The Intergenerational Transmission of Fertility

LAURA BERNARDI

Abstract

The intergenerational transmission of fertility has direct consequences on population dynamics and is indirectly related to the reproduction of social inequality. Early studies focused on the positive correlation of parents and children fertility outcomes such as family size or childbearing timing. Explanations for the observed correlations have spanned from genetic and social status inheritance mechanisms to role modeling and socialization processes based on social learning and social influence. More recently, the focus has shifted from fertility outcomes to similarities and dissimilarities of family formation patterns across generations, framing fertility in the context of interrelated life course trajectories. Recent cutting-edge research has also expanded upon the existing literature by focusing on the role played by multigenerational relationships and by bidirectional influence processes in parents-children fertility behaviors. Challenges for future research are provided by the need to disentangle the interplay between genes and culture in defining tastes and preferences for given values and norms related to fertility and the increasing family complexity and migration that interfere with socialization processes.

INTRODUCTION

Intergenerational transmissions from parents to children have been studied in different domains such as educational attainment (Mare & Maralani, 2006), union formation (Thornton, 1991), divorce (Diekmann & Engelhardt, 1999), and fertility (Barber, 2000). Research on the intergenerational transmission of fertility consistently shows that fertility outcomes, such as family size or the age at first birth of parents and children, are positively and significantly correlated and such association does not appear to weaken over time (Murphy, 1999). Similarly, evidence shows a persistent intergenerational correlation of fertility and family-related norms and values (Axinn & Thornton, 1993; Bernardi, 2013). Theoretical explanations for such associations are much debated in the literature. Fertility behavior and preferences can be transferred from parents to children through heritable

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dispositions and social positions or through socialization mechanisms. Hot questions in the field, since its beginning, have been the relative importance of genetic and social components of the transmission and the conditions under which transmission is more effective. More recently, attention has shifted on the object of the transmission itself (Should that be a specific behavior or a series of life course choices leading to it?), the salient pool of relevant kin (Do grandparents and parents' siblings matter?), the direction of the transmission (Does it only go downward from parents to children or, in the case of fertility attitudes, values, and norms, can it be bidirectional?), and the interplay of transmission mechanisms with the larger social environment (Under which environmental conditions is transmission more likely to be effective?). Advanced methods of statistical analysis and the availability of large data sets of close kin and siblings across several generations have been supporting these new research lines. Understanding the mechanisms beyond continuities and discontinuities in fertility across generations advances knowledge on the forces driving social change. The intergenerational transmission of fertility represents a special case of the many intergenerational transfers that occurs along generational lines (Bengston, 2002): The fact that parents transfer genetic and social makeup, as well as preferences, norms, and values, to children has important implications on population dynamics and, consequently, for social inequalities. This essay briefly summarizes the current state of research limited to the sociological and demographic literature, highlighting recent promising research avenues.

WHAT WE KNOW ABOUT INTERGENERATIONAL TRANSMISSION OF FERTILITY

The intergenerational correlation of fertility has been matter of study for more than a century (Pearson, Lee, & Bramley-Moore, 1899). Research on the intergenerational transmission of family and fertility behavior consistently shows that parental fertility histories are positively and significantly correlated with those of their children and such association does not appear to weaken over time (Murphy, 1999). In contraceptive populations, where fertility behavior is deliberately and efficiently controlled, the level of intergenerational transmission of fertility is even higher than in the past and it is comparable, in magnitude, to the effect of educational level on fertility (Murphy & Wang, 2002). It affects family size, but also the timing of fertility (Barber, 2001). In addition to behavior, the literature on the intergenerational transmission of fertility has explored the passing of preferences, attitudes, norms, and values on what is an ideal life course, family size, or childbearing timing that are correlated to the transmission

of behavior. Substantial evidence exists that attitudes toward family-related behaviors are perpetuated through generations. Parental attitudes toward timing of marriage and parenthood, as well as divorce, influence their children's family outcomes (van Bavel & Kok, 2009; van Poppel, Monden, & Mandemakers, 2008). The strength of the influence depends on the exposure time and the parent's and the child's gender (De Valk & Liefbroer, 2007). Children's fertility preferences, in terms of timing of childbearing, are influenced by parental preferences and the latter may be more consequential for the fertility behavior of children than children's own preferences, even more so than actual parents' fertility behavior (Barber, 2000). Other norms and ideals that could be transmitted from generation to generation are satisfaction and dissatisfaction with children or the need to live in a stable union. Recent studies on register data showing that intergenerational associations span multiple generations (net of parental effects) seem to suggest that the transmission of norms on childbearing and family life plays an important role in intergenerational association in fertility within families (Kolk, 2014).

Transmission Mechanisms

Commonly evoked explanations for the intergenerational transmission of fertility are genetic and socioeconomic heritability, early socialization, and social influence during the reproductive ages. While often presented as competing, such explanations are potentially complementary.

Genetic Heritability

Parents and children share *genetic dispositions* that are influential for fertility behavior (Murphy, 1999). Much early research on intergenerational fertility was investigating heritability understood as the physiological ability to have children. Early results supporting a genetic heritability were later questioned and the genetic heritability of fecundity was put into doubt (e.g., L. A. Williams & B. J. Williams, 1974). The more recent studies looking at genetic heritability of fertility use modern twin and siblings' studies (Bras, van Bavel, & Mandemakers, 2013), as well as general population samples (Rodgers & Doughty, 2000), to estimate the magnitude of genetic and environmental factors involved in the transmission. Such studies have shown a significant heritable component in the desire for children and motivation for parenthood in the form of psychological dispositions related to genes (Miller, 1992) primarily relating to the timing of fertility (Rodgers *et al*., 2001). One important mediator for the expression of genetic dispositions is the larger social environment and the extent to which it affects genetic and behavioral

variance. Empirical evidence shows that the lower the level of social constraints on fertility in a society, the larger the genetic influence on behavior. Danish twin studies spanning through several cohorts between the end of the nineteenth and the beginning of the twentieth century, before and after the fertility transition in Denmark, show that the intergenerational transmission of fertility was greater when deliberate decision-making in fertility choices was larger and life course alternatives were more heterogeneous (Kendler, 2001).

Socioeconomic Heritability

Parents and children may also act in similar ways because they have been exposed to similar environmental influences and opportunity structures. As education and occupational class are often correlated across generations, occupying a common social position may produce *status inheritance* and result in similar sets of preferences and normative beliefs for parents and children (Moen, Erickson, & Dempster-McClain, 1997). However, if structural conditions change dramatically or if intergenerational social mobility is high, then the effects of status inheritance are low, despite close relationships between parents and children. Sibling studies exploring the effects of the family of origin on fertility outcomes show that, net of status inheritance and parental socioeconomic and family structure characteristics, siblings have significantly similar family formation patterns and fertility outcomes (Bernardi & White, 2010; Lyngstad & Prskawetz, 2010; Murphy & Knudsen, 2002). These results indicate that specific mechanisms occurring within families may be a part of the explanation for the correlation between parents and their children's fertility.

Socialization Processes

The most fashionable explanation of the similarities in the trajectories of parents and children is early *socialization* (Amato, 1996). In particular, *early socialization* is the channel through which parents may pass to their children their preferences, attitudes, norms, and values on what is an ideal life course, family size, or childbearing timing. Parents occupy a key position in their children's social networks. First, children's first exposure to others is generally exposure to their parents. Second, the direct experience that children have of the consequence of a given fertility behavior is within their family of origin and its structure. Last, parents have the means to exert social influence throughout their children's lives, whether economic transfer or emotional means that act through subjective obligations (Bernardi & Oppo, 2008). Social control and support in early childhood and adolescence are active ways in

which parents influence their children. Parental beliefs may be transmitted through disciplinary practices and conditional parental support. Qualitative research provides support for the notion that network members endowed with sanctioning power (i.e., parents) express their expectations regarding a number of family and fertility transitions so that parents' influence also is a factor when their children move out and live independently (Bernardi, 2003).

Role modeling is involved when parents' roles are reproduced by the children through passive internalization, rather than when purposive transmission is involved (Campbell, 1969). Children may also simply imitate what they observe their parents' preferences and behaviors to be and view them as role models (Bandura, 2006). The efficacy of socialization in generating the transmission of family-related norms and attitudes depends on the quality of the social ties between parents and children (Risch, Jodl, & Eccles, 2004), on the family structure and family context (van der Valk, Spruijt, de Goede, Larsen, & Meeus, 2008), and in the case of attitudes and norms toward partnership, in the life course of the young adult children (Bucx, Raaijmakers, & Van Wel, 2010).

Implications of the Intergenerational Transmission of Fertility

If the strength of the intergenerational transmission of fertility increases over time, there may be important implications for low-fertility societies. First, if children from larger families are more likely to reproduce their parents' model, in the long run genetic dispositions or family preferences for large family sizes shall outnumber those for smaller family sizes or childlessness. The consequence may be measurable, in terms of fertility levels (Udry, 1996), thus making it possible that fertility decline reverses, regardless of whether intergenerational fertility transmission is the result of social or genetic factors. The increase in intergenerational transmission of fertility in contemporary societies also has consequences in terms of composition, size, and structure of the kinship networks and, in particular, the redistribution of children across families. Child-rich and child-poor families will attribute different social roles to the kin members and will have different opportunities for caring for the elderly in contexts in which the welfare state is withdrawing and the population is aging. Research in this area is far from being exhausted and, in recent years, new avenues have been explored.

INNOVATIVE RESEARCH

In the following, I highlight three cutting-edge research directions that widen the field of intergenerational transmission of fertility along the lines of what

I like to call the multidimensional transmission, multigenerational transmission, and multidirectional transmission. For each of these directions I will offer exemplary, rather than exhaustive, research cases.

Multidimensional Transmission

While most research in the intergenerational transmission of fertility compares parents' and their children's fertility-specific outcomes such as family size, age at birth, or interval between births, recent research integrates fertility in a life course perspective and in a more general pattern of family transitions. In doing so, it explores systematic deviations from the average pattern of behavior and contrasts family trajectories, rather than punctual outcomes. The shift in perspective is justified by acknowledging that fertility is inscribed in the life course made of several parallel trajectories and multiple events (Elder, 2001). The starting point is the recognition that it is very unlikely that parents focus on transmitting just a specific behavior to children, rather than more generally on some guidelines for what they think constitutes a good life. Instead of looking at correlations between fertility outcomes, the intergenerational links are examined by comparing children and parents' family formation by means of dyadic sequence analysis (Liefbroer & Elzinga, 2012). Using data that refers to US parents' generations (1923–1968) and children's generations (1968–1984), they confirm the occurrence of intergenerational transmission of family life trajectories. On average, similarities between the trajectories of parents and children depends, for 80%, on continuities in adulthood trajectories across generations (unrelated parents and children) rather than within family transmission; however, related parents and children display larger similarities and 20% of the intergenerational transmission occurs within families. The results indicate that the similarity in family trajectories across generations is comparable to that within the children's generation but weaker than the similarity within the parents' generation. Such patterns suggest that, even in times of rapid social change such as those lived through the children's cohorts in this study, the intergenerational transmission of demographic trajectories takes place.

Fasang and Raab (2014) take a step further in the multidimensional direction by using parent/children dyads as unit of analysis—as in the previous study—but by applying it to multichannel sequence analysis to study intergenerational continuities and discontinuities in the life courses. The methodological choice allows for moving beyond the deviation from the average pattern approach and describing multiple possible types of intergenerational transmission. The innovative focus differs itself from a focus on similarity

and puts it on regularities in parental influence on children's family formation. Even in cases in which trajectories are not similar, if one can empirically show that parents' family trajectories are systematically related to the family behavior of their children, intergenerational influences are proved to be at work. Within-family social mechanisms—operating on the individual, dyadic, or societal level—may link a specific parental family behavior to a different family behavior among their children (Silverstein & Giarrusso, 2011). Results from the US population of parents and children in the second half of the twentieth century show three patterns of intergenerational transmission, classified according to the kind of transitions experienced by parents and children and the timing of such transitions: moderately similar dyadic patterns of transmission (same transitions but different timing), strongly similar ones (similar transitions and timing), and dyads of parents and children with contrasting patterns (Fasang & Raab, 2014). When studying the determinants in sorting parent/children dyads into specific transmission patterns, the major discriminant factors are within-family characteristics (the emotional bonds between parents and children and the child birth). Structural changes in employment and education indicated by upward social mobility and gender equality result in delayed schedules to similar family formation patterns between parents and their children. The patterns show a gender-specific bias in the likelihood of falling in the strong transmission pattern: father–daughter dyads are more similar across successive US generations and fall into the strong transmission pattern, while mother–daughter dyads only in the moderate one. Daughters' lives more frequently follow the rhythm of those of their fathers than those of their mothers. The authors interpret this as a consequence of the rise in gender equality and the inroads that women of the daughters' generations have made into the labor market (Fasang & Raab, 2014).

Multigenerational Transmission

Most studies on the intergenerational transmission of fertility focused on parents' influence on their children's fertility patterns. However, kin other than parents, such as grandparents and parents' siblings, may also influence the observed correlation. That is the starting assumption of new studies investigating the multigenerational transmission of fertility behavior. Murphy and Wang (2002) had already found that, even after controlling for family size in the middle generation, an association in fertility behavior between grandparents and their grandchildren remains. Using Swedish register data and focusing on young generations born between 1970 and 1982, Kolk (2014) investigates and finds independent effects of the fertility of grandparents and of aunts and uncles on fertility. He excludes the

possibility that status inheritance would drive such effects as the association of socioeconomic traits between grandchildren and their grandparents in his data is almost entirely mediated by the middle generation.[1] Such associations may work both through direct socialization between grandparents and grandchildren, or through the acquisition of a preference or taste for kinship and extended family networks that is acquired when the youngest generation grows up.

Including three generations opens up new possibilities to better understand how genetic makeup, socioeconomic traits, and family preferences are transmitted across generations and efforts to try to disentangle the underlying mechanisms. The challenge for multigenerational studies, even more than studies focusing solely on parents and children, is to account for the fact that the fertility outcomes or family patterns span over long periods of time and the interplay with the larger historical context (relative weight of the intergenerational transmission and of the environmental changes). The increase in the expression of within-family transmission and a fading of environmental influences was found in previous research (Kohler, Rodgers, & Christensen, 1999). Such a finding was recently confirmed with Belgian historical data (Bras *et al*., 2013). Analyzing the differential fertility outcomes of twin, siblings, and half-siblings, in order to have various degrees of genetic relatedness and different socialization processes, the authors show that inheritabilities were more strongly expressed for cohorts living their reproductive years after the onset of fertility decline, in the fertility behavior of women who grew up in places that were characterized by a relatively liberal religious climate, urban context, low working conditions, or high social status (Bras *et al*., 2013). All of the latter characteristics are symptomatic of contexts where social control on reproduction is lower and, therefore, environmental influences are lower as well.

Multidirectional Transmission

The intergenerational transmission of fertility behavior assumes a clear temporal sequence and causal direction that parents' fertility patters are the benchmark for their children's fertility patterns. In the transmission of fertility-related norms, the direction is less straightforward: Children's characteristics may affect parents' normative beliefs because parents want to adapt to their children's behavior in order to accept it. The assumption in intergenerational transmission is that parents wish to transmit a replica of

1. Research on the interdependency of class positions of grandparents and grandchildren is inconclusive. Some research shows that they are almost independent of each other, once parents' social class has been taken into account (Warren & Hauser, 1997); other than that, there is a net grandparents' effect in social mobility over three generations (Chan & Boliver, 2014).

their own characteristics to their children. However, parents may be willing to pass on values underlying norms, taking into account the different historical moments in which their children are living through their reproductive years. Therefore, specific prescriptive and proscriptive fertility norms may be flexible and adapted to different historical and geographical contexts. Reciprocal influence between parents and children's attitudes over time has been observed in relation to norms about family traditionalism (van der Valk *et al*., 2008), cohabitation (Axinn & Thornton, 1993), and childbearing timing and family size (Bernardi, 2013). According to a perceived norms perspective (Tam, 2015), parents may be purposively enforcing norms and values that they think are best serving their children, regardless of what their own norms or behavior may be or have been in the past. A critical reading of the intergenerational transmission assumptions that parents transmit to their children, the same norms and behavior that guided their own fertility, is refreshing. Intergenerational transmission of fertility norms is possibly an active construction in which parents, directed by their own goals (what they perceive as their children's future well-being), select and try to pass norms that are coherent with their goals (Tam, 2015). Qualitative evidence shows that this may be the case in contexts where the socioeconomic conditions of women have dramatically changed in the space of one generation, such as in the Italian region of Sardegna in the second half of the twentieth century: Daughters report conversations with their mothers that explicitly tried to turn them away from following their own mother's family formation choices (Bernardi & Oppo, 2008). This mechanism may explain part of the contrasting patterns across generations observed by Fasang and Raab (2014).

RESEARCH AHEAD

The outlined multidimensional, multigenerational, and multidirectional transmissions are inspiring directions for future research on the intergenerational transmission of fertility patterns. The following section outlines two challenges to be met in this area of research in the next future, namely, the interplay of environmental and genetic factors, the complexification of socialization processes due to growing family diversity, and migration movements that characterize most contemporary populations.

The first challenge comes from genetic studies and the recognition that preferences for given norms, values, and tastes are partially dependent on cognitive traits that are genetically passed from parents to children. A genetic component may operate under the form of a cognitive preference for large or small family size or other behavioral responses that relate to childbearing. The relationship between genetic heritability and heritability in socioeconomic traits and other aspects indirectly related to fertility, such

as appearance, are already known (Tambs, Sundet, Magnus, & Berg, 1989). There is growing evidence that there are genetic influences in values (Knafo & Spinath, 2011; Schermer, Feather, Gu, & Martin, 2008). Genes influence brain processes and translate into influence in the way in which individuals think and pay attention to social and personal issues and, therefore, give importance to given values (predisposed affinities between parents and children to be influenced by given norms). It is, therefore, plausible that genetic heritability could explain various aspects of fertility heritability across generations: health, a part of the heritability of fertility norms/preferences, and a part of the heritability of socioeconomic norms related to fertility decision-making. Some first evidence on genetic influences on fertility analyzing first hand genome data points in this direction (Tropf *et al*., 2015). Disentangling the ways in which these mechanisms are additive or interacting with socialization processes and with the social environment external to the family is crucial to understanding the likelihood that intergenerational transmission continue to increase or decline in the following decades.

The second challenge is represented by the changing nature of the relationship between parents and children in times of increasing family complexity (Carlson & Meyer, 2014). Family complexity is relevant because of the proportion of divorce and separations among parents resulting in repartnering and in family recomposition. Repartnering being increasingly common in recent decades, it has changed the environmental conditions for parent/child relationships. A number of step-parent/step-child relationships, with variable durations and kinds of contact, are created and three—if not four—"parents" take over the responsibility of educating the same child (Thomson, 2014). The childhood experiences of those with step-parents and half-siblings are likely to be very different from other children. Most of our core research on intergenerational effects, especially work focused on developed societies, is rooted in a paradigm of parent-to-child or parent-to-adult offspring connections. With an increasing number of children experiencing multiple household transitions and living arrangements and with step-parents taking a larger role in the education of children, the vector of the transmission may change. Step-parenthood raises the question of which parents count as socialization agents for which children and what implications this has for that part of intergenerational transmission that is channeled by role modeling, social influence, and social control. There is suggestive evidence of flawed role modeling and socialization complexity after family disruption. Buhr and Huinink (2015) find a decline in family effects across cohorts, which may be attributed to the rectangularization of fertility or to the fact that primary socialization processes and role modeling became more complex. van der Valk *et al*. (2008) found that parental attitude transmission is significantly lower in families after a divorce and explained

it as the consequence of the failure of role modeling and of the growing distance between parents and children.

The adoption of a multigenerational transmission perspective has to account for the fact that divorces and separations of parents translate into differential exposures to maternal and paternal kin. It is known that a share of paternal grandparents lose contact with their grandchildren if the father separates (Hagestad, 1985), even though exposure varies by the children's custody arrangements (Westphal, Poortman, & von der Lippe, 2015). What are the consequences of shortened exposures to the biological father and his kin during childhood for fertility transmission? Are they likely to produce mother biases in the extent to which role models, fertility preferences, and norms are passed on, from one generation to the other, whether through one step or passing by more distant kin (grandparent and parents' siblings)?

The third underexplored area of research is the interplay of migration trajectories with intergenerational transmission of fertility. Research on intergenerational transmission of family and fertility among migrants and their children is rather limited (Brannen, 2015). Growing mobility and more complex migration trajectories generally produce accelerated changes in the social environment of those who are on the move. With the broadening of social and cultural spaces of references, migration complicates generational distance over time. Within populations where the share of parents who are migrants increases, what are the consequence for intergenerational transmission of values and norms of immigrants' children? There is recent and suggestive evidence that the transmission of norms about marriage among migrants varies in comparison with nonmigrants, with an overall intergenerational transmission stronger in native families and weaker in migrant families (Baykara-Krumme, 2015). In the case of fertility, parents may be more likely to invest actively in socializing their children if the cultural traits they want to pass on are not prevalent (Soiliou & Roushdy, 2008) or they may want their children to adopt different behavior and preferences in order to let them better and faster integrate in the majority.

Research on the intergenerational transmission of fertility will continue to be an exciting field of research in the years to come, given the centrality of fertility for demographic dynamics and the reproduction of social inequalities. Future researchers in the area will have to engage with the increasing complexity characterizing contemporary families, the new perspectives offered by the examination of multigenerational data sets and multidimensional processes of transmission, and the insights coming from research in neighboring disciplines such as social psychology, biology, and genetics to explain mechanisms at play in the correlation of fertility preferences and behaviors.

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LAURA BERNARDI SHORT BIOGRAPHY

Laura Bernardi completed her doctorate at the University La Sapienza of Rome, after receiving a masters in demography at Louvain-la-Neuve. Her doctoral thesis was on the influence of personal relations in reproductive choices. She then spent a postdoctoral year at Brown University before being recruited by the Max Planck Institute for Demographic Research in Rostock, where she was an assistant professor and the director of the research group on the culture of reproduction.

Her research focuses on the relationships between fertility, sexuality, and family dynamics in a perspective of social and anthropological demography. She has extensive expertise in the analysis of life course by combining various methodological approaches (multilevel analyses and ethnography of life events).

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