Adolescent Childbearing, Poverty, and Siblings: Taking New Direction From the New Literature*

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This article critically appraises the sibling-comparison method by pointing to the following limitations: (1) it assumes within-family homogeneity; (2) it neglects naturally occurring heterogeneity across siblings; (3) it overlooks the unique effects of a teen's childbearing for her family and siblings; (4) it underappreciates the selectivity of sisters of teenage mothers who delay childbearing; and, (5) it ignores differences in outcomes by sisters' birth order and age spacing. Directions for future research stemming from this new literature are discussed.

One of the most innovative lines of research to come out of the adolescent childbearing literature is the use of within-family estimates to gauge the socioeconomic costs of teenage childbearing. This is often referred to as ''the new literature on teenage childbearing'' (Hoffman, 1998) and was fueled by a 1992 article by Arline Geronimus and Sanders Korenman entitled, *The Socioeconomic Consequences of Teen Childbearing Reconsidered.* In this article, Geronimus and Korenman compared socioeconomic indicators of sister pairs who differed in age at first childbearing, with one sister of each pair having given birth at age 19 or younger and the other sister having had her first child at age 20 or older. Results showed that although the teenage childbearing sister was less likely than her non-teenage childbearing sister to have any postsecondary schooling or to be married as an adult, family income and welfare dependency rates of both sisters were not significantly different and high school graduation rates were actually higher for the teen mothers (although not statistically significant). The authors concluded that much of the economic adversity associated with teenage motherhood stems not from the childbearing itself but, rather, from the disadvantage that preceded it.

The results of the Geronimus and Korenman (1992) study have been intensely debated in a series of articles by Saul Hoffman, Frank Furstenberg and colleagues (Furstenberg, 1991, 1992; Geronimus, 1991, 1992; Geronimus & Korenman, 1993b; Hoffman, Foster, & Furstenberg, 1993a, 1993b). Using similar procedures but analyzing a more recent version of one of the data sets employed by Geronimus and Korenman, Hoffman and colleagues reported that accounting for unobserved family heterogeneity reduced but did not eliminate the estimated consequences of early childbearing. Hoffman recently summarized this debate noting that the case for weak or even positive effects of teenage childbearing is far from definitive (Hoffman, 1998).

The sister comparison method is unique because it is the first to attempt to disentangle the independent costs of teenage childbearing from the pre-existing family background factors that precede it. The use of kinship data, particularly sibling comparisons, as a means of reducing the effects of heterogeneity on estimates of early childbearing is becoming increasingly common. For example, cousin comparisons have been used to gauge the effects of young maternal age on children's socioemotional, cognitive, and health outcomes (Geronimus & Korenman, 1993a; Geronimus, Korenman, & Hillemeier, 1994; Rosenzweig & Wolpin, 1995). Results of these studies indicate that, when controlling for biases from family background, differences in the outcomes of cousins (the children of sisters) were not overly significant or disappeared entirely.

This article does not dispute the specific findings reported by Geronimus and Korenman (1992) or Hoffman et al. (1993a). Rather, the purpose of this article is to call attention to several limitations inherent in the sister comparison *approach.* These limitations are significant because estimates that attempt to control for heterogeneity through the use of sibling-based comparisons have become increasingly prevalent with little recognition paid to the shortcomings of the approach. Second, results of this new literature call into question the validity of earlier research and suggest that policy efforts to reduce the disadvantage *created by* teenage childbearing may be misguided. Thus, the ramifications of the findings from the new research for programs and policies aimed at disadvantaged teenage mothers are enormous. For example, if early childbearing does not have significant negative consequences, perhaps youth would be better served by addressing poverty and its effects earlier in development as opposed to targeting youth after they become pregnant or have a child.

It is argued that the sister comparison approach has the following limitations: (a) it fails to consider siblings' nonshared family experiences (such as differential parental treatment, investment, and resource allocation across siblings) but, rather, assumes within-family homogeneity; (b) it neglects the naturally occurring heterogeneity across siblings, heterogeneity that likely determines both differential parental investment and differential adult outcomes; (c) it overlooks the unique effects of a teen's childbearing for her family and for her siblings; (d) it underappreciates the selectivity of sisters of teenage mothers who are not also teenage mothers; and, (e) it ignores differences in outcomes by sisters' birth order and age spacing. Each of these limitations is evaluated in turn, and the interdependence of these limitations is discussed. New directions for future research stemming from the new literature on teenage childbearing are then put forth.

Influences and Effects of Adolescent Childbearing

Lack of Consideration of Siblings' Nonshared Family Experiences

Psychologists, and certainly behavioral geneticists, have long recognized that siblings have many nonshared experiences

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within the family and that these experiences act to make siblings different from, not similar to, one another (Daniels & Plomin, 1985; Dunn & Plomin, 1990; Hetherington, Reiss, & Plomin, 1994; Scarr & Grajek, 1982). Such nonshared family experiences include differential parental treatment, expectations, and resource allocation in the form of time, money and emotional investment across siblings.

Nonshared family experiences as they occur within teenage childbearing families have not yet been studied. It has been shown, however, that the magnitude of differential parental treatment is exacerbated in atypical families, such as those involving a disabled or chronically ill child (McHale & Pawletko, 1992; Quittner & Opipari, 1994). Similarly, families have been shown to distribute resources based on the unique qualities and potential of each individual child (Becker & Tomes, 1976; Behrman, Pollack, & Taubman, 1982, 1995; McGarry & Schoeni, 1995; Rosenzweig & Wolpin, 1988).

Family resource allocation within teenage childbearing families is not a straightforward case. On the one hand, children are often highly valued and cherished within disadvantaged communities, with young mothers afforded a status and importance not typically attained by other life-course life events (Ladner, 1988; Stack, 1974). In addition, a young infant creates new financial stresses and demands on the family (Furstenberg, 1980). Thus, families may reallocate their accessible assets, out of desire or necessity, to provide for the new baby and her mother. Conversely, parents likely recognize that a childbearing teen's school and job options will be limited. Parents may thus ''deinvest'' in their teenage childbearing daughter and consolidate their available resources to make available for their non-teenage childbearing children, children whose life paths are presumably brighter. In the former case, where families compensate for a teen birth by shifting resources to the teen mother, the economic costs associated with a teen birth (as generated through sibling estimates) would be reduced. In contrast, when families shift resources away from a teen mother, the negative impact of a teen birth (as estimated by sibling comparisons) would be overstated. In either case, parental investment and resource allocation patterns likely shift in response to a teenager's childbearing and this likely has consequences for the teen mother and her siblings.

It may also be the case that differential parental investment and treatment actually motivate differences in sisters' timing of their first births. That is, non-shared sibling experiences may explain why some teenage girls within a family become pregnant and others do not. Sociologists have observed that within families, teenage childbearing is often accepted or even encouraged for some young women, whereas it is not for others (Burton, 1990; Stack, 1974). Whether parental inequities exist prior to a teenager's pregnancy (based perhaps on siblings' individual traits and characteristics), or whether they are formed in response to a daughter's early pregnancy is a question for future research. If parental inequities exist early in life and serve to channel young women within a family along divergent life paths, it would be important to uncover the intra-family dynamics that propel some teenage daughters within a family to become pregnant while others successfully postpone childbearing.

Failure to Recognize Heterogeneity Across Siblings

Heterogeneity surely exists across siblings, with all siblings varying in their endowments, motivations, and physical traits (Becker & Tomes, 1976; Rosenzweig, 1986; Sheshinski & Weiss, 1982). In fact, many geneticists believe that siblings are more different from one another than they are alike (Rowe & Plomin, 1981; Scarr & Grajek, 1982). Studies of sibling differences reveal that, for measures of personality, interests, attitudes, and psychopathology, siblings are more different than when compared to random pairs of individuals in the population (Scarr & Grajek, 1982). Such sibling heterogeneity would surely account for disparities in siblings' adult outcomes. Moreover, poor school performance and negative attitudes toward school have been shown to vary significantly across siblings (Behrman & Taubman, 1989; Chamberlain & Griliches, 1977; Taubman, 1976) and to precede teenage childbearing (Hayes, 1987; Moore, Miller, Glei, & Morrison, 1995). Differences in risk-taking behaviors are also evident between adolescent siblings (Daniels, 1986) and this likely contributes to differences in siblings' pregnancy-risk behaviors and their eventual fertility outcomes. Thus, the birth timing effects on sisters' educational level and economic status, as found by Geronimus and Korenman (1992), may merely reflect endowment differentials. Accordingly, because the sibling comparison estimates do not incorporate within-sibling pair heterogeneity, the socioeconomic costs of teenage childbearing derived from those estimates are likely to be biased.

Along these lines, sibling comparison methods do not take into consideration the possibility that teenage mothers participate in interventions. It is possible that many of the teen mothers in the Geronimus and Korenman (1992) and Hoffman et al. (1993a, 1993b) studies were participants in programs designed to boost high school graduation rates, for example. The impact of interventions targeted at the teen mother presumably attenuates potential differences in outcomes between the teen mother and her sibling who delayed childbearing.

Failure to Consider the Unique Effects of a Teen's Childbearing for Her Family and Siblings

Probably the most overlooked aspect of the new literature on teenage childbearing is that a teenager's pregnancy and childbearing most assuredly have strong and unique effects for the teen's family and for her siblings. Approximately 80% of teens continue to reside with their family of origin one year after giving birth, and 50% remain after two years (Furstenberg, Brooks-Gunn, & Morgan, 1987b; Trent & Harlan, 1994). This necessitates changes in household living and sleeping arrangements, income allocation, family members' job and work commitments, and family support patterns to help care for the new infant (Brooks-Gunn & Chase-Lansdale, 1991; Furstenberg, 1980). Recently, East (1998b) discussed several unique family effects resulting from a teenager's childbearing, including increased family financial hardship and family stress, diminished parental monitoring, and heightened sibling rivalry and competition. In a study examining the first teenage pregnancy to occur within a family, it was found that the mothers of pregnant teens monitored their children less and were less strict with their other children after the daughter gave birth (East, 1999). These changes in the mothers of parenting teens were interpreted as adaptive and necessary responses to having a new baby in the household.

How do these family-level changes impact the siblings of childbearing teens? East (1998b) argued that, collectively, such circumstances increase the risk of early parenthood for such siblings. Moreover, because siblings share community, neighborhood, and within-family risk factors that precipitate early pregnancy (e.g., a disadvantaged economic status, being an ethnic-

racial minority, living in a neighborhood accepting of early nonmarital parenting, and living in a single-parent family; Alan Guttmacher Institute, 1994), these pre-existing predispositions toward early childbearing likely interact with or contribute further to the unique effects resulting from a sister's childbearing to render siblings even more vulnerable to early pregnancy. Indeed, there is converging evidence that the sisters of teenage mothers, when compared to same-race, same-age women of comparable socioeconomic status, have disproportionately higher rates of adolescent childbearing (Cox, Emans, & Bithoney, 1993; Friede et al., 1986) and teenage sexual activity (East, 1996a, 1996b; Hogan & Kitagawa, 1985).

Given the likely probability that unique consequences for the teen's family and siblings derive from a teen's childbearing, the sisters of teenage mothers are not an unbiased control. Rather, because they have been ''exposed to'' a teenage sister having a baby and all of its resultant individual-level and family-level changes, the sisters of pregnant and parenting teens constitute a biased comparison. The outcomes of the sisters of teen mothers likely depend on how families adapt to the teen daughter's early pregnancy and parenting and how it affects the siblings within the household.

Underappreciation of the Selectivity of Sisters of Teenage Mothers Who Delay Childbearing

The sister comparison method as used by Geronimus and Korenman (1992) requires data of teenage mothers and of their sisters who were not also teenage mothers. Such cases are relatively rare. Using the Panel Study of Income Dynamics [PSID]-1987 data set, only 19% of all available sister pairs had teen and non-teen ages at first birth (teen was defined as age 19 and younger and non-teen was defined as age 20 and older; Hoffman et al., 1993a). In the data sources that Geronimus and Korenman used (the National Longitudinal Survey of Young Women-1982 and the PSID-1985), there were only 51 and 52 such sister pairs, respectively. Moreover, because the number of available sister pairs varied greatly by outcome, the number of teen mother-adult mother sister pairs out of all sister pairs was as low as 6% for some outcomes. Thus, the actual estimates generated by Geronimus and Korenman (1992) were based on a regrettably slender data base.

The selectivity of the sisters who were not themselves teenage mothers likely biases upward the estimates of the costs of early childbearing. That is, the sisters of teenage mothers who delay childbearing may possess specific resilient characteristics that help combat the odds for early parenting. Indeed, many protective factors may be triggered by the sister's birth itself and may stem from the non-teenage childbearing sister's recognition of the hardships involved in early parenting (East, 1998b). For example, such protective factors include: increased sister contraceptive conscientiousness, increased parental vigilance about who or at what age the sister can date, parents' more attentive parenting and monitoring, and increased parental investment and expectations for the nonchildbearing sibling. These factors may work together to make the sisters of childbearing teens select on a variety of variables that are correlated with delayed childbearing. The presence and strength of these protective factors, though, need to be verified by future research, and alternative techniques for estimating the effect of selectivity are needed.

There are also numerous theories that posit the idea that siblings develop specific roles and personality characteristics purposely to distinguish themselves from one another, such as role differentiation theory (Bossard & Boll, 1956; Parsons & Bales, 1955), sibling deidentification theory (Schacter, Shore, Feldman-Rotman, Marquis, & Campbell, 1976), and contrast effects (Carey, 1986). Such active sibling differentiation may create lasting individual differences in adult outcomes. How siblings of parenting teens possibly distinguish themselves specifically in reaction to a sister's pregnancy and birth could be an important phenomenon currently overlooked within this area.

Birth Order and Age Spacing Effects in Sister Outcomes are Ignored

Studies using the sibling comparison approach have been mute on how birth order or age spacing between the selected sister pair possibly influences the adult outcomes of interest. Geronimus and Korenman (1992) selected only one pair of sisters from multi-sister families. Because they were interested in long-term effects, they selected the two oldest non-attriting sisters. These inclusion criteria likely selected for closely-spaced and proportionately more first- and second-born sisters as opposed to latter-born sisters. Hoffman et al. (1993a) selected two sisters randomly from families with more than two sisters. To control for life-cycle differences in outcomes between sisters, age is typically used as a control variable. Simply controlling for sisters' age, however, neglects the large bodies of literature from both developmental psychology and economics that indicate that parents differentially invest in their children (vis-á-vis time and monetary investments) as a function of birth order and age spacing (Behrman et al., 1982, 1995; Dunn & Plomin, 1990; Rosenzweig, 1986; Rosenzweig & Wolpin, 1988; Scarr & Grajek, 1982) and that adult outcomes also vary by birth order (reviewed by Sutton-Smith, 1982).

Sibling differences deriving from birth order and age spacing are likely to be due to within-family environmental changes, such as the increased experience of parents of latter-born children and the oftentimes reduced resources available for latter-born children (Becker & Tomes, 1976). Longitudinal studies also show that the majority of families who experience poverty do so sporadically rather than persistently (Duncan & Rodgers, 1988). Depending on the timing of family poverty, then, one child within a family may experience poverty and its effects to a greater or lesser extent than other children within the family (McLeod & Shanahan, 1993). Indeed, adolescents who experience poverty during their infant years are at an increased risk of adolescent adjustment problems, including dropping out of high school (Duncan, Yeung, Brooks-Gunn, & Smith, 1998). Although sibling differences in poverty experience have yet to be studied, it is reasonable to think that sibling heterogeneity may arise out of siblings' different experiences (i.e., duration and timing) with poverty.

In addition to ignoring the direct effects of birth order and sibling spacing on adult outcomes, the sister comparison approach overlooks how birth order and age spacing affect the sibling relationship which, in turn, impacts sibling adjustment. For example, a younger sister who becomes pregnant may provoke competition and jealousy for an older sister who is childless and who was expected to produce the first grandchild (East & Felice, 1992; Furstenberg, 1980). Conversely, older siblings are more likely to serve as socialization agents for their younger siblings (Sutton-Smith, 1982). Thus, an older sister's pregnancy

may be more influential for her younger sisters than vice versa (East & Shi, 1997). Also, the effects of a teen's childbearing may be more devastating, in terms of parents' time and resource allocation patterns, for closely-spaced as opposed to widely-spaced siblings. In any event, the dynamics associated with sibling structure variables and how these impact siblings' adjustment is ignored in the sibling comparison approach.

Interdependence of Limitations

The limitations discussed above are likely to be strongly interrelated and interdependent. For example, the heterogeneity across siblings likely motivates parents' differential investment and resource allocation and may even be a catalyst for the difference in sisters' ages at first birth. Similarly, the unique and probably largely negative effects resulting from a teen's childbearing for her family and siblings likely enhances the selectivity of sisters who delay childbearing into adulthood and motivates changes in resource allocation patterns within the family. Also, age-spacing and birth order differences between the selected sister pair are likely related to heterogeneity in sister outcomes. For example, as stated previously, children will often develop specific personalities or roles based on their position within the family (Parson & Bales, 1955; Scarr & Grajek, 1982) and on their need to distinguish themselves from other family members (Schachter et al., 1976). More research is needed that examines the degree to which the limitations discussed in this article are interrelated and how this affects within-family estimates.

Directions for Future Research

At the beginning of this article, it was noted that the use of kinship data as a means to reduce the effects of heterogeneity on estimates of early childbearing is becoming increasingly common. Relatively few studies, however, have utilized this within-family approach. As data sets come to include more family members both within and across generations, the potential for deriving better estimates of the consequences of early childbearing will increase. A goal for future research is to continue to perfect the use of within-family estimates by addressing the limitations as noted in this article.

Another recommendation is a call for more sensitivity to within-family heterogeneity. Research on differential parenting is progressing quickly within developmental psychology, and research on differential investment has had a long history within the economics literature. Incorporating these literatures within the adolescent childbearing paradigm would be a solid contribution to the field. For example, assessing differential parenting and investment in teenage childbearing families and linking these differentials to differences in sister outcomes would begin to reveal the contribution of within-family heterogeneity in the costs of an early birth. Moreover, future research should incorporate in its design and analyses questions about possible differential parental treatment effects across siblings being related to *dissimilarity* in sisters' birth timing and adult outcomes. Similarly, future research would benefit by incorporating sisters' individual characteristics known to predict an early birth (such as low academic motivation, poor school performance, and risk-taking). This will account for the endowment differentials that likely lead to differences in sisters' adult economic outcomes.

Another important goal for future research is to gain a picture of the consequences of adolescent pregnancy and childbearing for the teen's family and siblings. Studies that focus on family-level changes (e.g., increased financial hardship, decreased parental monitoring), sibling-dyad changes (e.g., increased sibling competition or jealousy), and individual-level changes (e.g., increased sibling acting-out behavior) are needed. Examining how family-level and sibling-level changes are related to siblings' pregnancy-risk behaviors also would be important and would have significant practical and preventive implications (East, 1998a). Finally, a closer examination of sibling contrast or deidentification effects (perhaps enacted specifically in response to a sister's pregnancy and birth) would be enlightening. With more improved research along these lines, such findings could be used to better understand, and ultimately reduce, repeated teenage pregnancies across siblings.

Conclusions

What do these limitations imply for the validity of the new literature and, more specifically, for the new sister comparison approach? They imply that, although the new research is truly innovative and quite appropriately attempts to incorporate the important contribution of family background factors for measuring the impact of teenage childbearing on women's and children's lives, more needs to be done. The new research has applied new and innovative methods for isolating and controlling background heterogeneity by finding ''natural experiments'' (Hoffman, 1998; Grogger & Bronars, 1993; Hotz, Mullin, & Sanders, 1997). New work should be done to hone these within-family estimates by incorporating, for example, sibling differential treatment effects, sibling heterogeneity, family effects of a teen birth, and birth order and age spacing effects on adult outcomes. All of these issues have been well-studied in other domains and measures exist to assess many of the constructs at hand, for example, differential parental treatment and investment (e.g., Rodgers, Rowe, & Li, 1994).

Moreover, in many large national data sets, measures are available on sisters' individual traits and characteristics known to correlate with early parenting, such as school performance and school motivation (Chase-Lansdale, Mott, Brooks-Gunn, & Phillips, 1991). Thus, childhood measures of these characteristics could be incorporated into the estimate and sibling heterogeneity could be controlled. Also, because sisters' ages at the time of assessment are known in the data sets used by Geronimus and Korenman (1992) and Hoffman et al. (1993a), examining birth order and age spacing effects in sisters' adult outcomes and birth timing may be revealing. That is, one particular pattern vis-à-vis age spacing or birth order might dominate between adolescent childbearing and adult childbearing sisters. Moreover, by further analyzing the individual traits and childhood characteristics of the adult childbearing sister, factors suggestive of resiliency to early parenting may emerge. Furthermore, given the longitudinal design of many large national data sets, perhaps changes could be identified in the adult childbearing sister at the time of the birth of her sister's child, changes that could be construed as related to that event. Finally, more refined research using sister contrasts would be important for better understanding children's outcomes. For example, perhaps longer-term longitudinal studies that follow the children of adolescent mothers could also target the children of sisters who delayed childbearing (c.f., Furstenberg, Brooks-Gunn, & Morgan, 1987a). These kinds of analyses would go a long way toward unraveling the effects of adolescent childbearing for the teen and her family.

It was our intent in summarizing these limitations to stimulate our fellow researchers to empirically address these issues. Such a task would benefit from a multidisciplinary approach incorporating, for example, family sociology, developmental psychology, and economics. We hope the issues reviewed here provide a foundation for our colleagues to take this ambitious next step.

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