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Why Have Children in the 21st Century? Biological Predisposition, Social Coercion, Rational Choice ⋆

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Abstract. This review examines arguments and evidence pertaining to the question: why have children in settings where the net economic costs of children are clearly substantial? The review is organized around three themes: biological predispositions, environment (social coercion) and rational choice. Specifically, we explore the argument that evolution has produced sets of genes that predispose persons to childbearing by making sex and parenthood pleasurable. We review sociological arguments regarding the pronatalism/antinatalism of societal institutions. Finally, we discuss arguments that stress the rationality of childbearing decisions by appealing to biological predispositions and the economic and non-economic values of children. The authors speculate that while a modern social structure and rationale supportive of childbearing could be constructed, such changes are not inevitable and may be difficult in the face of competing interests. Moreover, future social and technological change could alter the context of childbearing substantially. This uncertainty complicates policy recommendations.

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Résumé. Cet article examine les arguments répondant à la question: pourquoi avoir des enfants quand on sait bien que leurs coûts nets sont importants? Cet examen est organisé autour de trois thèmes: les prédispositions biologiques, l'environnement (la contrainte sociale) et le choix rationnel. Plus précisément, nous explorons l'argument selon lequel l'évolution a produit des ensembles de gènes qui prédisposent les individus à avoir des enfants, en rendant la sexualité et la parenté plaisantes. Nous examinons les arguments sociologiques portant sur le pronatalisme/antinatalisme des institutions de la société. Finalement, nous discutons les arguments qui font ressortir la rationalité des décisions d'avoir un enfant, en faisant appel aux prédispositions et aux valeurs économiques et non-économiques des enfants. Bien qu'il soit possible de mettre en place une structure sociale moderne et raisonnable dans le but d'avoir des enfants, les auteurs pensent que ces changements ne sont pas inévitables et peuvent même rencontrer des difficultés devant des intérêts divergents. Cependant, les changements futurs, tant sociaux que technologiques peuvent substantiellement altérer le contexte dans lequel nous avons des enfants. Cette incertitude complique les recommandations politiques.

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Contemporary fertility levels vary widely across developed countries. Some countries, the United States and New Zealand for instance, have total fertility rates (TFR) of just over two births per woman, approximating replacement level fertility. Other countries have fertility levels that if maintained would bring about dramatic population decline – for instance, Italy, Spain, and Germany have total fertility rates below 1.3 (Monnier, 1999: Table 3). What accounts for such variability? Is the very low fertility observed in these countries transitory? Are there adaptive mechanisms that will produce a rebound to levels near replacement? Or are the forces of economic development and concomitant changes inevitably antinatalist? A fundamental question that needs to be answered is why people have children in settings where the net economic costs of children are clearly substantial. In other words, what are the possible sources of 21st century pronatalism?

This paper reviews new and old arguments on this topic. Specifically, we explore the argument that evolution has selected sets of genes that predispose persons to childbearing by making sex and parenthood pleasurable. Next, we review sociological arguments regarding the pro- and antinatalism of societal institutions such as the workplace and the family. Organization of life in these spheres can encourage or discourage fertility. Third, we consider arguments that stress the rationality of childbearing decisions by appealing to biological predispositions and to the economic and non-economic values of children. We argue that adequate understanding of levels and trends in contemporary childbearing require the integration of all three perspectives.

However, changing social context is clearly the dynamic component. We conclude that a modern social structure and ideological rationales supportive of childbearing could be constructed, but such structure and rationale are not inevitable and may be very difficult to construct in the face of competing interests. Moreover, uncertainty about appropriate policy responses is heightened because future social and technological change could alter the context of childbearing substantially in the 21st century.

Behavioural Genetics: Are Humans Wired for Reproduction?

Among social scientists the prevailing view is that biology, generally, and evolution, specifically, provides few clues to contemporary human behaviour (see Wilson, 1999: 531). Social science emphasizes the malleability of human behaviour and cross-cultural variability provides impressive evidence. Behavioural genetics provides a counter-argument. Behavioural genetics points to humans' long history in hunting and gathering societies and argues that natural selection favours organisms who, in this particular environment, were able to have offspring and keep them alive (at least until they too reproduced). Humans, like other organisms, are *survival machines* (Dawkins, 1976: 21) that propel successful genes into the subsequent generation.

Genes do not cause behaviour in a 'hard wired' or 'reflex' manner. Instead, genes create predispositions and capabilities that are important for understanding human behaviour. Sapolsky (1997: 40) describes the influence of genes this way:

> A gene, a stretch of DNA, does not produce a behaviour. A gene does not produce an emotion, or even a fleeting thought. It produces a protein. Each gene is a specific DNA sequence that codes for a specific protein. Some of these proteins certainly have lots to do with behaviour and feelings and thoughts; proteins include some hormones (which carry messages between cells) and neurotransmitters (which carry messages between nerve cells); they also include receptors that receive hormonal and neurotransmitter messages, the enzymes that synthesize and degrade those messengers . . . But only very rarely do things like hormones and neurotransmitters cause a behaviour to happen. Instead they produce tendencies to respond to the environment in certain ways. . . . [For instance] . . . the exciting (made-of-protein) receptor that apparently has to do with novelty seeking behaviour doesn't actually make you seek novelty. It makes you more pleasurably excited than folks without that receptor variant . . .

The existence of genetically determined predispositions is widely accepted among behavioural geneticists, but there is substantial disagreement about what they are and the nature of possible differences between men and women (Angier, 1999). We focus on several predispositions that are frequently posited and that may be relevant to fertility.

The first relevant predisposition is a strong sex drive. While conventional wisdom proclaims that men have the stronger sex drive (e.g., Wright, 1994), some have argued that women's true drive has been suppressed and thus its strength is unknown (e.g., Angier, 1999). For our purposes, we stress similarities between the sexes. Humans have genetically determined forms, sensitivities, and physical and emotional reactions that encourage sexual activity. These underlying genetic predispositions have historically led to sufficient births to sustain human societies. In fact, most attention directed toward fertility in recent decades has focused on excess fertility, that is fertility well above that needed for population replacement and more than many women report as planned or preferred. Indeed, a nontrivial component of historical fertility can be labeled as the "unanticipated, undesired or inevitable" consequence of sexual activity.[1] This component has declined in modern times, as the availability of increasingly reliable modern contraception and access to abortion have largely removed childbearing as an inevitable consequence of sexual activity. Potts (1997) argues that herein lies much of the story of the fertility decline. High rates of contraception can produce very low rates of fertility in societies with "normal" levels of coital activity (also see Golini, 1998). In sum, humans are 'wired' to have sex. However we can, on demand, disconnect sex from reproduction via modern contraception and abortion.

A second proposed predisposition, altruism toward close kin, might have greater pronatalist potential in the contemporary context. Specifically, if we experience interactions with close kin as especially satisfying or rewarding, then anticipation or experience of rewarding parent-child relations could motivate reproduction. Altruism toward close kin was not favoured in natural selection because it increased fertility; rather because it increased the chances of child survival. To explain, species mix two survival strategies. One is to have many offspring that may have relatively low chances of survival. The alternative strategy is to have few births but to increase the likelihood of offspring survival by intensive and long-term care for offspring. Primates, and especially humans, have veered toward the latter strategy (see Davis, 1987: 49). Parents' altruism toward their children is likely to have been of immense survival value to these offspring. In the words of Pinker (1997: 93):

> . . . kind acts toward our children can be demystified when we realize that they can benefit copies of the genes that build a brain that inclines a person toward such acts – not the copies in the kind actor but the copies likely to be found in the beneficiaries.

As a result, "we are genetically predisposed to cherish and support our own children" (Potts, 1997: 5). Herein lies a set of predispositions that may make parenting a powerful emotional experience.

Arguably, the full realization of parenthood could be known only to those who have already had their first child and, thus, would provide motivation only for subsequent children. If so, how do we ever become parents the first time? As noted above, one explanation is that a first child simply "happens" (i.e., as the unanticipated, undesired or inevitable consequence of sexual behaviour); but the import of such explanations has waned. A second explanation is that a first child is planned/desired. We note two possible ways in which the anticipation of rewarding parent-child relations and altruism toward close kin could encourage even first births. First, nonparents have experienced parent-child relations – as the child. Once adults, we may seek aspects of these parent-child bonds with children of our own. Second, we can experience "parenthood" vicariously as siblings, aunts and uncles, cousins, or by interacting with the children of relatives and friends. But the parents and broader normative structure limits our involvement with others' children; parents face few such limits. Thus, since some of the feelings/experiences of parenthood can be experienced vicariously – albeit in diluted form, via observation and through interaction with others' children – such experiences/observations could provide motivation for persons to have their own children.

However, one should not assume that parent-child bonds are inevitably bathed in a "warm glow." In fact, Hrdy describes maternal commitment as highly contingent on the material context in which the woman lives. In situations of poverty or ill-health, mothers selectively invest in offspring. The history of child abandonment, infanticide and wet nursing all provide examples of such contingent maternal investment (e.g., Kertzer, 1993). Fathers' commitment to children is generally thought to be even more contingent than mothers' and is implicated

in these practices. In high infant mortality settings, parental behaviour reflects a need to rationalize repeated losses by holding back material and emotional investment (see Scheper-Hughes, 1992). In addition, the contingent nature of investment and affection has had evolutionary consequences for infants' bodies, minds, and temperaments. Infant characteristics that help them extract commitment from close kin, such as disproportionately large eyes, would have been selected only in an environment of conditional attachment (Hrdy, 1999: 380). Thus, the existence of these characteristics and adults' responses to them provide supportive evidence for mothers' and fathers' selective attachment.

Thus, this second set of predispositions result from co-evolved systems in the parents and the child. Under circumstances where the parents feel that their child will survive and thrive, genetic predispositions can provide powerful aids to parental attachment and, indirectly, contribute to the utility children can provide.

Behavioural geneticists posit a third set of relevant genetic predispositions, ones that predispose humans to seek status. The powerful emotions of pride and shame may be important proximate genetic triggers for status seeking. High status in most contexts, including our hunter and gatherer past, increases access to sexual partners and the survival of offspring. In the distant past, desire for status may have been the ultimate pronatalist predisposition. In Potts' (1997: 5) words:

> We are genetically predisposed to be socially and sexually competitive. Men attempt to better their status by honing personal skills, and by politics, guile, and brute force. Women garner resources, establish sexual partnerships with men they perceive to be powerful, or sometimes cuckold less powerful men by mating secretly with men they perceive to be more successful than their regular partners.

Wright (1974), in *The Moral Animal*, makes the same point:

> . . . once hierarchies exist, status is a resource. If status expands your access to food or sex, then it makes sense to seek status in the abstract, just as it makes sense to seek money even though you can't eat it. (p. 249)
> (Humans) will do almost anything for respect, including not act like animals. (p. 262)

Historically, the wealthy might visibly demonstrate their status by supporting well a large brood of children. In contemporary developed countries, status remains a coveted resource but not one routinely translated into moderate or high fertility. Thus, even if we accept the presence of these predispositions to be competitive and seek status, clearly they do not guarantee moderate or replacement level fertility. Understanding low fertility rests on understanding why antinatalist choices frequently provide greater or more secure utility than do additional children. An answer requires subsequent reviews of the institutional context of rational choice.

Social Institutions and Social Coercion

The preceding review makes clear that an appeal to genetic predispositions alone provides little leverage on predicting 21st century fertility in developed countries. However, the capacity for culture also evolved by natural selection. Herein lies a second key component needed to understand contemporary human behaviour. Humans combine information obtained through their experiences with knowledge of normative behaviour and associated sanctions. Institutions and social coercion hold a prominent place in the extant fertility literature.

In a classic statement of the import of institutional context, Judith Blake (1972, 1994) challenged the distinction between voluntarism and coercion. She argued that it was inappropriate to equate the status-quo with laissez-faire policies, voluntarism, or the right to choose. She called attention to the coercive structures currently in place that condition decisions in the status-quo situation. Writing in the late 1960s, Blake pointed toward gender inequality in the labour force as a powerful pronatalist force. Women's lower earnings in the labour market vis-à-vis men encouraged marriage and suppressed the opportunity costs of childbearing. Norms against non-marital sex and especially against non-procreative sex provide other examples. Likewise, negative stereotypes of childless persons (i.e., as immature, selfish, likely to be lonely in old age, etc.; see Blake, 1979) and of only children (i.e., selfish, not sociable, etc.; see Blake, 1981) contributed to strong norms that couples should have at least two children, provided that they were married and could afford them.

Preston (1987) provides a useful conceptual framework for understanding the conditions that produce stability or change in such norms. Specifically, he distinguishes between *private* and *social acts*. Private acts are those whose costs and benefits fall on the individual. Social acts are those that have externalities. Values are attached to behaviours that generate externalities, and powerful forces of status and rebuke (i.e., sanctions) are weapons wielded to influence behaviour. Social contexts can change in ways that alter the externalities, real or perceived, of given behaviours. For example, in the 1960s cigarette smoking was seen as a private act, albeit one with costs to the smoker. As the hazard of second-hand smoking was identified and public expenditures for associated medical costs increased, the externalities of smoking became visible and politicized. These processes transformed cigarette smoking into a social act, one that could be regulated legitimately. This example provides an instance of less freedom of action, a move away from individualism. But many changes related to fertility have reflected greater individualism and a concern with self-actualization (i.e., a redefinition of more behaviours as private acts).

Take, for instance, the family, which is unquestionably a key feature of the institutional context relevant to fertility. Given the lengthy and intensive care that infants and children require and the fact that women can have multiple dependents simultaneously, mothers need assistance in provisioning themselves and their children, and in protecting and supervising their children. In cooperative-breeding

societies, Wilson (1975; also see Hrdy, 1999: 91) termed these additional caretakers as *allomothers* (i.e. *allo*, Greek for "other than"). Different family institutions designate different persons as preferred *allomothers*, in ways that permit dominant economic activities.

In the mid-20th century U.S., the nuclear family dominated and allomothers were marginalized. The modern industrial economy depended on a husband who left for work every day and a wife who stayed home to raise the children. The reasonable certainty of a lifetime marital union provided a secure framework for this within-household specialization. The separation of the world into the public sphere of the market and the private sphere of the home was well-suited to the demands of the growing capitalist economy. The husband produced and the wife and children consumed (Ehrenreich and English, 1978). The economic boom and the baby boom of the post-war years are tightly intertwined.

Again using the U.S. as an example, the latter quarter of the 20th century saw a decline in the pervasiveness of the nuclear family, a major retreat from the institution of marriage, and a movement from an industrial to post-industrial economy. The associated workforce included highly educated, well-compensated workers and a contrasting group with little education, low wages and few benefits. The post-industrial economy rewarded a highly mobile workforce composed of both men and women. These changes greatly eroded institutional arrangements that provided support for mothers and their children. Perhaps most important was the decline in marriage. Within a context where women have labour force opportunities that approximate men's and where long-term marriage contracts cannot be enforced, extreme specialization in home activities ceases to be a viable strategy for women. Instead as insurance against union disruption, women, like men, invest in their own human capital and postpone childbearing (see Joshi, 1998: 166).

Other institutions combine with the family to generate different decision making environments for individuals and households. Esping-Anderson (1999) stresses, in addition to the family, labour market structures and the state. These three institutions, in *unison* and *interaction*, form contemporary welfare *regimes* that distribute goods and services and manage risk in postindustrial society. In addition, religious institutions can influence state action – directly as an interest group or indirectly by defining the terms of the public policy debate. Religion can also have direct impacts on individual behaviour by promoting pronatalist values, e.g., by encouraging marriage and responsible parenthood (Lesthaeghe and Surkyn, 1988: 13).

Can institutions evolve or emerge so that they reduce the difficulty of childbearing in a modern context? We answer "yes". To explain, McDonald (2000) argues that fertility is lowest in developed countries that feature *uneven/inconsistent institutional* change that places individuals in a quandrary. For instance, how do women respond when they enter (or are pushed/pulled into) the labour market and there are no compensating changes to assist with domestic roles? Thus, it is the lack of compensating change in other institutions that can be seen as a major antinatalist factor. Specifically, McDonald theorizes (like Joshi, 1998;

Esping-Anderson, 1999: 67–70) that "if women are provided with opportunities near to equivalent to those of men in education and market employment, but these opportunities are severely curtailed by having children, then, on average, women will restrict the number of children that they have to an extent that leaves fertility at precariously low, long-term levels" (p. 1). If, on the other hand, a society allows for gender equality between men and women, then this makes it easier to combine work and careers with childbearing. While there are a set of possible adaptations (see Rindfuss, Benjamin and Morgan, 2000; Esping-Anderson, 1999: 178–180), key ones may be available and affordable childcare (see Rindfuss, 1991; Rindfuss and Brewster, 1996; Blau and Robins, 1989), and greater male involvement in home work and childcare (Goldscheider and Waite, 1991). More generally, incoherence in the levels of gender equity across social institutions would produce very low fertility while coherence would lead to moderate fertility. Under the current system of family structure and industrial relations, fertility should be higher in countries which make it easier for women to combine work and family.

Rational Choice

Rational choices are always made within, and conditioned by, social context. Along with biological predispositions, the social context determines the costs and benefits of having children. Hammel (1990) argues for a type of analysis he calls "culturally smart micro-economics." By this he means that careful description and understanding of a given context can identify the choice set and the constraints facing a given decision-maker. Once these tasks have been accomplished – some might say the lion's share of the work (see Ryder, 1980) – then micro-economics provides a rigorous and appealing framework for understanding choice.

Many births result from active decisions to have children. The intent for another child is a strong predictor of fertility in a subsequent time period (Rindfuss et al., 1988). Even mistimed or unwanted births often entail a pronatalist choice since abortion is a logical alternative (although not always accessible).[2] Early rational choice models treated births as consumer durables. Straightforward applications of economic reasoning would suggest that more income and wealth would be associated with higher fertility. Instead the association is typically negative, leading to a host of revisions in the micro-economic theory of fertility stressing, most importantly, the opportunity costs of the wife's lost labour and the demand among the more wealthy for higher "quality" children (see Mincer, 1963; Becker, 1960, 1981; Becker and Lewis, 1973; Willis, 1973).

Another crucially important adjustment of rational choice modelling was the acknowledgement that the more appropriate decision variable was not desired family size but a series of decisions regarding whether to have an additional child (see Namboodiri, 1972). This adjustment allows consideration of how various factors might impinge on the fertility process at various stages. An illustrative analysis is Bulatao's (1981) paper, "Values and disvalues of children in successive

childbearing decisions." Using data from the U.S., Phillippines and South Korea, Bulatao showed substantial consistency across countries in the reasons for desiring or not desiring additional children. When asked why they wanted a first child, respondents most often chose answers that stressed emotional or psychological rationales (i.e., to have a child to love and care for, fun around the house, to carry on the family name). Women at parities one, two and three were most likely to select explanations centering on family building and sex composition (i.e., pleasure to watch children grow, to bring spouses closer together, to provide companionship for siblings and to have a boy or a girl). Desire for births by higher parity women were associated with rationales that stressed the economic utility of children (i.e., help around the house, help in old age, economic help). Those not wanting another child also gave very different rationales depending upon their current parity. The financial burden of children was not a popular rationale for not intending a first child and was much more often given at parities three and above. Being "less free" and having "less time with spouse" were rationales for not wanting a child among very low parity women. One way to explain the long term decline in fertility (e.g., the fertility transition) is that the economic rationale for children has become anachronistic as economic development and urbanization have proceeded, as educational expectations rise, and fear of child mortality declines. Are rationales for childbearing often given by women at lower parities also becoming anachronistic? Are reasons for not having a first and second child (desire to be "free" and to have "more time with spouse") gaining sway?

Such a focus on low parity births is clearly required to understand current differentials and future trends in developed country fertility. In many developed countries, over 75% of the total fertility rate (TFR) is contributed by low parity births.[3] From a rational choice approach, what utility is gained from first and second births? Is such utility likely to disappear? As noted above, women at low parities infrequently chose economic rationales even in the past (i.e., in periods characterized by higher fertility) as reasons to have a first or second child. The choice to have a child indicates an expected positive utility; but this utility need not be economic. A TV or VCR purchase carries little investment potential, its utility is completely derived from the enjoyment of use. Similarly, what values, other than a desire to maximize income or wealth, might be the basis for children's value or utility? The discussion of genetic predispositions above suggests that we should not discount individuals' responses such as: "to have a child to love" and "joy that comes from watching a child grow." In some sense, these answers may provide the ultimate answer to "why have children?" It is as final an answer as one could imagine.

Even given an innate predisposition to cherish and love our children, few will organize life around maximizing this particular pleasurable activity. Instead, consistent with the hypothesized predispositions to seek a very general resource, status, and much social science evidence focusing on the acquisition of wealth, power and prestige, the pursuit of these generalized resources is pervasive.

However, the strategies used to pursue status vary across contexts depending upon existing social institutions, but to the extent that such pursuits conflict with the demands of parenthood, parenthood is deemed as costly and is more likely to be postponed or foregone. Classic arguments have stressed that delayed and reduced fertility might aid upward mobility (Banks, 1954). The trade off between current reproduction and postponement to later ages is also consistent with evolutionary models of human behaviour (see Kaplan et al., 2000a, 2000b).

Two additional, recent arguments are of interest here and focus on the non-economic utility of children. The first stresses how children, by activating extant institutional arrangements, generate social capital (Coleman, 1988, 1990). Astone et al. (1999) say that:

> family behaviour, including marriage and childbearing, remain classic examples of investment in social capital ... (and) ... *the desire to possess social capital shapes individual behaviour*. (emphasis added)[4]

Specifically, Schoen et al. (1997: 336; also see Astone et al., 1999) argue that children "create access to critical material rewards through ties of kinship and other personal relationships." While it is widely acknowledged that children benefit from the contacts/kin (i.e., social capital) of their parents, Schoen et al. argue that parenthood can strengthen one's position in certain networks. For instance, parents may be more likely to help their child with a down payment on a home if it will be home to a grandchild. Parents may find integration in a community easier than do nonparents because of activities encouraged by their children. In short: "children create social capital by establishing new relations among persons (parents, grandparents, aunts, uncles, siblings, friends) that are then available to parents as resources that they can use to achieve their interests" (Schoen et al., 1997: 337). Thus while children may have lost all economic value, their value as a social resource may have persisted (Schoen et al., 1997: 339).

This argument is consistent with evidence that parents are more tightly integrated into their communities than non-parents are (e.g., Ishii-Kuntz and Seccombe, 1989; Rossi, 1984). But this association could result from selectivity into parenthood and not the experience of parenting. Further, even given that children foster richer network ties, these ties may entail obligations that are costs as opposed to advantages (e.g., Stack, 1974). When we consider that social capital can be "negative" as well as "positive," we are unpersuaded that children consistently provide net positive social capital in contemporary low fertility countries.[5]

Friedman, Hechter and Kanazawa (1994) argue for the importance of another non-economic utility. They posit that "uncertainty reduction" is highly valued and that children promote it in several ways, including greater marital solidarity. Specifically, Friedman et al. (1994: 381) contend that "uncertainty reduction is a universal immanent value." They argue that there are two strategies for reducing uncertainty. First, one can acquire all information necessary so that decisions can be made with little risk. Second, persons can adopt "global strategies designed to reduce uncertainty regarding whole strings of future courses of action" (Friedman

et al., 1994: 382). The main ones available to adults in the U.S. (and presumably to those in other developed countries) are careers, marriage, and childbearing. Friedman et al. (1998: 383) cite Turchi's colourful statement:

> The decision to have a child is one of the few resource allocation decisions that the couple makes that implies an essentially irrevocable commitment to a stream of expenditures over a long period of time. There is an essential difference between children and consumer durables, since, once the child arrives, there is no recourse to a resale market nor to a local humane society. (Turchi, 1975: 44)

Friedman et al. (1994: 383) argue that such a long term obligation brings predictability and order to a life-course. It is normative to have a past job and increasingly acceptable to have a former spouse. Ex-children are a reality, but psychological and economic abandonment are not normative.

This "uncertainty reduction" hypothesis could also be linked to Giddens' (1991) arguments about the changing nature of personal experience. Giddens proposes two extreme poles of influence over individual behaviour, globalizing influences and personal dispositions. Modernity has altered institutions and other forms of social order such that tradition and habit have been replaced by an institutionalized system of hypothesis formation and testing. Competing sources of authority repeatedly cast doubt on current knowledge.

Giddens theorizes wide-ranging effects of the rejection of the traditional structured lifecourse. People now have great flexibility in how they structure their lives but they have difficulty finding standards against which to judge their own progress or success. Thus, they resort to nearly constant monitoring and self-reflexivity as they continually uncover new information against which to evaluate themselves. Achieving identity through a coherent "narrative of the self" is always a work in progress. This process is inherently anxiety producing. Anxiety comes from the necessity to calculate the risks involved in each possible alternative before choosing any particular course of action. Individuals need established routines in order to reduce anxiety and to feel secure. Raising a child can bring predictability to daily life that promotes well-being and that provides some continuity to one's "narrative."

Additionally, many relationships that were strongly institutionalized in the past are no longer externally reinforced. Giddens uses marriage as a prime example. Family and community were formerly heavily involved in selecting the partners for a marriage and heavily invested in the continuation of that marriage. Marital stability contributed to the stability of the extended family, lineage, community, or in some cases nation or empire. But now marriage and other personal relationships are internally directed. Giddens suggests that people enter a relationship for the pleasure which they can derive from it and exit freely once it no longer pleases them. This argument can be extended beyond marriage to include other kin relationships, friendships, and even employment. The parent-child bond, however,

is still strongly enforced by societal norms and perceived to have an enduring character unlike any other interpersonal connection.

To conclude this discussion, consider McMahon's (1995: 266) summary of parenthood and identity for the Canadian middle class women she interviewed:

> for some . . . women, having children has assumed quasi-religious functions of providing solutions to the meaning of life and of how to live as an adult. The nomos-building function of marriage in modern society has been well recognized. However, . . . some women's relationships with their children provided perhaps even more powerful opportunities both to locate individuals meaningfully in the world and to stabilize their identity. Children can fulfill such a quasi-religious function of making sense of women's lives partly because of the capacity biological relationships have for symbolizing social relationships and thus grounding what women find personally meaningful in the so-called natural order.

Is Very Low Fertility Inevitable?

Noticeable evolutionary change occurs at a very slow pace, across thousands of years. "Biological evolution has left all humans with a substantial substrate of shared physiological attributes and psychological disposition" (Wilson, 1999: 539). Humans act in purposeful and goal directed ways, i.e., in ways usefully conceptualized as "rational." Upon these shared predispositions and abilities, humans construct elaborate and varied institutions that sanction behaviours deemed to be of collective interest (i.e., social as opposed to private acts). For short run historical time (decades or centuries), the dynamic component is clearly institutional change. Of course, institutions can support varied goals, such as preserving inequalities in wealth or entrenched power. But the potential to respond effectively and quickly via institutional change is a signal feature of human society. Whether and how societies respond will be contested. Different segments of the society have different stakes in stability or change. The ultimate "winners" of these struggles are indeterminate. The resources of the competing interest groups are not equal and future events (secular and cyclical) can shift resources in unpredictable ways that empower one group relative to another. Social change, family change, and fertility change will be decided in this uncertain, contested terrain.

One can imagine a web of institutional arrangements that make childbearing unattractive. In the 1960s, demographic concerns focused on the possible externalities of high fertility and how to lower it. Kingsley Davis (1967) wrote:

> . . . in countries where contraception is used, a realistic proposal for a government policy of lowering the birth rate reads like a catalogue of horrors: squeeze consumers through taxation and inflation; make housing very scarce by limiting construction; force wives and mothers to work outside the home to offset the inadequacy of male wages, yet provide few childcare facilities;

> encourage migration to the city by paying low wages in the country and providing few rural jobs; increase congestion in the cities by starving the transit system; increase personal insecurity by encouraging conditions that produce unemployment and by haphazard political arrests.

Davis noted that governments would not institute such hardships because the costs of the policies might outweigh any benefit resulting from low fertility. The point is that childbearing can be dramatically curtailed by altering the decision context and, therefore, the costs of childbearing.

Very low fertility can also be constructed as a serious social problem. For instance, Lee's (see Lee and Miller, 1990) work on generational accounting identifies substantial positive externalities of children to social welfare systems. Specifically, over his or her lifetime a child would contribute over $100,000 (in 1985 dollars) more to public coffers than they extract. More educated children produce an even more favourable balance of payment portfolio than the less educated. Such evidence could provide an incentive for shifting childbearing further to the left on the 'social act – private act' continuum, thus encouraging a range of economic incentives and social sanctions that promote childbearing. From the demographers' parable, *The Tragedy of the Commons* (Hardin, 1968), morality is a function of place and time. We know how to manipulate fertility levels via institutional controls. The question is: does a particular crisis require coercion of a particular magnitude? Fertility at replacement levels does not justify any increased pronatalism; however persistent fertility at very low levels (i.e., approximating a TFR of 1.0) may be another story.

Returning to McMahon's (1995) interviews with new mothers, we discuss two major themes that emerged: 1) Women are surprised and overwhelmed by the amount of work and energy their young child requires and 2) they did not anticipate how completely they would fall in love with their offspring. Human infants and children are largely helpless and their care is intensive. All past societies had institutionalized allomothers and/or sharp divisions of labour that channeled resources toward mothers and children. This long period of child dependence makes evolutionary sense only because the learning that occurs in this dependent period yields greater productivity at subsequent life cycle stages (see Kaplan et al., 2000b). Secondly, women did not anticipate their depth of feeling for their infants. Many women used a romantic vocabulary to express this love, i.e., "falling head over heels in love". This language may be quite appropriate. Hrdy (1999: 538) argues that "maternity is inextricably intertwined with sexual sensations" and that infants have evolved to make the most of maternal predispositions that encourage "a woman to make the infant a top priority."

While rooted in biology, the lived and felt experience of childbearing varies dramatically depending upon a society's institutions and culture. This point has been emphasized in our discussion of social institutions and social coercion. "*Work*" and "*love*" reflect powerful antinatalist and pronatalist forces. The "*work*" of parenting can be eased by institutional responses, such as widely available,

affordable and high quality childcare and by sharing the "*work*" burden with other household members. This "*work*" (parenting and childcare) can be socially defined as more (or less) important. The privatization of motherhood and the attitudinal shift toward the unacceptability of *allomothers* during the baby boom does not fit with the contemporary need for women to accumulate their own human capital. Increased pronatalism requires either that the bargain between men and women be resealed/renegotiated or motherhood must enter the realm of social acts allowing broader kin and public support for childrearing. Likewise, mother-child attachment (i.e., "*love*") can be aided or hindered. For instance, breast-feeding and frequent mother-infant contact, biological triggers for maternal attachment, could be strongly encouraged. Factors that might interfere with attachment can be minimized, such as a mother's uncertainty about her well-being and that of her child.

In sum, our review does not identify deterministic, secular, antinatalist factors. Such factors would make very low fertility inevitable. Nor do we identify behavioural predispositions or structural and institutional features of modern societies that place a firm "floor" on low fertility. We can find in the arguments above elements for constructing a 21st century pronatalism – a pronatalism not at odds with our evolutionary past and that could be supported in our contemporary environment. However, elements for an antinatalist construction are equally available. Future social change is highly indeterminate. This position is inherently cautious, depending as it does on the indeterminate and contested nature of social change. Our position is also optimistic since it allows for adaptive responses. We conclude that biological predispositions supported by a pronatalist context could result in a set of rational decisions that produce moderate levels (i.e., near the level needed for replacement) of fertility. So "no," very low fertility is not inevitable. Across a range of settings, however, one should not be surprised to observe it.

Should Low Fertility Countries Adopt Pronatalist Policies?

Should public policy be aimed at constructing a more pronatalist social context in order to increase fertility levels or to keep current levels from declining? There are several reasons to be cautious. First, current levels of fertility (as measured by the total fertility rate) are a poor proxy for long term trends. One reason is that a pervasive increase in the age at childbearing has reduced current fertility. This reduction will last only as long as the shift to later childbearing persists. Thus, the current, very low fertility in many countries may underestimate long term fertility (Bongaarts and Feeney, 1998). Second, developed country fertility change is period driven (see Ni Bhrolchain, 1992) and one cannot be certain whether current period conditions are secular or transitory. Clearly, the destabilization resulting from German reunification and the transition to market economies in Eastern Europe have had effects on fertility. These antinatalist effects may be short-lived (on a decadal time scale) and fertility may soon rebound. Third, reaching

replacement level fertility in many countries would not require a "sea change" in behaviour. Modest increases in the proportion of women having an additional birth are required. Fourth, "costs" of pronatalist policy may be much greater than those associated with an alternative mechanism for population replacement, i.e., allowing increased immigration from developing countries. Finally, long term planning suggests that we know what future decision contexts will look like. We do not. Changing technology, for instance, can alter the calculus of conscious choice. The last 30 years have seen dramatic advances in *contraceptive* technology. These improvements are likely to continue and will put downward pressure on fertility, but they could be more than offset by technology that lowers substantially the number of women who cannot bear children and the number of men who cannot impregnate a woman (i.e., *proceptive* technology). Assisted reproductive technologies can lengthen a woman's reproductive life span and sex selection technology may offer persons substantial control over the sex of their offspring. The net impact of these changes on fertility is difficult to anticipate.

It may be more productive to envision policies that have broader goals, such as improving the well-being of children, women and families. A policy that increases public investment in schools or child health, for instance, increases children's human capital. These investments will likely increase productivity and, thus, returns to the collective, but these investments may also help produce an environment conducive to childbearing and rearing.

Conclusion

We began with a host of 'big' questions: Is very low fertility transitory? Are there adaptive mechanisms that will produce a rebound to replacement levels? Or are the forces of economic development and concomitant changes inevitably antinatalist? Our answers: Very low fertility is not an inevitable consequence of economic development. Economic development and concomitant change have eroded rationales for large families, but strong rationales for low parity births remain and could be strengthened. Our review suggests that biological predispositions supported by a pronatalist context could result in a set of rational decisions that produces moderate levels of fertility (i.e., replacement level fertility). However, long term pronatalist policy is difficult to justify given the interwoven nature of the causes of contemporary low fertility and uncertainty about the context within which future decisions will be made. This uncertainty coupled with competing social problems makes it unreasonable to expect that fertility policies will hold center court in policy debates. However as a lingering, secondary concern, the impact of institutional change and public policies on fertility should be continually assessed. A pronatalist context is a cloth woven from many threads; cumulative effects of institutional change must be considered.

On the other hand, in places where fertility is extremely low and does not seem to be transitory, pronatalist policies take on increasing urgency and will

compete at public policy's center court. Strong public policy, aimed primarily at increasing fertility, may result. Such reactions provide potential correctives to very low fertility.

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Notes

[1] In the U.S., for instance, much of the fertility decline of the late 1960s and early 1970s can be attributed to the decline in "unwanted" fertility (Westoff and Ryder, 1977). However, a substantial number of births in the contemporary U.S. are still classified as "unwanted" or "mistimed" (Williams and London, 1994).

[2] Some might challenge this claim for teens for whom few pregnancies are planned. However, Geronimus (1996) describes how U.S. teen motherhood results from a cascade of behaviours, each providing decision-making junctures: "The chances of becoming a young mother are affected by whether or not one is sexually active; if sexually active, whether one consciously tries to conceive or, if one does not plan a pregnancy, the measures one does or does not take to avoid conception; and finally, one's willingness to terminate a pregnancy" (p. 326).

[3] Calculations available from the first author show this to be true in 1995 for a range of countries including: Denmark, Finland, Norway, Sweden, U.K., Greece, Italy, Spain, France, Belgium, Netherlands and the U.S.

[4] The strength of this statement resonates with the third biological predisposition noted earlier, i.e., that humans are predisposed to seek status.

[5] Astone et al. (1999: 10) identify three dimensions of social capital: the number of relationships, the strength of those relationships, and the resources available as a result of those relationships. This definition makes clear that strengthening ties to, say, grandparents produces social capital only if grandparents have resources to make available. Astone et al. (1999: 25) explicitly consider the example of social ties that impede the upwardly mobility of a hypothetical minority group member. They assume that by reneging on obligations a "young person may lose crucial social capital" and that "a young person in this situation might prefer the financial drain of kin to the loneliness and isolation that could result without them." This example borders on interpreting all outcomes as "benefits" of social capital, even when those outcomes can be argued as detrimental.

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