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## UNDERSTANDING LOW FERTILITY: THE IMPACT OF LIFE-COURSE COMPETITION ON FERTILITY BEHAVIOR IN DEVELOPED NATIONS

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The current trend of declining fertility in developed nations has sparked debate among demographers, sociologists, and policy makers with regard to its causes, consequences, and appropriate strategies to halt the process. The chapters in this volume are part of the current debate, each approaching fertility decision making from a unique perspective. Morgan and Hagewen (this volume) outline a theoretical approach to fertility decline in developed nations by introducing the concept of “life course competition” as the source of cross-national fertility differentials. The chapters that follow are variations on this theme, examining macro- and micro-level factors that are associated with fertility behavior. This concluding commentary pulls together the major themes and assumptions underlying this volume: that the production of children in developed nations is the result of women’s rational choice, and that these choices are constrained by the context of reproduction.

### ***Demographic Trends***

Today, nearly 75% of developed nations are characterized by below replacement fertility (Lichter & Wooten, this volume), where the United States is an anomaly given its 2.03 total fertility rate (Morgan & Hagewen, this volume). Europe and Asia are characterized by total fertility rates close to 1.0, and the threat of population decline appears to be more acute here than in the United States. Although it is intuitive to assume that women and men simply want fewer children, research shows stable fertility intentions across nations.

On a theoretical level, Morgan and Hagewen (this volume) attributes this discrepancy to changing intentions, attitudes, and preferences over the life course, constrained by factors that compete with childbearing particular points in time. Methodologically, this implies that researchers need to measure fertility intentions, not only at the beginning of adulthood, but at different stages of the life course. Barber and Axinn (this volume) note that individuals with strong fertility preferences are more likely to act on their intentions, despite competing forces. Ultimately, most people express contentment with the number of children they have at the end

of their reproductive years, although it is difficult to gauge the extent to which people realign their cognitions to match their realities (Festinger, 1957).

### *Family Structure Trends Related to Childbearing*

The relationship between parenthood and marriage has weakened in the United States and other industrial countries over the past several decades (Thomson, this volume). This trend is often attributed to the increasing participation of women in the labor force, which results in the increasing cost of women's time, and increasing earning power. Increasing and independent earnings allow women to be more selective about their choices in general, and about marriage and childbearing in particular. Simultaneously, this trend resulted in men's weakening earnings compared to those of women (Oppenheimer, 1998) and, in turn, the declining marriageability of men. A greater proportion of men are now less suitable for marriage, increasing women's difficulty in finding suitable partners (Tucker, this volume). Women now have limited options in terms of family formation, given that marriage remains the most accepted family arrangement for childbearing. Two salient choices for women are to bear children outside of marital unions or to remain childless.

Coinciding with increasing female labor force participation, Thomson (this volume) observes an increase in non-marital childbearing that can be largely accounted for by rising cohabitation. Thus, we need to consider what makes cohabitation a desirable alternative for women. For one, cohabitation may be an alternative to marriage, depending on the quality of the relationship (Landale, this volume), which largely depends on the mother's age at birth (Jaffee, this volume). Teenage non-marital childbearing may be the result of an unplanned pregnancy and thus has different causes and consequences for individuals. Second, cohabitation may be a transitional stage en route to marriage, a period when women evaluate the qualities of their partner before committing to long-term marriage (Thomson, this volume). Lichter and Wooten (this volume) note that subsequent generations of children will be born to more educated, older, unmarried women. Despite the single-parenthood status of these women, these findings imply that the negative image of single-parenthood needs to be qualified by the mother's age and level of human capital. Childbearing within cohabiting unions may thus help to maintain the total fertility rate and prevent it from further decline.

Throughout U.S. history, over 20% of women have generally remained childless at the end of their reproductive years, increasing slightly with each subsequent decade. Because fewer families today have higher parity births, large families no longer compensate for the retreat from parenthood as they did during the first half of the twentieth century. Raley (this volume) identifies a "feedback effect" of female labor force participation in which paid employment delays childbearing to accumulate wealth and women defer the decision to have a child, a process that could continue indefinitely. Morgan and Hagewen (this volume) note that factors

across the life course compete with parenthood, where the major culprit appears to be female labor force participation—the inability to combine employment and parenthood simultaneously.

### ***An Economic Approach to Fertility***

#### ***The Influence of Life-Course Competition on Fertility Behavior in Developed Nations***

An underlying premise of the discussion of fertility behavior in developed nations is that childbirth is the result of individual rational choice. In the realm of fertility decision making, economic theories of fertility are at the forefront of explaining factors that influence the decision to have a(nother) child, and by default, what determines the choice to remain childless. This perspective proposes that individuals carefully evaluate the costs and benefits associated with having a(nother) child. Today, children are far from being economic assets to their parents; rather, a trend toward an elevated social reproduction requires a high financial and time investment on the part of parents. Parents' investment in children not only depends on their financial resources, but on their human capital goals as well.

Child quality refers to the direct and indirect cost of raising children. Direct costs are monetary expenditures such as clothing, food, and education, where parents may differ in the amount of money they directly invest in their children. For example, families of women who engage in the labor market contribute a large amount of their income to the purchase of childcare services (Blau & Robins, 1989). The acquisition of children may be reduced to a number that ensures a balance between resources and the goals parents have for their children. In low-income families, women required to work may limit their fertility due to childcare expenses.

Opportunity costs are indirect costs associated with raising children, costs that in industrialized nations primarily affect women. Women inevitably forgo earnings and work experience by taking time out to bear and raise their child(ren), regardless of previous employment status. Cross-national fertility differences may relate to maternity policies, where women in nations with generous maternity leaves reduce their fertility to minimize lost wages. Thus, factors related to the quality-quantity interaction depend on individuals' position in the social structure and the institutional support they receive within a given society.

An economic approach to fertility, then, directly assumes that *all births are planned*, and that individuals have the access and knowledge to effectively employ contraceptive technology and abortion services (Morgan & Hagewen, this volume; Presser, this volume). This assumption has great implications for the study of fertility because unplanned births, which are primarily related to teenage childbearing, are not assessable by rational-choice models.

Morgan and Hagewen (this volume) utilize Bongaarts' (2002) analytic framework, which presents the total fertility rate of a nation as a function of the intended family size of a woman being increased or decreased by unwanted fertility ( $F_u$ ), the replacement of deceased children ( $F_r$ ), gender preferences ( $F_g$ ), sub- and infecundity ( $F_i$ ), fertility timing ( $F_t$ ), and competition ( $F_c$ ). Evaluating the effect of the Bongaarts formula, Morgan and Hagewen contribute cross-national fertility difference to life-course competition ( $F_c$ ), or to the fact that women reevaluate their intended family size continuously throughout the life-course in response to factors that compete with or encourage childbearing. The authors identify two key factors for fertility decline. First, nations in which women delay childbearing and that have strong norms against non-marital childbearing tend to have lower total fertility rates. Second, nations that provide an institutional setting that allows for the combination of employment and motherhood have higher total fertility rates compared to nations with low maternal and child investment.

### *The Utility of Children in Developed Nations*

Bachrach et al. (this volume) point out that children are "goods" for both societies and individuals alike. The value of children for societies is three-fold, relating to economic growth, pension systems, and societal reproduction. Children are to a greater degree public goods and to a lesser degree private goods, and thus the responsibility of raising children in industrialized nations should be supported by national governments via institutional and monetary aids.

Compared to other industrialized countries, it is evident that public investment in children is fairly limited in the United States. For example, the U.S. ranks comparatively high on the infant mortality rate and America's children are 3.2 times more likely than children in other developed nations to live in poverty (White, this volume). Bacharach et al. (this volume) assess the increasing public rhetoric concerning children's well-being, education, and psychological development in the United States as the first step toward an increasing public investment in children. It appears that U.S. efforts are aimed to increase child quality rather than quantity, in contrast to policies in many European nations, because population decline is not an immediate concern (Morgan & Hagewen, this volume). The emphasis on child quality, however, may raise the cost of childbearing in the future by indirectly pressuring parents to invest more in their children than they originally would have intended (Bachrach et al., this volume).

Part of the underinvestment in children may be the result of a decreasing concentration of fertility among various racial and ethnic groups in the United States. Lichter and Wooten (this volume) find that births have become more racially diverse over the last three decades; the fertility of Whites has decreased little, but that of Hispanics has risen by 136%. Given the negative public attitudes toward immigrants in this country, coupled with a decline in the poverty of Hispanic children, policy makers may refrain from heavy investment to encourage fertility.

In addition, more children have been born to mothers over the age of 25, and fewer to teenagers. Similarly, more children have been born to college-educated women compared to high school dropouts (Lichter & Wooten, this volume). These trends are associated with positive child outcomes and, at this time, do not require urgent policy measures.

Children, while in many ways a great public value to all nations, are today, and are likely to remain, the responsibility of their parents. Research assessing the involvement of mothers and fathers in their children's lives suggests that the main responsibility for raising children lies with biological mothers, regardless of their marital status. Bachrach et al. (this volume) point out that public goods are universally accessible without any investment. It appears that as long as a nation's supply of children is adequate to maintain population size, as is currently the case in the United States, governments will see no need to actively invest in their "future."

In contrast to the United States, pro-natalist policies in Europe are designed to increase the quantity of children by decreasing the cost of children directly, through provision of financial incentives that increase with the birth of a(nother) child. Generous maternity policies, accessible to women or their husbands, are aimed at encouraging fertility. European governments invest in their citizens by providing universal health insurance, unemployment benefits, pensions, housing policies, educational standards and affordable childcare to reduce structural inequalities. It seems that Europe has responded to fertility decline by an increasing public investment in children. This cross-national variation in policy is a reminder that individuals are placed within different societal contexts and that the costs and benefits of childbearing are affected by that context as well (Morgan & Hagewen, this volume).

However, children are also resources for parents and siblings. They confer emotional support to parents, are potential old-age care-givers, and serve as a mechanism for generativity (Erikson, 1980). Bachrach et al. (this volume) acknowledge that children as private goods weakly motivate childbearing, especially given alternative mechanisms by which people can ensure old age support via private retirement funds, contribute to the world and leave their mark via professional and personal contributions, and find emotional support via stronger investment in friends, partners, and family. It is important to decipher whether declining fertility is indicative of a reduced investment of parents in children, or whether fewer high-quality children point to a heightened private investment. White (this volume) equates increasing divorces and births outside of marital unions to a lack of private investment in children by men. She refers to the fact that among adult biological parents, only 35% of White and 20% of Black men reside in the same household as their children, meaning that American fathers are less likely to parent their children compared to mothers.

The historical increase in divorce, however, may suggest that children may be fathered by non-biological fathers for parts of their lives, and by default, that fathers who remarry are more likely to father someone else's children in return. Maybe fathers do indeed invest in children, but just not in their biological offspring? Findings about stepparenting, however, are discouraging. As one would expect, stepfathers tend to lack emotional closeness and financial responsibilities for non-biological children, probably the result of late entry into the child's life as well as the absence of legal responsibility (White, this volume). More detrimental are the socioeconomic effects of this pattern: children raised in stepfamilies are comparable to those raised in single-family homes with regard to human capital acquisition and pre-marital childbearing. These poor child outcomes are further reinforced by a lack of financial support on the part of divorced fathers, placing the main responsibility of childrearing on mothers.

Residential fathers in non-marital unions also invest less in their offspring. White (this volume) reports that these men spend less time with their children and lack emotional closeness compared to biological fathers who are in marital unions. In order to assess the investment by fathers in partnered-nonmarital unions, we must consider cross-national differences in the duration and quality of cohabiting unions in order to truly understand the implications of this living arrangement for children and mothers (Landale, this volume).

Even when fathers are involved in the lives of their children, mothers still take a disproportionate responsibility for childcare. Bianchi (this volume) reports that in the U.S. women engage in twice the amount of housework and childcare compared to their husbands, and they forgo employment. While the number of single fathers is increasing in the United States, men appear to mobilize support from female relatives or partners to fulfill their parenting responsibilities. It appears as if fathers in developed nations do not equally share the responsibility of raising children with women, regardless of their union status (White, this volume).

### ***Life-Course Competition: Explaining the Gap Between Intentions and Behavior***

Individuals' experience and choices can be placed within history, a particular society, and, on the individual-level, within a particular genetic context. It follows that individuals' fertility choices are shaped by the cultural, structural, and bio-social determinants throughout the life-course. It is thus important to employ a life-course perspective when examining the discrepancy between intended family size and the fertility behavior of women. Morgan and Hagewen (2004) presents fertility behavior, relating to planned births, as events that benefit from the life course model, especially because births occur in a sequential manner. Studying the previously discussed trends in fertility in developed nations, and relating declining fertility to the rational choice of individuals related to life-course competition, forces us to examine the trend of female labor force participation and

to establish how women's, and possibly men's, decisions may be influenced by role competition.

Increasing female labor force participation in developed nations means that childbearing (1) reduces net earnings of women and their families directly, and (2) diminishes the amount of leisure time women have to engage in childrearing and time they can spend on their own leisure and personal pursuits. In essence, then, making childbearing and employment compatible is a function of macro-level gender relations (Presser, this volume). We may observe cross-national differences in fertility as a result of varying pro-natalist policies (Gauthier & Hatzius, 1997), reinforcing Morgan and Hagewen's (this volume) point that "context matters." In addition, the purchase and availability of high-quality childcare and the employer's effort to support the mother's transition to work need to be considered (Bianchi, this volume). A woman's support varies by class; women who are forced to return to work to secure their family's financial position are in need of more financial and social support compared to women who seek employment for self-fulfillment. Nations vary with regard to their institutional responses, a factor deemed important to encourage childbearing (Morgan & Hagewen, this volume).

Female employment also reduces the hours of leisure time a woman (and her partner) have to devote to herself and to her children, a trend that is in discord with an ideological change toward increasing investment in children (Bianchi, this volume), as well as the right to self-actualization (Morgan & Hagewen, this volume). Bianchi (this volume) suggests that parents' investment and expectations vary by class, where individuals at the lower socioeconomic spectrum do not have the choices that middle-class women have. Economically endowed individuals, on the other hand, may choose the number of children they have, not on the basis of financial resources, but according to the time available to engage in self-enriching activities. Bianchi (this volume) presents paradoxical findings that support the trend of high parental investment: while the amount of parental time spent with children did not change over time, men and women today report not spending sufficient time with their children. Although the division of labor in the "modern" marital union has closed the female-male gap, women continue to engage in about 50% more housework and childcare compared to their spouses (Bianchi, this volume), suggesting an increasing value of parental leisure time.

There has been a shift in individual-level gender relations that has resulted from participation in the labor market, one toward greater gender equality. Not only do women have more opportunities, but also their choices are constrained by them in return. Men now seem to feel a greater necessity to "step up to the plate" and to take more responsibility within partnered unions, which has two consequences for fertility behavior. For one, the increasing time husbands and wives both spend in non-market work increases, which may reduce fertility if there is a sense of entitlement to self-actualization and leisure on the part of either partner in addition to wanting fewer, high-quality children. Second, men might choose to refrain from investing in their children if they find parenthood too costly and time-consuming.

Female paid employment and its associated consequences for women, men, and children have been related to another major trend related to childbearing: the delay of marriage. Raley (this volume) finds that female employment, that is, the result of voluntary human capital accumulation, delays marriage in favor of paid work. Thomson (this volume) does not find this trend surprising because in developed nations part of the support of parents in raising their children has been transferred to states and the market, via childcare and education. Correspondingly, the author finds evidence that the “loss” of marital births has been partially compensated by births that occur to adult cohabiting couples in the United States.

### *Attitudes and Bio-Social Determinants of Childbearing*

Although attitudinal analyses are at the heart of traditional micro-level studies of fertility determinants, the assessment of bio-social determinants is a fairly new avenue pursued by scholars. Barber and Axinn (this volume) point to the difficulty in establishing the nature of the link between attitudes and behavior: attitudes vary across the life-course and are in part shaped by and the result of current and prior experiences on the one hand, and the societal/cultural context, on the other hand (Alwin, this volume). First, the decision to have a child depends on the roles the mother- and father-to-be currently occupy, and the degree to which individuals can and want to accommodate to this additional, optional role. To the extent that roles are incompatible, individuals may forgo parenthood or shift their fertility intentions downward, depending on their life-course stage.

Attitudes are thus indirectly linked to individuals' socialization in several ways (Barber & Axinn, this volume; Lundberg, this volume). First, early childhood experiences such as the quality and length of education have an effect on one's attitudes toward factors associated with decreasing fertility by, for example, encouraging employment careers or promoting negative attitudes toward premarital childbearing. Second, parents are known to influence children's attitudes via socialization, on the one hand, and social control techniques, on the other (Barber & Axinn, this volume). Parents will raise their children according to their beliefs and can use manipulative techniques to alter their children's behavior. However, if children are raised to respect their elders they may act in a way to please them as well. Within marital unions, partners have a say in fertility decisions as well, where marital decision making depends on the distribution of power within the union. In unequal unions, one partner's opinion may outweigh the others. In addition, Barber and Axinn (this volume) identify a variety of historical factors that influence childbearing attitudes of individuals that are related to smaller intended family sizes, such as a large family size of origin and siblings' level of fertility. A final mechanism through which parents influence the fertility of their children is through genetic inheritance (Kohler, this volume). Barber and Axinn (this volume) state that increasing testosterone levels have been associated with a lessened desire for children. Kohler (this volume) finds that, over time, the genetic influence of fertility

has become more pronounced as a result of heightened egalitarianism within developed nations. This implies that the force of socialization on attitudes may be decreasing in response to more behavioral choices. In societies where behaviors are constrained by structure, the relationship between attitudes and behavior may be weak. However, Barber and Axinn (this volume) do not examine individuals' attitudes toward competing roles, as well as fertility intentions. An individual's role preference rank and certainty about intentions are important qualifying factors when modeling and understanding disparity between attitudes and behaviors.

A further factor influencing attitudes is the number of children a woman or couple has previously conceived, or parity (Kohler, this volume; Morgan & Hagewen, this volume). Morgan and Hagewen note that the motivations for first children differ from those for second children, and that the reasons motivating a third or higher parity birth are also unique, possibly relating to the realization of gender preferences. A first birth is commonly associated with emotional gratification of parents, the second with desiring a sibling for the first child. Motivations for higher-order births in developed nations are largely unknown, given that almost 90% of all births are first- and second-order births, where only the remaining 10% are higher-order events (Morgan & Hagewen, this volume). Kohler (this volume) shows that for both parents, having a first-born male child increases the happiness for both parents, whereas additional children have no effect on the father's happiness and a negative effect on mother's happiness. These findings are in accordance with the trend toward self-realization and the unequal burden of parenthood.

### *Class and Fertility Attitudes*

Morgan and Hagewen (this volume) argue that the total fertility rate for the United States remains above replacement level partially resulting from high minority fertility, indirectly proposing that the process underlying fertility decision making varies by race. For example, Tucker (this volume) identifies a variety of factors shaping middle-class African American women's fertility: having non-biological children in the household, increased religiosity that leads to unacceptability of non-marital childbearing, a lack of confidence in marital relationships, a cultural preference for early childbearing, coupled with medical conditions that prevent fertility, and a welfare system that especially disadvantages African American women by requiring a rapid welfare-to-work transition.

In low-income families where economic resources are insufficient to support any children, parents do not really have to choose their "plight." Having children is commonly part of everyone's life, either by choice or due to a lack of access to healthcare and contraception. Low-income families, as a result of the intergenerational transmission of poverty, expect to spend less time and money on their children, compared to higher-income parents. We tend to forget that healthcare, music lessons, education, supervision, and safe neighborhoods are upper-class

ideals. Pro-natalist policy goals in the United States may have to be two-fold: (1) policies need to encourage low fertility among White Americans to increase their fertility and (2) policies should concentrate on creating equal access to healthcare and education to families and children of high-fertility minority groups.

### ***How to Create the Next Generation? Policy and Methodological Suggestions***

The previous discussion presents the dilemma of women in developed nations: while greater gender equality provides women with the choice of labor force participation and increasing personal freedoms, they continue to bear a disproportionate burden of the financial and physical responsibility of childrearing in industrialized nations. Oddly, pro-natalist policies in Western Europe have mostly failed to raise fertility, and while we have tracked those changes in behaviors related to family formation over time, empirical findings are still inconclusive with regard to what differentiates women who remain childless from those who bear one, two, or even more children. In order to relate macro-level trends to micro-level behavior, however, research must focus on the processes underlying fertility behavior. Scientific efforts to aid policy makers must move away from aggregate demographic research to multi-level, longitudinal, cross-disciplinary research designs, in order to capture the complexity of the fertility process.

#### ***Policy Recommendations***

Many European nations at risk of population decline cannot afford to wait for social scientists to unravel the complexity behind the fertility process. A variety of pro-natal policies have been implemented—with a lack of success. Increasing tax breaks, low childcare costs, free and universal education, monthly monetary incentives, and generous maternity leaves and benefits have failed to convince individuals to have more than the average 1.6 children. It appears that the inability to combine motherhood and employment in these industrialized nations, a major theme throughout this chapter, needs to be addressed by policy makers in order to increase fertility in these nations.

Policy makers should reconsider the length of maternity leave. While the U.S. only provides women with a short, unpaid leave, most European mothers are able to forgo employment for up to three years. While the generosity of many European policies appears to be desirable, research supports that a woman or couple may consider forgone earnings when engaging in fertility decision making. Not only monetary losses, but the depreciation of her skills is important once a woman returns to work as well. Though many companies are required to provide the woman with her original position, or at least with a position of identical pay, the social stigma of returning after a long period of time in an age when technology

changes rapidly may depress her desire to return to work. It appears as if a reduction of maternity leave and the possibility for part-time and/or flex-time employment would ease the transition to work for mothers.

Second, it would be beneficial to nations to ensure high-quality and low-cost childcare for all children whose parents are required or desire to engage in paid employment. While in the United States the availability of childcare is generally not a problem, quality, convenience, and affordability remain serious issues. It appears that middle- and upper-class parents are able to afford care in high-quality day care settings, but many lower middle-class and working-class parents cannot do so without subsidies. The European childcare system provides quality care at low cost, but lacks availability. In order to ensure that mothers are able to combine motherhood and employment, nations have to ensure that all individuals have access to high-quality and low-cost childcare. Governments ought to encourage and financially subsidize the education of early childhood educators, and implement sliding-fee scales to enable parents who would otherwise lack the resources to enroll their children in such institutions. Opening hours must be flexible to allow working parents to fulfill their work requirements—on weekdays and on weekends alike. The same logic needs to be applied to the public school system, which can be of unequal quality in the United States. In Europe many nations lack a system that allows children to attend all-day schools, which requires parents to either seek private after/ during school care or leads to women foregoing employment altogether. Only if the state supports employment and motherhood until children are self-sufficient will women find it justifiable to increase their completed fertility. Unfortunately, the current political rhetoric concentrates on the benefits of marital unions for parents and children (Lichter & Wooten, this volume), continuing to place the responsibility of parenthood on parents alone.

Alternatively, policy makers could advocate the return to gender-specialized work and family spheres. This would reduce the incompatibility of parenthood and employment by reintroducing separate spheres for men and women. Mothers would now return to exclusively raising children and men would be sole “breadwinners.” Eliminating the need for paid employment might reduce the role incompatibility women currently experience, and with adequate monetary and institutional support, they may now realize their intended family size. While the retreat of women from the labor force would create numerous employment opportunities within countries at this time of high unemployment, the economic, psychological, and social benefits of employment to women will be hard to relinquish.

Increasing immigration is a fruitful alternative. Below replacement nations can utilize open immigration policies to increase their population. However, the success of these policies depends on the demographic characteristics of immigrants, such as the proportion of immigrants in the population, their age composition, their fertility level, and their sex ratio (Feichtinger & Steinmann, 1992). There are two possible ways by which immigrants contribute to a nation’s population: (1) through

their (numerical) presence in the population, and (2) through their offspring. Immigration policies must target young immigrant populations, preferably married couples, so that immigrants have a greater probability of contributing to population growth. While immigrants can slow population decline, the process of fertility assimilation to natives' levels over time makes immigration a short-term solution. In addition, the ethnocentric political climate of many industrialized nations prevents governments from investing in the cultural assimilation of immigrants, a process deemed essential for the public acceptance of foreigners.

Despite current pro-natalist policy implementations and reform suggestions, there appears to be no surefire solution to increase women's fertility in developed nations. Most policies have limited governmental feasibility and their effectiveness remains suspect. Past performance is the best predictor of future success; in this case, the future looks dismal. Campaigns to increase individuals' awareness of societal-level consequences of population decline, as well as highlighting how these problems will affect individuals' lives, may be the best solution to prevent further fertility decline.

### ***Methodological Recommendations***

Despite accumulating theories on below-replacement fertility behavior, empirical evidence on fertility behavior is scarce. The lack of statistical verification is the result of the complex nature of the issue. In this final section we identify methods directed toward a more sophisticated modeling of fertility processes. We recommend (a) a multi-level approach that accounts for temporal factors, (b) the utilization of mixed methods from both quantitative and qualitative paradigms, and (c) a multidisciplinary perspective to inform the scientific inquiry of fertility decision making in developed nations.

We follow Alwin's (this volume) suggestion by utilizing Bronfenbrenner and Morris's (1997) multi-level ecological model as a framework for future fertility study. First, inquiries must begin at the micro-level, by identifying *women's* human capital expectations, their family formation intentions and their attitudes toward cohabitation and non-marital childbearing. In addition, it is important to evaluate past and childhood experiences, such as family of origin influences, i.e., one's parents' experiences with having children, parental divorce, number of siblings, and birth- and gender order. At the same time, the strengths of biological determinants need to be evaluated. Micro-level factors are important for understanding the proximal context in which individuals make their fertility decisions. For childbearing that occurs within partnered unions, it is essential to retrieve this information from the partner as well.

Second, meso-level factors include immediate relational influences of the individual, such as one's parents' ability to combine parenthood and employment, and peer's attitudes toward childbearing and childrearing. For coupled individuals, learning about the partners' child preferences and micro-level experiences aids

understanding of the process, assuming that women consider their partners' opinions.

Third, exo-level factors are often discussed as contributing factors to fertility trends without being directly assessed. They include availability of family-oriented work and leave policies if a woman or her partner is employed, the availability and cost of childcare, federal family policies and marriage promotion policies, as well as individuals' perceptions of their utility. Exo-level factors have to be evaluated from the perspective of the individual, who is nested within her immediate and extended family, community, town, state, and country.

Further, macro-level factors, such as societal norms with regard to marriage and children, economic situation, and gender equality, are important for understanding the distal context in which individuals live and the degree to which culture influences their fertility behaviors. Understanding the nature of cultural norms, individuals' perceptions of cultural norms, and how much weight they give norms in influencing their preferences and decisions will help to explain the degree to which culture influences fertility behavior.

Finally, the temporal context is necessary for examining these levels across the life-course. Environmental influences change in character and significance over time. For instance, family-of-origin exerts its force during the formative years, whereas peers gain significance during adolescence and early adulthood. In order to have an accurate understanding of the proposed relationships among culture, workplace demands, personal preferences, family-of-origin influences, and biological determinants, the ideal methodological technique will require extensive data collection that surveys the same individuals into childhood through adulthood. Today, panel studies have gained acceptance among scholars who are interested in studying individual-level behavior over time. The problem with longitudinal data collection is the high rate of attrition over time, the loss of initial survey respondents. It would require an enormous amount of respondents to account for attrition in a nationally representative survey that would include multiple decades of data collection. Today, techniques such as the event-history calendar allow for the collection of retrospective information on time-varying events such as employment, childbearing, and marriage. Attitudes, however, cannot be captured by this method. Converting longitudinal data into event history files enables the researcher to take into account events that have previously taken place, e.g., the time dependency of events. Coupled with multi-level modeling techniques, research can carefully evaluate the influences of all ecological levels over time.

### *The Utility of Qualitative Data*

Landale (this volume) highlights the utility of qualitative data to broaden our knowledge of processes. Qualitative methods (e.g., in-depth personal interviews, ethnography, focus group interviews) capture individual experiences and provide rich information precluded by close-ended quantitative interviewing and survey

research. Qualitative survey methods are advantageous when examining personal issues such as the decision to have a child. Compared to impersonal quantitative survey methods, for example, personal interviews, with a skilled interviewer, can provide insights into gender equality within relationships, reduce the amount of social desirability pressure, and provide information on the intensity of fertility intentions and attitudes often not captured by survey approaches to data collection.

### *The Value of an Interdisciplinary Approach*

Most fertility research stems from demographic approaches. Although vital information has been garnered with respect to changing behavior over time, other disciplines have made contributions that have been largely ignored by demographers. Thomson (this volume) admits that studies of aggregate fertility most likely are not appropriate if we want to discover why demographic rates have changed.

Developmentalists, family researchers, and psychologists can offer more micro-level and meso-level approaches to studying fertility, by assessing whether individuals indeed engage in cost-benefit calculations or if they simply supply a normative response to survey questions. Sociologists and demographers simply assume that individuals engage in rational decision making and that fertility behavior is thus an intentional outcome. Individual-focused disciplines would view this as a dangerous assumption leading to false conclusions. Adding a more micro-level approach to current research will provide insights into how and why individuals make decisions—especially those with regard to fertility behavior.

In sum, individuals make decisions within the context of their past, current, and anticipated future experiences. It is thus essential to examine all ecological levels, and how they relate to and influence each other, and to determine how those relationships contribute to the aggregate findings presented in the demographic literature. Currently, we have very little empirical understanding of the complexity of fertility decision making and behavior. A piecemeal approach to fertility needs to be replaced with a longitudinal, multilevel, multidisciplinary, and multi-method approach in order to begin clarifying mechanisms, processes, and problems with regard to low fertility. Using mixed methods and multidisciplinary approaches will aid in discovering the complex mechanisms and interactions underlying human fertility decisions making and behavior, and serve as a means of assessing the degree to which previous demographic and sociological findings accurately reflect these complex mechanisms.

### ***Conclusion***

The fear of population decline and its societal and individual-level consequences raises the study of human fertility to a position of importance. The perceived threat of population decline is population aging and the resulting insufficient supply of economically active individuals to support them. Today, however, we are not sure what causes fertility decline, how to solve it, or what its consequences really entail. In fact, research has just begun to unravel the process behind fertility behavior.

The diminishing personal value of children, coupled with increasing female labor force participation, can lead to decreasing fertility if the institutional responses are inadequate to ensure the combination of motherhood and employment. Increasing rights to free time required for self-actualization, coupled with the need for the necessary financial capital adequate to raise children in developed nations, may lead parents to delay or forgo childbearing in order to achieve their goals. Increasing gender equality means that women and men have opportunities that may work against accomplishing their fertility intentions over time: individuals have to weigh their options and decide how to pursue a particular goal at a particular point in time.

Pronatalist policies drafted in developed nations do not appear to compensate for the direct and opportunity costs associated with children, especially for women participating in the labor force. Why are these policies failing to increase fertility rates? What kinds of policies prevent fertility rates from continuous decline? To answer these questions, we need longitudinal, multilevel, multidisciplinary, and multi-method studies of fertility.

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