

Policy Implications of the Next World Demographic Transition

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Although the world demographic transition from high to low fertility appears to be nearing its completion, observed in perspective, this is the latest in a series of such transitions stretching back into prehistory. A stable new equilibrium is far from inevitable; indeed, it is unlikely. Many countries are experiencing below-replacement-level fertility, and this trend is spreading. Couples are now able to choose their family size, free of the traditional pressures to bear children that was characteristic of most traditional societies. In fact, most societal pressures for the last generation have been distinctly antinatalist, in response to the enormous attention paid by the media to the "population bomb" agenda. This antinatalist attitude is changing, however, and what seems more likely than either a stationary or declining world population is a new growth cycle reflecting a resurgence of fertility as a response to growing material affluence and potential technological mastery of environmental challenges. Societal pressures and policies will play a role in this transition as they did in earlier ones. (STUDIES IN FAMILY PLANNING 2002; 33[1]: 37-48)

According to United Nations projections, the global demographic transition will end by 2050. Current UN population estimates show that demographic growth rates are declining nearly everywhere, even more rapidly than was projected in the past.¹ Regional growth rates differ, but international migration is redistributing a substantial amount of the continuing natural increase. According to the United Nations, even regions that have been late to join the world transition will undergo declines from high mortality and high fertility to low mortality and low fertility by the middle of the twenty-first century. Ultimately, "zero population growth" will follow the global transition as the age distribution stabilizes.

Many of the same observers view this world demographic transition as a unique event in world history. The rise of modern science and technology, only two hundred years ago, dramatically reduced disease and famine in Europe and North America, thus reducing mortality and triggering a sustained and unprecedented population growth. Changes in the structure of society gradually led to a reduced demand for children. Later, safe and effective contraceptive technology was devel-

oped, enabling people to control their fertility with greater precision, and fertility continued to drop. International programs invested heavily in making this technology widely available. Now the transition appears to be nearing completion, although debate remains over when zero population growth will be reached (Bongaarts and Bula-tao 1999). Future policy challenges certainly exist, but they are likely to be found in the areas of infant and child mortality, maternal mortality, and reproductive health, as well as in the provision of assistance to regions where high fertility persists. Another important policy arena will involve social and economic adjustments to the emerging stable age distribution (Freedman 1986). Such is the expectation, implicitly if not explicitly, of most international agencies and policymaking groups.

In this article, we argue that that view of the transition and of recent fertility declines is short-sighted and fundamentally flawed. No reason exists to assume that the future will be merely an extrapolation of the present, and, in fact, it may be dramatically different. The framework presented here is simple. The scientific, technological, and socioeconomic revolutions that launched the modern world demographic transition have not ended, but rather have increased in power and tempo. The present may be the end of one transition, but it will also be the beginning of a new one. The longer-run challenges cannot be foreseen, but world demographic history suggests that neither global depopulation nor demographic and ecological collapse is likely. The human species now

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has more control over its demographic destiny than ever before in its history and is not likely to choose extinction. It seems likely that population growth will begin a new cycle and that the ultimate population of the planet will be considerably larger than present trends suggest.²

Understanding Demographic Change

The study of modern population is a deliberately and self-consciously empirical field. Most demographers would agree that scientific progress lies in the patient accumulation of facts rather than in overarching generalizations. Yet, some theoretical framework is necessary for interpreting the data arising from demographic, economic, and environmental interactions. We need, in Hirschman's phrase, "some parsimonious principles that explain complex patterns" (Hirschman 1994: 226).

Most demographers agree that population size and growth are ultimately limited by the environment and resource availability. In the homeostatic model, population is density-dependent. When population size exceeds the carrying capacity of its given resource base, feedback loops activate checks that prevent further growth or even bring about a reduction in numbers. Similarly, if carrying capacity increases as a result of climate change or some other exogenous factor, population tends to grow. A consensus is emerging that this model fits premodern (or preindustrial) human populations well. Lee (1987) found that the homeostatic model described demographic change in premodern England reasonably well, and Wilson and Airey (1999) have concluded recently that the model fits several historical Asian societies as well, and most students of world population history agree (Livi-Bacci 1990).

The controlling factor in density-dependence is clearly more complex and subtle than the simple Malthusian check of rising mortality. After a survey of the substantial anthropological literature, Wood (1998) concludes that the evidence strongly suggests that population growth in nearly all preindustrial societies is "regulated" in a meaningful sense by social and institutional mechanisms. Wilson and Airey (1999: 123) conclude similarly that "the most persuasive interpretation of the data on long-term population growth would seem to be that human societies have adopted regulatory mechanisms that worked to keep long-run population growth rates close to zero." These "regulatory mechanisms" amounted to "policies," implicit if not explicit (Johansson 1991).

The notion of the demographic transition follows logically from the homeostatic paradigm. Based on the European experience over the course of the previous two

centuries, the transition is viewed as the process of movement from one homeostatic equilibrium to another. At the dawn of the Industrial Revolution, fertility and mortality in Europe were in a rough balance, with population growth on average being nil or at least very low. The European population explosion of the eighteenth century resulted from a series of "revolutions"—commercial, agricultural, industrial, and socioeconomic—and transformed the fundamental economic and technological structure of European society. These structural changes led to an increased use of machinery powered by new, inanimate energy sources, a wave of new inventions, the introduction of new food crops, and a single world trading system. These transformations also led to important ideational changes (Cleland and Wilson 1987), including a belief in greater individual freedom and in the possibility of material betterment. The new transition, like the earlier ones, involved changes in the economic and social factors confronting couples, as well as implicit and explicit social policies that tended to reduce population growth (Robinson forthcoming).

This theory of the demographic transition represented a considerable intellectual achievement when it was formulated. It was a major step forward in our understanding of the mechanics of population change, because it saw fertility and mortality as interacting with social and economic forces. It incorporated the two dominant pre-transition-theory macrodemographic paradigms: The "logistic law" of population growth, which saw all populations as following a logistic growth curve with an upper asymptote; and the "optimum population" notion, which argued that economic and resource factors set a limit to population increase unless the standard of living was to fall. Transition theory comprehended both of the earlier models and was more solidly based in historical experience (Kirk 1996).

European history reveals earlier agricultural revolutions and technological revolutions accompanied by material progress and increasing population, but these were relatively short in duration and limited in their ultimate impact. Wilson and Airey (1999) remind us that a close examination of Chinese, Egyptian, or Indian history reveals similar cycles of material and demographic increase, followed by stabilization. What made the eighteenth-century European changes different was that they were cumulative and did not diminish after a generation or two. On these points Malthus went astray. The economic and demographic interactions he was witnessing did not follow the course of all the others he had studied. These new technological and economic changes were so powerful that they transformed Europe and effected a similar transformation throughout the world. Human

beings everywhere achieved a power over their own material and demographic destinies greater than they had ever had before. Economic and demographic increase since then has had its ups and downs, but has never really ceased.

Seen from this perspective, the great transition now presumed to be in its last stages is unique because it is so different in scale and scope. First, the new technologies in commerce, agriculture, and industry represent a paradigm shift, based on an increasing understanding of the physical and biological laws of nature and their application to the process of creating and distributing output and wealth. Whereas the introduction of the metal-tipped, deep-cutting plow and the three-field system of crop rotation had led, in medieval times, to substantial increases in agricultural output and population carrying capacity, basically, these were improvements in the existing technology, and their long-term effects were limited. On the other hand, the development of the steam engine, the coal-iron-steel complex, and the factory system were not merely innovations but whole new technologies that altered the entire basis of existing economic and social institutions. The Industrial Revolution was, in fact, revolutionary economically, socially, politically, and demographically.³

Second, the new technological changes have had worldwide impact. The countless earlier homeostatic interactions between economic and demographic forces were regional or national in scope: Goods, people, and even knowledge did not move easily or on a large scale from one region to another. This situation changed in the early modern period, and a single Eurocentric global trading system emerged. The new technologies that created rising output and population also created the capability of moving these goods and people swiftly and cheaply all over the globe. Eventually, the technologies were also exported and effected similar structural transformations throughout Africa, Asia, and Latin America.

The current prevailing opinion seems to be that the logical end of this global demographic transition will be a new equilibrium, with low fertility and low mortality and hence no or low growth, that a new global population equilibrium will emerge when replacement-level fertility is attained worldwide. The ultimate stationary-population equilibrium will be reached when age distribution becomes stable sometime in the present century. This conclusion is what most people are referring to when they use the term "post-transition."

No real basis in transition theory exists, however, for this conceptualization of a new stable homeostatic equilibrium with population growth at zero in the near future. The technological revolutions of the eighteenth cen-

tury have led to a series of such revolutions that continue today. All involve the development of new inanimate sources of energy and the harnessing of this energy for practical uses in the production of goods and services. Coal and the steam engine gave way to petroleum and the internal combustion engine, which will give way to nuclear or solar energy and the microchip. The recent breakthroughs in information technology are the latest, but by no means the last, examples of the revolutionary power of technological development. All these changes have an effect on the relationship of population and resources. The carrying capacity, or the new homeostatic equilibrium, appears constantly to be shifting upward.

After a careful review of the homeostatic theory's application to the past, Lee admits that a density-dependent model seems to offer little guidance for the future: "Ordinary homeostatic tendencies essentially vanish in the course of economic development . . . current theories of fertility give little insight into how [a new] equilibration would then occur." He adds: "In the long run, if population growth continues, natural resources must eventually reemerge as an unavoidable constraint on human numbers" (Lee 1987: 459). This statement implies that resources are limited absolutely and that the density-dependency ratio will become relevant again at some high density. No new theoretical foundation is offered for the conclusion, but many would agree with some version of this statement. Put another way, some hypothetical world population will be so large as to threaten environmental and societal breakdown, and thus lead to a cessation of further growth. But how large is that? Urban sprawl, global warming, and other ecological problems are of concern. However, assuming continued technological progress, humankind may well find solutions to these problems. The economist William Nordhaus (1996: 12–13), in his generally laudatory review of Joel Cohen's book *How Many People Can the Earth Support?*, asks:

If the earth is reaching its carrying capacity because of land or food or energy shortages, where are the warning signs? Such increased stress should be accompanied by rising prices of land, food and energy. But, these prices have been declining relative to labor for the last two centuries and particularly over the last 15 years. Markets provide signals of scarcity yet why are there so few signals of resource shortages if we are approaching earth's capacity?

No one has yet answered this question. The sustainable world population may prove to be several times the

roughly ten billion now seen as a likely new homeostatic equilibrium. This optimistic scenario was argued forcefully by Simon (1981), and it remains a real possibility.

The Recent Collapse in Fertility

Regardless of how one estimates ultimate global carrying capacity, present trends in fertility strongly suggest that a deliberate equilibration process is, in fact, already well under way. Mortality likely will continue to decline moderately over the next several decades toward some lower limit, reaching a life expectancy at birth of 90-plus years for all populations enjoying decent living standards and having access to modern health care. Fertility will be the key variable in any future global equilibration, and fertility everywhere is falling, even though striking diversity in rates of decline remains around the globe. The present global average period total fertility rate of three children per woman of reproductive age encompasses a variation from 1.3 to 6.4 children among national populations. On the other hand, once launched on a fertility transition, most national populations appear to follow a similar pattern of fertility decline, with the main differences among regions being in timing and tempo (Caldwell 1994). Therefore, those countries are of particular interest that are relatively far advanced in their transition and are actually at or below replacement level. Ross and Frejka (2001: 213) have looked in detail at this group of populations and find that 44 percent of the world's population lives in countries experiencing below-replacement fertility, including Asian, European, and Latin American ones.

Furthermore, they conclude that this finding is not an artifact of fluctuations in the period-wide rates. The cohort-versus-period fertility question has been addressed analytically by other authors in the recent literature. Bongaarts and Feeney (1998) argue that much of the recent decline in the countries with very low fertility is due to a rising age of childbearing ("tempo distortions") that may be temporary, and that a rise in fertility ("recuperation") may occur in the future as new cohorts enter the picture. Lesthaeghe and Willems (1999: 220) examine this proposition for the European Union populations in some detail and conclude that "[t]he cohort total fertility rates for the 1995 cohort indicate that, even in the absence of further postponement, most national period total fertility rates in future could not possibly return to replacement level without major quantum changes or tempo reversals." For a significant group of countries, Ross and Frejka (2001: 213) are correct to conclude that "an era of below-replacement fertility is taking hold."

Their conclusion has global implications given that nearly all of Asia and Latin America are already below the global average fertility and are also moving rapidly toward replacement, with vigorous public-sector family planning programs in Brazil, China, and India leading the way. The United Nations Plan of Action calls for major international efforts to reach replacement-level fertility in all countries by the second decade of the twenty-first century. This level may or may not be attained, but global fertility on the average almost certainly will be at replacement level by then, with some 65 percent of the world that is below replacement level balancing out the 35 percent that may still be experiencing above-replacement fertility. Clearly, if all countries attain at least replacement-level fertility and some continue to experience below-replacement levels, then the global average will, in fact, be at below-replacement level, and the goal of ultimate stabilization will give way to gradual decline in total world population sometime in the present century. Moreover, other Asian, Latin American, and even African populations may also follow the demographic path being beaten by Europe, North America, and North Asia and may move into below-replacement fertility sometime in the first half of this century. This circumstance would intensify population decline.

Although most people would probably favor demographic stabilization, the prospect of depopulation is a different matter. At this point, even the best projections are a poor guide, because any declining fertility trend projected far enough suggests the ultimate extinction of the species. The question regarding the probability of a new global homeostatic equilibrium seems to be a matter of whether we think the human species will or will not breed itself out of existence.

The biologist E.O. Wilson (1998) has noted that most known species appear to pursue one of two reproductive strategies, depending upon prevailing external factors: the "K" strategy, when mortality risks are high, by which a species reproduces as rapidly as possible to insure that at least a few of its offspring will survive to maturity to reproduce themselves; and the "r" strategy, in a more benign setting, by which only a small number of offspring are produced and carefully nurtured so as to arrive at maturity in good condition. Which strategy is most appropriate appears to vary with the species but also with environmental circumstances. Wilson also finds examples of species that have switched from one strategy to the other in the face of changing environmental conditions, but all seem to aim at survival (see also Livi-Bacci 1990).

Davis thought that the human species had followed the "r" strategy and wrote: "The genius of the human

species is to have few offspring and invest heavily in their care and training so that the advantage of a cultural adaptability can be realized. Fertility has tended to be as low as mortality allowed it to be" (Davis 1987: 34). Implicitly, Davis apparently assumes that the human species does, somehow, aim at replacement. Irons (1988: 307–308), writing from the vantage point of a biological anthropologist, attempts to explain how this motivation must proceed:

The evolutionary theory of human behavior does not assume that people consciously pursue replication of their own genes. Rather, they pursue shorter-term goals such as getting enough to eat, establishing and maintaining social relations which they find rewarding, seeking sexual satisfaction, taking care of children and so forth. Somehow, the human nervous and endocrine systems process information about an individual's environment and life circumstances and translate this into a set of goals, aspirations, interests, values, feelings and so forth. These goals, aspirations and so on in turn guide behavior. Selection has shaped human neural and hormonal mechanisms so that people want and seek what serves best the survival of their genes in the particular environment in which they find themselves.

Endowing most human beings with a heterosexual drive is, presumably, nature's design to promote survival of the species. Mortality risks dictate how high fertility must be to insure that survival.

There is another side to the coin, however. Insuring a balance between population size and resource availability (the homeostatic equilibrium) requires some type of check to fertility if mortality is naturally low. As noted above, human groups seem to develop such checks, and even during the preindustrial "natural fertility" regime, fertility remained well below biological limits. The most important checks, however, were what Davis and Blake (1956) called limits on access to coitus, gestation, and parturition: rules about intercourse, marriage, abortion, and infanticide developed and enforced by the larger social group (lineage, clan, or tribe) of which the individual was a member. This larger group usually aimed at living within its resources but also aspired to immortality and, consequently, aimed at replacement even if its resource endowment was marginal. These social controls were undoubtedly the mechanism by which homeostatic equilibrium occurred. Individual contraception was possible, but it was unreliable and could be costly in terms of social sanctions. This convergence of individual behavior and group goals has been called "unconscious rational-

ity" (Wrigley 1978), whereas others describe the mechanisms as "implicit policies" (Johansson 1991).

One of the many incidental revolutions that have flowed from the scientific and technological changes of the last century is a revolution in family structure. About a hundred years ago, modern science and technology entered the picture and began making family planning increasingly effective, safe, and cheap, and it became a private recourse for individual men and women. Human beings are now able to control their fertility precisely as never before. Nearly everywhere the cohesiveness and strength of the extended kin group is weakening, and the individual or, at most, the nuclear husband–wife family are becoming the dominant decisionmaking unit. Individuals are now assumed to be free to pursue their own self-interest as they perceive it and are no longer obliged to take orders from their elders. This change means that reproductive decisions are vested in the individual or the couple, the primary male–female unit, rather than in the lineage, clan, or tribe. Many experts on the family predict that the once uniquely European family type follows from industrialization and will one day be the norm for all societies (Goode 1963; Thornton 2001). Thus, the locus and the mechanism by which fertility was controlled to achieve the group goal of immortality seem effectively to have been removed from the picture.

Sathar and Casterline (1998: 782) write of the recent changes in fertility in Pakistan:

It is not an increase in the autonomy of women that seems to have been decisive during the past decade but rather an increase in the autonomy of couples of childbearing age. Over the past three decades, kinship relations and household structures have evolved in a manner that has eroded the power of elders and other relatives, and as a result, decisionmaking about family matters has become more nucleated.

The couple is now free to make its own family-size choices and has access to technology that reduces the cost of choosing a small family. Thus, future fertility trends will rest on decisions made by couples, not lineages.

The Microeconomic Theory of Fertility

What do we know about how couples choose their family size? A well-developed body of theory, the economic theory of fertility that has been the dominant explanatory paradigm for the last several decades, has emerged that purports to give guidance to microlevel economic and demographic interactions and outcomes. This model

takes the individual or the couple as the decisionmaking unit and assumes that they exercise a conscious, deliberate control over their childbearing, with respect to the number and also the timing of offspring. This control is part of a series of interlinked decisions involving asset acquisition, investments, labor-force participation and so on, all aimed at maximizing the "utility" of the family unit over time, subject to resource constraints. Having children costs time and money, but they produce a variety of "utilities" (pleasures and benefits) for their parents, and hence the family-size decision is simply a matter of consumer economics. The future course of fertility, and the long-run persistence of the species, rests, therefore, on the microlevel subjective appraisal of the costs and benefits of having children compared with other ways of gaining pleasures and benefits (Rosenzweig and Stark 1997).

At first glance, such a framework is troubling. The argument can be advanced that the household will always need food, clothing, and shelter in some form, and hence a confident prediction can be made that there will always be industries producing such products. That people need children to live rewarding, satisfying lives is less clear. As if anticipating this difficulty, Becker (1991), one of the chief architects of the economic model, argues that children generate a unique kind of utility that does not compete with other types of pleasures and rewards available to the couple. Similarly, he and others have proposed that the couple may aim at maximizing an intergenerational "dynastic" utility function, one clearly implying that couples see themselves as acting for future generations in a continuing lineage.

These propositions suggest that couples, like clans or tribes, will at least reproduce themselves; individual free choice together with near-perfect contraceptive and reproductive technology will lead to replacement fertility at the micro level and hence at the macro level as well. Unfortunately, these comfortable assumptions are just that. The uniqueness of utility from children and the notion of a dynastic utility function as motivating forces for the couple are not established facts, but are, instead, plausible, convenient assumptions that make possible rigorous closure of the model. Alexander and others, writing from an anthropological viewpoint, find no reason for thinking that couples will always find having children necessary in order to achieve the "wealth, power, and status" that most people seem to crave (Alexander 1988: 327). The family-size decision is a function of a host of variables including the characteristics of the couples, prices and availabilities of other products in the market, and finally, the economists' black box, "tastes." If we drop the optimistic "profamily" assumptions of the Chicago School, the microeconomic theory of fertility pro-

vides no assurance that couples will choose replacement fertility. The economic model is perfectly consistent with the belief that family size can fall to zero, or equally that fertility could rise sharply at some point in the future.

A crucial and often neglected element must be added to this picture, however. Although the economic and social changes accompanying industrialization have freed individuals of many familial controls and obligations, everyone still exists in a social context. The relevant collective group is now the nation-state and the society at large. In most modern industrial societies, we find government policies and agencies playing the role that the collective ethnic or kin group once played. Individuals certainly have free choice, but are subject to both direct and indirect public-sector interventions and to a climate of public opinion. The modern state increasingly views itself as the agent of generations yet unborn and enacts laws and programs on their behalf that impinge upon the behaviors of the present generation. Wilson and Airey (1993: 123) note that: "Indeed, it is arguable that, with the great decrease in the variance of family sizes that accompanies fertility decline, social control is in fact stronger in post-transitional populations." The economic model of fertility is uncomfortable with such a sociological variable, but it is real, all the same. Peer-group approval has a "shadow price."

The implications of sustained economic and technological progress for the individual family-size decision also come in to the picture. Within a few decades, our constantly changing technology may have found ways to deal with the environmental and ecological hazards that appear so frightening today. Julian Simon may yet be vindicated (Lomborg 2000). The hue and cry over excess population growth may lessen. Peer-group pressure may shift in favor of larger families. In the terms of the economic model, this shift will lower the "cost" of having children relative to other sources of utility and lead couples to choose higher fertility. Such an ideational change would, presumably, be reflected at the societal level as well, and policies can change.

Policy and Programs Affecting Population Growth

The state has always been interested in the number, composition, and well-being of its citizens. Writers in classical antiquity took population growth as a sign that a state was well-governed, and specific measures that could fairly be called population policies can be identified under nearly all forms of government in many countries (United Nations 1978). In modern times, the pub-

lic sector has been deeply involved in controlling and reducing mortality and morbidity, and no one seriously opposes such efforts, even though lively debate occurs about which causes of death should be eliminated first.

Public-sector policy and programs to affect fertility have come to play an important role in recent decades, particularly in the developing world. These policies and programs were based on the strong belief that fertility had become uncontrolled and that rapid population increase threatened the present and future well-being of societies around the globe. Dire predictions about the world population explosion were heard well before World War II, but had distinctly racist overtones. Indeed, public-sector family planning programs remain controversial, and this controversy is puzzling, because, as noted above, some form of social control has almost always been exercised by the lineage, the clan, or other social group over the fertility of the individual couple.

Most cultures have taken for granted that the continued long-term viability of the kin group or the country takes priority over the short-term preferences of the individual. Social control and governance are more formal these days, but the same interaction is at work. Indeed, modern public-sector family planning programs are considerably more humane and less coercive than the sanctions and devices employed by premodern lineages or societies (Robinson forthcoming). The social group continues to have a legitimate interest, however, in those actions of the individual that affect the collective well-being. Democratic political procedures and the rule of law hopefully insure that social gains outweigh losses when a conflict does arise.

Debate also continues about whether family planning programs have had any impact on fertility in the developing world. We need not deal with these complicated, often tortured, statistical interpretations. Suffice it to say that fertility has fallen, that the prevalence of modern contraceptive use has risen, and that public-sector programs are generally understood by those involved to have played a major role in the speed and timing of these trends if not in their initiation. The UN's post-ICPD Plan of Action lays out the programmatic steps that remain to be taken to insure that modern contraceptive technology, embedded in well-managed reproductive and child-health programs, is made available to the remaining areas where high fertility persists in the developing world. If this plan is successful, sometime early in the twenty-first century these programs will be at a maintenance level, requiring public-sector services only for particular segments of the population.

The international family planning movement and all its national implementing programs have arisen from a

social, economic, and political context. They are based on the belief that world population growth had burgeoned out of control and was threatening national and global viability. The programs supplied commodities and information to women and men of childbearing age and actively encouraged contraceptive use. These specific program activities took place against a background of vocal social concern over the population issue. The family planning literature often pays too little attention to the powerful effect of this world climate of opinion concerning population growth. For nearly half a century, a growing clamor of concern has been voiced about rapid population growth. This concern has become a part of intellectual assumptions of educated people around the world. More recently, this concern has been linked to an equally great distress about environmental degradation, endangered species, and other related issues. Phrases such as "the fate of the planet," "space-ship earth," and "limits to growth" permeate our thinking. (Lee [1987] suggests that it permeates scientific thinking also.) For a long time, no respectable, responsible world leader has argued seriously that rapid population growth and large families were good things. Even the Pope urges couples to have children but also to exercise responsible parenthood and moral restraint.

The critics of the commodity-supply programs argue that fertility would have fallen in any case once couples decided that they wanted to have fewer children. This misses the point. The changed climate of opinion that shaped the small-family norm was connected with the rise of family planning policies and programs. The programs succeeded only because opinion had shifted in their favor and because good programs helped to convince public opinion of their importance. Changed public opinion was the most powerful and pervasive intervention of all. One of the critical feedback loops that rapid population growth triggered was a public-policy response and an ideational change, a result true for the European transition (Robinson forthcoming) and for the recent Asian and Latin American ones as well. Currently, global population appears to be under control and a goal of stabilization attainable. The important decisionmaking unit is now the couple (the woman, usually), but the couple still is affected by the surrounding climate of opinion. The decline in fertility in many developed countries is a reflection of the general decline of both wanted and unwanted fertility, suggesting that social support for high-fertility motives is eroding. Low-fertility social norms are emerging as having too many children is considered irresponsible by a growing segment of populations and having no children draws less opprobrium now than at any time in the past (Feyisetan and Casterline

1999). Couples today are acting out the present collective social values just as their forebears did when they had large families in furtherance of kin-group goals.

An undercurrent of concern is growing over the "birth dearth," as one writer has termed the present low fertility levels in most developed countries (Wattenberg 1990). Most informed persons still see the correct international goal as completing the UN's post-ICPD Plan of Action, however, and this goal requires continued support for international family planning. The emphasis remains global rather than national or regional, but it is changing. Below-replacement fertility has been viewed as temporary, but increasingly it is clear that, as Westoff (1991: 227–228) points out, there is, in fact, no "homeostatic device which will operate to maintain a nice balance." Presently, above-replacement populations are exporting migrants to the below-replacement ones, and these movements are intensified by political and social unrest in the exporting countries. If fertility continues to fall in the sending nations, presumably such movements will decline a generation or two in the future. These movements threaten to change the ethnic and cultural landscape of many migrant-receiving nations, and an emotional backlash is developing. A public policy response is to be expected. Politics is already driving many countries to formulate changed policies toward immigration; a step beyond such a policy change is a pronatalist stance whereby governments adopt programs to increase the fertility of their native-born inhabitants. With the global population threat under control, emphasis is likely to shift to national population concerns. Pronatalism may be the policy wave of the future, not today or tomorrow, but within the next several decades.

The Efficacy of Pronatalist Policy

What do we know about the efficacy of pronatalist population policies? Most states and organized political units have been pronatalist throughout history (United Nations 1978). The organized Christian religions in Europe were staunchly pronatalist for centuries and, typically, this attitude was supported by the secular authorities. Long-term support for pronatalism has existed in most Islamic countries as well. How much this support contributed to maintaining high fertility among such populations is uncertain, however. In light of the waning influence of religion in many countries, this relatively ancient effect on family size is probably of little use in thinking about future pronatalist policies. In Europe, more recent experience can be used as a basis for judgments about future possibilities. Fertility rates in many

European countries were already at or below replacement level in the period between the two world wars, and many such countries found themselves facing depopulation. The topic was discussed by many prominent writers (Spengler 1938; Glass 1940; Myrdal 1940). Nearly every European government adopted a pronatalist policy, and a variety of measures were put in place, including family allowances (paid in cash and in kind); long-term loans to newly married couples; cash awards for first births; discriminatory tax systems; and provision of maternal and child health-care facilities. These positive programs often were accompanied by negative measures outlawing contraception and abortion.

The impact of these programs on fertility has been studied by numerous authors (for a summary of this literature, see United Nations 1978: 643–648). Most studies have found no conclusive evidence that they worked, but their effect varied, apparently, from country to country: German fertility rose slightly, but French fertility fell still lower. Glass (1940) found that most monetary allowances had been too low to reimburse parents for costs associated with having children and that all the measures were operating in a general setting of depressed and uncertain economic times.

More recently, there has been a new round of pronatalist policies and programs, particularly in eastern Europe, and a renewed effort is evident in northern and western Europe. These policies and programs have garnered mixed reviews. Some authors feel that the eastern European efforts have failed (Demeny 1986); others find that they have had a positive effect (Ross and Frejka 2001), while yet others remain unsure (McIntosh 1987; Hohn 1991). The eastern European cases lack general relevance for the future because they were adopted in a general economic, social, and political setting that was highly unfavorable. These governments were unpopular dictatorships, their economies depressed, and their futures uncertain. None of the pronatalist policies they adopted was successful in realizing its goals except for those policies of a totally repressive sort.

The matter of the setting in which a policy is adopted is crucial, as is an understanding of other social and economic trends at work that impinge on the policy's outcome. Thus, most pronatalist policies have assumed the traditional family-household structure and aimed at creating and strengthening such units. They have paid allowances too low to reflect the reality of the full opportunity cost that children impose when both parents work outside the home, and have not provided the assurance of long-term programs for health and education. Usually, they have also extolled traditional family values and, implicitly, the efficacy of a male-headed household.

We do not know what effect such programs might have when the policy represents an underlying social consensus, with genuine public support, and when it is well planned and financed so as to take into account the economic and social factors affecting family-size decisions at the micro level. No clear evidence exists for assuming that a vigorous, popular, well-funded pronatalist policy would not have a reasonable chance of increasing fertility.

The Future Role of the Mass Media

We are only one generation into the electronic age and are still learning exactly how people live and behave when they are surrounded on all sides, all day every day, by a never-ending barrage of images and words, entertainment and information mixed together, but inescapable and subtly powerful. Fashion in clothing, sporting events, popular heroes, and political news are transmitted around the globe in a matter of hours, and public opinion is shaped by this flood of information. The effect of the media, and television in particular, on young people in developed as well as less-developed countries is a lively topic these days. Some would control strictly the content of television, especially for young people, whereas others stress the importance of free speech and civil liberties. No one questions any longer the impact that television has on attitudes and on consumer behavior. Political ads have become a science, if not an art, as the huge sums of money spent on such ads during elections in the United States, India, and elsewhere testify. Governments have only begun to make use of the media to promote programs designed to induce behavioral change, but seem sure that such programs work.

In the last 20 years, a considerable amount of experience has been gained in the use of mass media information, education, and communication (IEC) programs to affect public attitudes and behavior regarding contraceptive practice. That such IEC programs have an impact is now beyond debate, and the most powerful of the approaches used turns out to be, not surprisingly, radio and television. Cleverly designed television campaigns have been shown to have a significant impact on contraceptive behavior in numerous developing countries, going well beyond the simple provision of information. Although traditionalists felt that people in these countries would not accept public discussion of private matters, they were proved wrong, even with regard to conservative societies (Piotrow 1994; Robinson and El-Zanaty 1994).

Designing a Pronatalist Program

If we can understand why earlier profertility policies were not effective, perhaps we can also see some of the components of such a policy that might be effective in influencing fertility in the future. Some of the prerequisites of such a policy can be suggested in light of apparent prevailing socioeconomic trends. First, any new policy would have to be female-centered, female-directed, and embedded in a total health, education, and family-support program for prospective mothers. A large part of the opposition to family planning programs from feminist groups is based on their conviction that such programs were aimed at preventing births without regard to the wishes or the well-being of the women being targeted, in order to save a male-dominated economic and social order. Just as rapid ideational change has driven the fertility transition, sustained low fertility may foster a gender transition.⁴ Low fertility may give rise to increasing female-centeredness. Increasingly, women will be involved in the planning and execution of new social programs.

Second, another aspect of female-centeredness is that the relevant unit for the program will be the woman and her children, so that their living arrangements would be of little importance. In other words, the policy would not be family oriented because we are losing any firm grip on what the term "family" means (Cherlin 1999; Thornton 2001). "Household" or "coresident group" are, perhaps, more accurate descriptions for the living arrangements of a great many young women and men. Single-person households are not efficient, and hence most people will "live" with someone to share expenses and perhaps more, but the ties will be loose and transitory. In many industrial states these days, entering or leaving a marriage is much less complicated than buying or selling a house.

Third, the policy would have to offer meaningful economic support and motivation for a woman to bear a child. Such a policy would not mean that the state would "buy" children, but that the financial and psychic cost of adding a child to a woman's life, as perceived by the woman, would be subsidized by the state. State-run day-care centers have been successful in Israel and elsewhere. Voucher schemes to motivate the private sector might prove more popular. Generous pre- and post-maternity-leave arrangements on the job might be guaranteed and educational expenses subsidized at least through secondary school. Economic theory tells us that lowering a price will convert latent into manifest demand. Making children "cheaper" would not motivate all women to have a child, but it could motivate those

women to do so who had been thinking about it but had been deterred by the cost.

Fourth, any future pronatalist policy would have to be promoted through a vast mass-media campaign aimed at changing public attitudes and the climate of opinion toward fertility. This campaign would aim to create a strong positive image for increased childbearing. It would be coordinated with other government programs and consistent with other social and economic trends and preferences at work in the population. Such a campaign sounds manipulative, and so it is. If and when increased fertility is an accepted social goal, and a policy has been adopted openly and democratically, a full-scale effort to create a favorable climate for it and to change behavior is perfectly sensible. It would, indeed, be foolish not to use the demonstrated persuasive powers of the modern mass media to help make the program work.

Finally, at the borderlines of such a program lie fascinating but still controversial possibilities for increasing fertility. Artificial insemination is a well-established procedure, but now ova can also be artificially implanted, extending a woman's normal fecundity. Talk of a "market" in ova has occurred, but the legalities have yet to be explored. Exuterine fertilization of an ovum is now possible also, but serious ethical and legal questions about this option must be addressed. The biological and health sciences are moving rapidly, and still more startling choices will be open to couples in the years to come. Research in these areas could be encouraged by public policy.

We have omitted from our list some of the plausible, even ingenious, proposals that have been suggested by earlier authors (Demeny 1987; Hohn 1991). The suggestion has been made, for example, that parents be given an extra vote in national elections for each child under the age of 18, and that adults of working age be obliged to pay a part of what would otherwise be their social security tax directly to their own parents (the implication being that they would want to have children themselves so that they could recoup these payments from their children). Such measures strike us as more clever than workable. Most likely, they would have unintended collateral effects that cannot be foreseen, as do any novel fiscal devices. They might introduce new divisions and tensions among households and within intergenerational relationships that are already difficult. Successful policy will aim at reducing the costs and increasing the benefits of having children, as perceived by the mother, rather than imposing a cost for not having children.

The implementation of the pronatalist measures outlined above would be expensive. The costs would include: reimbursing a woman (or her employer) for her time lost

in pre- and postmaternal leave; providing nursery and day care for the infant; offering health care and other necessary maintenance; and providing support for education from kindergarten through high-school graduation. Perhaps reimbursement of the full costs of education would not be needed in order to motivate a significant number of women to have children. Presumably, the program would be conducted in a particular area on a trial basis to establish its demand elasticities. Such a program would be expensive and, therefore, it would require a public debate to determine its financing.

Such pronatalist policies would be national in scope, because no international body with the fiscal or legal authority to implement such a program exists. One can only hope that such national policies might proceed in a spirit of international cooperation and assistance. One can imagine a new Plan of Action, coordinated by UNFPA or a new agency, to implement the goal of maintaining global equilibrium while also allowing different policies to be employed in different national contexts.

The present high degree of international cooperation concerning population matters may not last long into the twenty-first century. Emigration from the remaining high-fertility areas in Africa and Asia is creating political and social tensions in some of the countries of Western Europe that now experience below-replacement-level fertility. Recent election results in Switzerland and Austria may be a harbinger of things to come. The goals of greater European unity and of more open borders and freer trade with other nations may be jeopardized by the growing fear of depopulation and loss of ethnic identity. Pronatalist policies arising from such fears will be altogether different and are likely to pursue different implementing strategies. The rise of international terrorism and a looming world economic recession further cloud all these issues.

Conclusions

Population growth, composition, and movement will continue to be items on the policy agenda for some time to come. The present goal of global population stabilization is clearly attainable, and perhaps some of the earlier concerns of ecologists and environmentalists were exaggerated. Assuming continued technological and economic progress, a new transition toward a new and higher sustainable global population may well be under way by the middle of the present century. Policy will be a major part of this movement, as it was in all earlier transitions. A real risk can be seen that this new movement will reflect nationalistic rather than global concerns. A

half-century ago the late Frank Notestein (1950: 340), contemplating "The Population of the World in the Year 2000," foresaw some of these same concerns and wrote: "The greatest danger, it seems to me, is that concern about slowing growth may drive societies to a renewed emphasis on the obligations of the individual to reproduce for the benefit of the state, church, party or other extra-personal unit. There is a danger that the emotional reaction to slowing growth will lead us to seek people for society, rather than to enrich society for people." His warning remains valid.

Notes

- 1 The end of the global transition by the year 2050 is the middle variant of current United Nations projections (UN 2001).
- 2 Livi-Bacci (1990) makes a persuasive case that global population is now in the final stages of the third such long-run upsurge in numbers in response to enhanced control over the environment in the history of the species. The transition from the first cycle to the second was triggered by the shift from hunter-gatherer societies to sedentary agriculture and animal husbandry, whereas the shift from the second to the third cycle flowed from modern scientific and technological changes.
- 3 In effect, this is the contrast between moving along a given long-run growth curve, albeit unevenly, and a shift upward in the entire curve.
- 4 Social research in South Asia has shown that rapid fertility decline enhances women's autonomy and status, even in settings such as Bangladesh where profound gender stratification has been the norm (Phillips and Hossain 1998).

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