth for men, but it was negatively, and significantly related to wealth for women. Two opposing explanations related to family development theory might explain this relationship. On one hand, older
women with low levels of income and wealth may live with other family members to maintain an adequate level of living. The norm of responsibility for aging parents may still be strong, despite the institutionalization of support through programs such as Social Security retirement and Medicare. On the other hand, it may be the aging parent who is helping to support her family members, and the negative relationship between family size and wealth may be indicative of the fact that family members may be draining the older person's stock of economic resources. The question of the directionality of support among families with an older member is an important area for future research. Family size was probably not a significant predictor of wealth for men because the men, on average, had higher levels of permanent income and wealth than the women, and therefore were unlikely to be living with other family members for their own personal support; likewise, they may have been able to share economic resources with other family members without draining their own reserves.

In sum, the variables suggested by family development theory were relevant to the study of economic well-being for men and women in their later years, and concepts from the theory that relate to the timing and duration of events, as well as the normative expectations surrounding individuals and their experiences, provide adequate explanations for the findings in this study.

Family development theory is concerned with the temporal careers of families as they exist in the present, but takes into account historical factors that influence what families do (see Aldous, 1996 for review). In that sense, examining wealth and permanent income for individuals in later years, using preceding variables such as birth-timing, parity
and postmarital birth, as well as current factors such as marital status and residential location, is logical within the parameters of the framework.

Although it was possible to assess the timing of certain events such as first birth, and assess the duration of experience in the labor market and the educational system, it was not possible to determine the order or sequencing of relevant events that influence economic outcomes. For example, due to missing data on certain variables, it was not possible to determine the sequencing of educational, birth-timing and labor force participation decisions, which certainly would add depth to the analysis. There also is not a measure of the “family’s age” or the length of marriage prior to the first birth which may also lend insight into the family’s economic circumstance. In future research, data that allow for the examination of the sequencing of individual and family decisions will aid in understanding how the factors of, for example, interruptions in labor force participation to raise children, and retirement in relation to child-launching, affect economic outcomes.

**Human capital theory.** The variables suggested by human capital theory proved to be important predictors of economic outcomes in later life for both men and women. Education allowed individuals to secure better paying positions in the paid labor force and augment their incomes and consequently increase their total wealth because they had money available to save and invest. Labor force participation was also a significant positive predictor of permanent income for men and women, obviously because these individuals earned money through their participation in the labor force, but their experience probably led to higher wage rates, as well. Education and labor force participation may be particularly important to early childbearing women who want to off-
set the negative economic consequences of an early first birth. Based on human capital theory, it would be predicted that women will acquire less education and training than men because their careers are shorter and they have less time to reap the rewards of education and training. Even though the findings of this study cannot be generalized to current cohorts of young women, it is probably safe to say that the acquisition of education and training are important for pregnant teenagers and should be encouraged, whether they expect shorter careers or not.

Race was a significant predictor of permanent income for women, but surprisingly, was not a significant predictor of permanent income for men. White women are less likely than nonwhite women to be teenage childbearers, and they also have had greater access to education and higher paying employment opportunities, therefore the impact of race on permanent income is expected. In the men’s sample, there may have been factors unique to this cohort that lessened the influence of race on permanent income. Perhaps nonwhite men who participated in the military were able to acquire training, skills and retirement benefits equivalent to those of white men, and therefore differentials in earnings were not present. It has also been suggested that the income gap between blacks (specifically, rather than nonwhites) and whites narrows for middle-aged individuals and seniors, whereas the wealth disadvantage expands tenfold for blacks and whites in later years (Oliver & Shapiro, 1995). It may be more fruitful to look at race as a predictor of wealth, rather than as a predictor of wealth through the prediction of permanent income. As stated by Oliver and Shapiro (1995), "blacks and whites with equal incomes possess very unequal shares of wealth" (p. 101). Further examination of the relationships between
permanent income, wealth and race are certainly warranted given the higher incidence of poverty of elderly minority group members as opposed to whites.

Current employment status was not a significant predictor of wealth for men, although currently being involved in the paid labor force was a significant positive predictor of wealth for women. It appears that, for men in later years, the accumulation of wealth was influenced by factors occurring earlier in time, and therefore the assessment of current labor force participation versus retirement is not as important as was earlier labor force participation. For women however, participation in the paid labor force as opposed to being a housewife in later years is significantly related to level of wealth. Therefore, looking for ways to expand employment opportunities for older women may be a logical policy option to reduce the incidence of poverty for older women. Involvement in the paid labor force allows women to supplement their retirement assets, yet many may not have the skills or confidence to keep working into their later years. Encouraging employers to hire older workers, and providing opportunities for women to upgrade their skills may enhance the economic security of some older women.

Residential location was not a significant predictor of wealth for women, but it was a positive predictor of wealth for men. It is not possible to assess whether living in urban or semi-urban areas as opposed to living in rural areas provided men with more opportunities to develop human capital. It would be expected that living in a larger area would present more opportunities for education, training, and employment, but in this analysis, it is difficult to assess the direct influence between residential location and wealth. Residential location may be less important for women, if their wages are uniformly low;
urban and semi-urban areas may offer more highly paying opportunities for men than for women.

Lastly, modified permanent income was the strongest predictor of wealth for both men and women. There is a strong relationship between permanent income and wealth. Income allows individuals to accumulate assets and pay off debts that subsequently can increase net worth; assets can provide income. Efforts that allow individuals to expand their human capital and increase their permanent income undoubtedly can foster the accumulation of wealth.

In conclusion, the variables suggested by human capital theory were important predictors of economic well-being in this analysis. One of the limitations of this study is the fact that information on women’s human capital decisions in relationship to birth-timing and labor force participation were not included. The analysis would be stronger if there were better measures of women’s labor force experiences. Comparing no participation in the paid labor force to a moderate number of years of participation and long-term participation was useful in this analysis. Additional information on whether the work was full-time or part-time, the type of industry it was in, and the effects of interruptions in labor force because of childrearing responsibilities would further enhance what is known about women’s investments in human capital and economic outcomes.

*Strengths of the analysis.* Despite the limitations of the study identified in the preceding sections, the study contributes to the existing literature on birth-timing and economic well-being in several ways. First, men are included in the analysis. Although it is often assumed that there is no relationship between birth-timing and long-term
economic outcomes for men, it has rarely been tested particularly with large representative samples and years after the first birth. Second, it is evident from the analysis that birth-timing does influence economic outcomes for women in later years when other factors that influence economic well-being are controlled, indicating that it may be difficult for women to overcome the negative consequences of an early first birth, even years after the birth. This finding adds to the existing body of literature on the economic consequences of early first birth and reinforces the need to address these issues in the formation of public policy.

A third strength of this study is the focus on individuals in their later years because very little research on the effects of birth-timing assesses long-term impacts. A fourth strength is that two measures are used to assess economic well-being and they are both relatively strong measures. A measure of permanent income based on ten years of averaged yearly household income is used as one measure of economic well-being; the other measure is of wealth or net worth. Wealth is an important measure of economic well-being because it not only can create income flows through interest and dividends, but an individual’s stock of resources, even if they do not generate income, can lead to a sense of security or stability, and may lower expenditures, as is the case with owner-occupied housing. Lastly, the data from the Panel Study of Income Dynamics are nationally representative and these samples were weighted to reflect the characteristics of the population.

An interesting extension of these analyses would be to apply the models to younger cohorts (for example, people in their 40s and 50s) to see if birth-timing and the other variables included in the analyses affect economic well-being for individuals in other
cohorts differently than they did for this group of older individuals. A logical "next step" would be to examine the different factors that influence economic outcomes for men and women, as well.
CHAPTER 5
SUMMARY

The purpose of this study is to assess the impact of the age of a parent at the time of the birth of his or her first child on the economic position of the individual and his or her household when he or she is 60 to 70 years of age. The purpose is achieved through parallel analyses of 519 women and 352 men in the 1989 wave of the Panel Study of Income Dynamics (PSID). Of particular interest is the comparison between "on-time," or normative childbearers, commonly defined as those who have their first child during their twenties, and "off-time" parents, those who either had a child during their teen years, or delayed childbearing until they were in their late 20s or early 30s and beyond. The unit of analysis in the study is the individual. Two household level variables, a proxy for permanent income, and household net worth, are used as outcome variables.

Major Findings

The most notable finding of this study is that women with early first births are more likely to have lower levels of permanent income in later years than their on-time and delayed childbearing counterparts. While men may be able to overcome the negative economic impacts associated with an early first birth, the relationship between early childbearing and lower economic well-being persists for women. Furthermore, racial inequality exists between nonwhite and white women in terms of economic outcomes, therefore, nonwhite women may suffer even greater negative consequences in later years as the result of an early first birth.
It is evident in this analysis that different models should be used for men and women to examine economic well-being in later years. Although there are some common variables that are statistically significant predictors of permanent income and wealth, there are also variables that are unique predictors for each sex. The analyses also indicate that even if household level variables are used to analyze economic outcomes for men and women, it is inaccurate to say that the findings will be the same for each gender given the variation between genders on the predictor variables. In this study, the model for women explained more of the variance in wealth than the model for men.

Interestingly, number of births is a positive predictor of permanent income for women in the sample. It was expected, based on the review of literature, that smaller family size would be associated with higher levels of economic well-being, but the result is the opposite. The positive relationship between parity and economic well-being however, may be unique to this cohort. Another unexpected finding is that race is not a significant predictor of permanent income for men. Nonwhite men in this sample may have been able to achieve levels of permanent income similar to white men because of investments in human capital through military service and training or labor force opportunities. This finding warrants additional investigation.

Hypotheses and Testing

Three general hypotheses were tested in this analysis. First, it was expected that there would be differences among early, on-time, and late childbearing groups on the variables that predict economic well-being such as years of education, parity, race, marital history, pre- or postmarital first birth, and labor force participation. Second, it was
expected that there would be a relationship between economic well-being and birth-timing with “off-time” childbearing men and women having different levels of economic well-being at age 60 and beyond than their “on-time” childbearing counterparts. Third, it was expected that the relationship between economic outcomes and birth-timing would be spurious and that the relationship would disappear when the other factors that influence economic well-being such as educational level, race, labor force participation, marital status and marital history, residential location and current family size were controlled.

The first hypothesis was tested using either analysis of variance or chi-square analysis to discover if there were significant differences among birth-timing groups on the variables that predict economic well-being. In the women’s sample, significant differences among birth-timing groups are found on the variables measuring the number of births, level of completed education, race, pre- versus postmarital first birth, marital history, current employment status, and residential location. In the men’s sample, significant differences are found among birth-timing groups on the variables measuring the number of births, level of completed education, race, pre- versus postmarital first birth, and marital history. Early childbearing men and women have lower levels of education, more births, and more unstable marital histories than their on-time and delayed childbearing counterparts. They are also more likely to be nonwhite and have a lower percentage of postmarital first births. Delayed childbearers have higher levels of education and fewer births than their on-time and early childbearing counterparts, on average.

The second hypothesis, that there was a relationship between birth-timing and economic well-being was tested in two ways. First, analysis of variance indicates
significant differences among birth-timing groups for men and women on the permanent income variable. There are also significant differences in wealth for men and women. When the wealth variable is transformed to normalize the distribution on the variable however, the relationship among birth-timing group and wealth is not significant in the men’s sample.

The relationship between birth-timing and economic well-being was also tested using correlational analysis. In the women’s sample, the hypothesis is supported because there are small but significant positive correlations between on-time and delayed childbearing and both permanent income and wealth. There are also small, but significant negative correlations between permanent income and wealth and early childbearing. The second hypothesis was not supported in the men’s sample. Although on-time first birth is positively and significantly associated with higher levels of permanent income, there is no relationship between on-time birth and wealth. There is also a significant negative relationship between early first birth and permanent income, but there is no relationship between early first birth and wealth in the men’s sample. There is no relationship between delayed childbearing and permanent income or wealth in the men’s sample.

The third hypothesis, that there is no relationship between birth-timing and economic outcomes when other factors contributing to economic well-being are controlled was tested using two-stage least squares regression analysis. The third hypothesis is not supported in the women’s analysis because when controlling on the other variables that affect economic well-being, the positive relationship between on-time and delayed childbearing and permanent income persists. Other positive predictors of permanent
income for women are completed level of education, marital history, race, parity and labor force participation. Modified permanent income, current involvement in the paid labor force, and current marital status are positive predictors of wealth; current family size is a negative predictor of wealth, for women. The two-stage least squares regression model explained 38% of the variance in wealth ($F = 45.28, p < .001$) in the women’s sample.

The relationships between birth-timing and permanent income for early and on-time childbearing men disappeared when the other factors affecting economic well-being were controlled. Completed level of education, marital history, and labor force attachment are significant predictors of permanent income for men. Modified permanent income, current marital status and residential location are significant positive predictors of wealth. The two-stage least squares regression model explained 28% of the variance in wealth ($F = 22.65, p < .001$) in the men’s sample.

Conclusions

It is evident in this study that different variables predict permanent income and wealth for men and women in later years, suggesting that different models are needed to predict economic well-being for each sex. Although birth-timing is not a significant predictor of permanent income for men, women with early first births are more likely to have lower levels of permanent income in later years than their on-time and delayed childbearing counterparts. The variables suggested by family development theory and human capital theory are relevant to the study of economic well-being for men and women in their later years.
Implications for Public Policy

*Older women.* The results of the scenario exercise show that the population of elderly women is very heterogeneous. Although the economic status of the elderly in general has improved greatly over the past several decades, it is important to consider that some individuals may be struggling financially due to lower levels of permanent income and wealth. Those at risk are likely to be nonwhite with low levels of education, who experienced early births, unstable marital histories, and who did not participate in the paid labor force. In their later years, they are more likely to be unmarried with a larger family size. As explained by Gonyea (1994), inaccurate perceptions, such as the myth that “aged people are all well-off,” may lead to societal neglect of the problems confronting older women. While the majority of women in the cohort studied here probably followed a relatively normative life course and are fairly secure economically, pockets of poverty still exist among the elderly, particularly among older nonwhite women, and therefore, their needs should not be overlooked in the development and reformulation of public policy.

*Older men.* Although the levels of permanent income and wealth estimated in the men’s scenarios are considerably higher than those for women, there are factors associated with the male life course that are problematic, as well. Older men with unstable marital histories who are not married in their later years may have lower levels of wealth than their married counterparts. Those who have low levels of education, and relatively low levels of labor force involvement may be economically vulnerable, as are those who reside in rural areas.
Younger women. Although the long-term economic outcomes for women who had their children in later decades cannot be generalized from this study, it is logical to expect that factors that significantly improved the economic well-being of this cohort such as birth-timing, education, and labor-force participation, will be even more important for younger cohorts of women where increased levels of education and labor force involvement are expected, and for whom early childbearing is more likely to occur outside of marriage. Although controversy exists regarding how to address issues such as adolescent sexuality, in terms of public policy, the analysis reported here would support prevention and intervention efforts aimed at discouraging early childbearing, and truncated education. The scenarios also support the finding that labor force participation does lead to higher permanent income and subsequent wealth for women. Therefore, investments in job skills and training pay-off for women, regardless of childbearing patterns.

Younger men. Although birth-timing was not a significant predictor of economic outcomes for men in this sample in later years, these analyses clearly show that there are substantial increases in permanent income and wealth for men who have relatively high levels of education and are involved full-time in the paid labor force for a number of years. As was the case in the women’s sample, getting married and staying married leads to higher levels of economic well-being in later years, as well. Obviously, young men should be encouraged to become educated and seek rewarding careers. The analysis of the women’s sample also supports the perspective that young men should be held financially accountable for the children that they father in order to help young mothers overcome the negative financial consequences of an early first birth.
Implications for Future Research

Additional research in several areas related to this study is recommended. First, because the relationship between early birth-timing and lower economic well-being persists for these women into later years, it would be interesting to apply the models to younger cohorts to discover if the variables used in the analyses affect economic well-being for individuals in other cohorts differently than for this group of older individuals. For example, have women in their 40s or 50s been able to overcome the negative consequences of early birth-timing through expanded educational and labor market opportunities, or does the negative relationship persist for them as well? Analyzing the relationship between parity and economic well-being in other cohorts of women may be insightful, as well. It is also important to expand the models used in these analyses to include other predictors of economic well-being such as wage-rate, "family age," as suggested by family development theory, and the sequencing of birth-timing, educational and employment decisions. The impact of race on permanent income and wealth is another area for future research. An unusual finding in these analyses is that race is a significant predictor of permanent income for women, but not for men. Analyses of these relationships could be extended.
REFERENCES


