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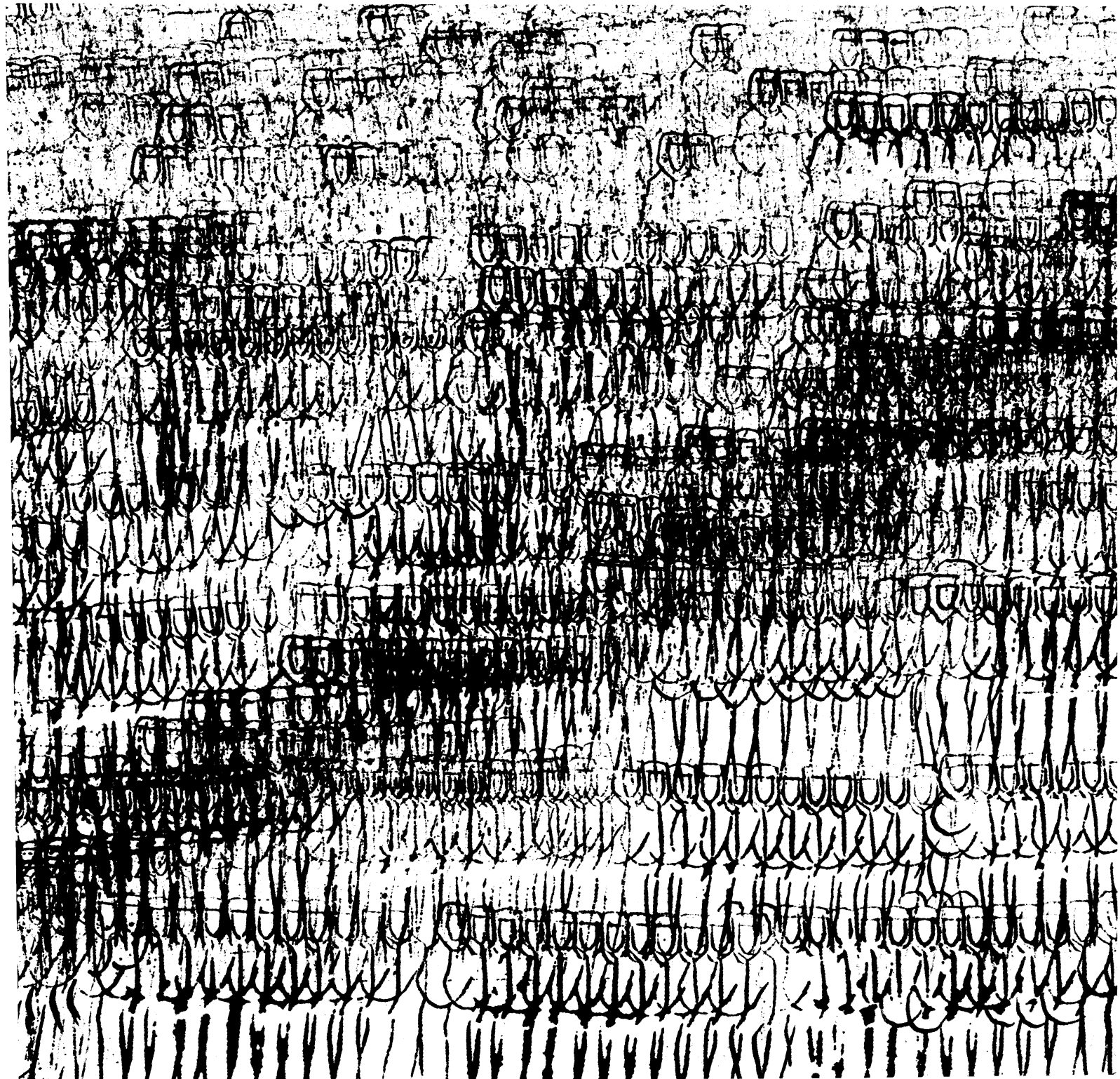
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U. S. Population Growth and Family Planning: A Review of the Literature



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By Robin Elliott, Lynn C. Landman, Richard Lincoln and
Theodore Tsuroka

U.S. population growth has recently emerged as a prominent national concern. Yet 20 or even 10 years ago, when growth rates were higher than they are today, interest in the issue was negligible. During the 1930s, in fact, preoccupation was rather with a potential *decline* in the U.S. population. What, then, explains the tone of the current debate?

The interest may be traced to two general areas of concern: population pressures worldwide, and urban and environmental deterioration at home.

World Population and Resources

Recent U.N. estimates of the size of the world population in the year 2000 range from 5.5 to 7.0 billion persons, up to twice its present size.¹ Present rates add to our population some 70 million persons each year, or another New York City every six weeks. Implied in these projections is that population growth continuing at present rates will conflict, perhaps critically, with the possibilities for modernization among the developing nations, and will in the long run threaten the ecology of the entire world. According to demographer Nathan Keyfitz:

If current rates of population increase do not abate, world population in 2050 could approach 18 billion people — well over half the number the world can ever hope to sustain, even at a level of chronic near-starvation for all.²

These grim statistics have been applied to the American scene in a number of ways. It is suggested, for example, that the United States should put its own 'population house' in order if it is to maintain international goodwill as it lends active support to population control in the developing countries. U.S. growth may be modest in relation to rates in most developing countries (less than one percent annually, compared with a world average of more than two percent), but nonetheless U.S. population may double in 70 years even as policies of control are being sponsored abroad. Thus, ecologist Paul Ehrlich writes:

For us to succeed in persuading other people to decrease their birth rates we must be able to advocate "do as we are doing," not "do as we say."³

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Another argument relates U.S. population growth to dwindling world resources, particularly to non-replaceable minerals and fuels. This country, with some six percent of the world's population in 1966, consumed 34 percent of the world's energy production, 29 percent of all steel production, and 17 percent of all the timber cut.⁴ Such figures lead to the reasoning that each American birth contributes far more to the drain on world reserves than does, say, an Indian birth — by more than 25 times, suggests biologist Wayne Davis.⁵ The problem becomes more apparent as the United States becomes increasingly dependent for its continued industrial growth upon the resources of the developing world. Since the 1930s, the U.S. has shifted from the position of a net exporter of minerals to that of a net importer, with heaviest reliance on outside sources for such basic resources as crude oil, iron ore, copper, lead and zinc.⁶ Meanwhile, some geologists claim, serious shortages among certain minerals are developing. To quote the Committee on Resources and Man of the National Academy of Sciences:

True shortages exist or threaten for many substances that are considered essential for current industrial society: mercury, tin, tungsten and helium, for example. Known and now-prospective reserves of these substances will be nearly exhausted by the end of this century or early in the next . . .⁷

Some scientists claim that American demand on foreign sources of supply will deplete resources which might otherwise be left available for industrial development and modernization in those countries at a future date,⁸ and that in the longer run the developed nations themselves may find their internal and external sources of supply drying up. In this sense, the move to curb U.S. aggregate demand for primary products through population control may be seen as the first line of defense against anticipated resource shortages, the alleviation of which might otherwise have to be sought through restrictions on rising standards of living. Nutritionist Jean Mayer writes:

The earth's streams, woods and animals can accommodate themselves better to a rising poor population than to a rising rich population. Indeed, to save the ecology the population will have to decrease as the disposable income increases.⁹

Ben Wattenberg takes issue with this position in a recent article. What, he asks, is Dr. Mayer's prescription?

Is he against affluent people having babies but not poor people, even though the affluent have relatively few any-

way? Or perhaps is it that he is just against the idea of letting any more poor people become affluent people, because they too will then consume too many resources and cause more pollution?¹⁰

Economist Robert Heilbroner, who supports the Mayer-Ehrlich position, draws from their analyses the conclusion that:

... the underdeveloped countries can *never* hope to achieve parity with the developed countries. Given our present and prospective technology, there are simply not enough resources to permit a "Western" rate of industrial exploitation to be expanded to a population of four billion — much less eight billion — persons.¹¹

Some writers, notably Frank Notestein, Joseph Fisher¹² and Harold J. Barnett, have taken issue with those who claim that we face a shortage of natural resources. Said Dr. Notestein before the Population Association of America in April 1970:

Thanks, indeed, to the high consumption of the developed world, we have generated the knowledge and techniques that have greatly expanded both the supplies and the reserves of . . . raw materials in the world.¹³

And Dr. Barnett concludes:

Natural resource scarcity and diminishing returns through time are not a curse that society must bear.¹⁴

He points to technological development as "*the* dynamic factor in the declining cost trend for agricultural and mineral commodities."

Domestic Urban and Environmental Problems Often Attributed to Population Growth Rate

In large part the current concern with U.S. population growth may be traced to domestic issues such as environmental decay, urban blight, urban violence, crowded highways and parks and high tax levels. The literature abounds with theories which assume or attempt to establish a relationship between our social maladies and our increase in numbers. Among the problems which one finds attributed in part or in whole to the size or growth rate of our population are disruption of the ecology, the socio-psychological stresses of urban society, and economic strains, especially high taxes.

John D. Chapman defines the ecologist as one who "sees the natural world as a series of inter-related systems in a state of dynamic equilibrium into which Man intrudes as an unbalancing factor."¹⁵ The pollution of water and air with industrial wastes, chemical fertilizers and gasoline fumes gives rise to chemical and thermal changes in the biosystem which deliver immediate injury to the environment and, in addition, set off a chain of distortions in the pattern of plant and animal life throughout the system. Such imbalances, ironically, are a direct outgrowth of Man's capacity to manipulate his environment, and are most widespread and serious in countries which are technologically most advanced. Under present conditions, a high Gross National Product tends to produce pollution, and this in turn, ironically, is likely to add further to the GNP. Writes economic historian Robert Lekachman:

If a new pulp mill discharges chemical wastes into a hitherto clean stream, the GNP will go up, not only because of the mill's valuable output but because other enterprises and municipalities located downstream from

the polluter will be compelled to invest in cleansing devices required to return the water to usable condition.¹⁶

The link is drawn by a number of ecologists and other biologists between the "ecocatastrophe" (Paul Ehrlich's description¹⁷) of environmental pollution and the size of population. Writes Lamont C. Cole:

... there is no way for us to survive except to halt population growth completely or even to undergo a period of population decrease if, as I anticipate, definitive studies show our population to be already beyond what the earth can support on a continuous basis. Just as we must control our interference with the chemical cycles that provide the atmosphere with its oxygen, carbon and nitrogen, so must we control our birth rate.¹⁸

Ecologist Barry Commoner shares the concern of his colleagues with the environmental crisis, but says that the problem is *not* primarily population growth, but the failure of political institutions to assert control over the use of technology. He writes:

My own estimate is that we are unlikely to avoid environmental catastrophe by the 1980s unless we are able by that time to correct the *fundamental* incompatibilities of major technologies with the demand of the ecosystem. This means that we will need to put into operation essentially emissionless versions of automotive vehicles, power plants, refineries, steel mills and chemical plants. Agricultural technology will need to find ways of sustaining productivity without breaking down the natural soil cycle, or disrupting the natural control of destructive insects. Sewage and garbage treatment plants will need to be designed to return organic waste to the soil where, in nature, it belongs. Vegetation will need to be massively reintroduced into urban areas. Housing and urban sanitary facilities will need to be drastically improved. In my view, unless these actions are taken, in the 1980s large-scale environmental disasters are likely to occur, at least in the highly developed regions of the world.¹⁹

Among the images most frequently used by those who would call attention to the U.S. population problem is crowding — crowding of people in cities and of cars on highways, restricting freedom of movement and reducing each person's enjoyment of scarce land resources such as beaches and national parks. It is suggested that crowding creates strains and stresses for the individual which all too frequently are expressed in disruption and violence for the group. Studies of animal behavior (for example, those of rats conducted by John B. Calhoun of NIMH²⁰) are cited as evidence of the debilitating effect crowding can have upon social and sexual relationships. Writes Dr. Keyfitz:

Food riots occur in Bombay, and civil riots in Newark, Memphis, and even Washington, D.C. This ultimate manifestation of population density, which colors the social history of all continents, is a challenge that can no longer be deferred. It will not cease until population control is a fact.²¹

Suggesting in a recent article that "spiralling population growth" is responsible for "many of our tensions and failures," Representative Morris Udall gives some examples:

The numbers of people jammed into our large cities are increasingly ominous. Crime rates soar. Freeways and airports are overloaded with traffic. Some schools are in

double sessions. There is poverty, racial strife, the rotting of our central cities, the formless and ugly sprawl of urbanization.²²

Some writers believe that such strains on our society spring not from how much population is growing, but from the way in which it is distributed. James Sundquist of the Brookings Institution, for example, calls for a national policy of population redistribution:

... [to] encourage an accelerated rate of growth in the smaller natural economic centers of the country's less densely populated regions, as the alternative to further concentrations of population in the larger metropolitan areas.²³

In a similar vein are recent statements by Herman Miller, Chief of the Population Division of the U.S. Bureau of the Census,²⁴ and the Report of President Nixon's National Goals Research Staff.²⁵ Says Miller:

We have serious population problems today and they are likely to intensify in the next 15 years. These problems relate to the geographic distribution and to the values of our people rather than to their numbers and rates of growth.

The White House group concludes as follows:

... one decision which appears not to be urgent is that of overall size of the population — even after the effects of a considerable amount of immigration are taken into account. The issue of population distribution is a different matter, and one to be taken seriously regardless of what may be the upper limit of population size.

Ansley Coale, Director of Princeton University's Office of Population Research, agrees and takes issue with what he sees as the simplistic link too often drawn between population growth and ecological disruption and urban stress. He writes:

... it has become fashionable to blame almost every national failure or shortcoming on rapid population growth — the ugliness and hopelessness of slum life, wasteful and irritating traffic jams, unemployment and delinquency among the disturbingly large fraction of adolescents who drop out of school, the pollution of air and water and the disappearance of the natural beauty of our country behind a curtain of billboards and under a blanket of Kleenex and beer cans. . . .²⁶

He decries attempts to "blame" population growth for these ills:

Fertility in the urban ghettos will fall if discrimination is alleviated, if educational and employment opportunities are equalized. . . . Pollution is caused by internal combustion engines as operated at present and by the unrestricted discharge of noxious fumes from other sources into the atmosphere. Similarly, water pollution is caused by the discharge of noxious effluents into rivers, lakes and oceans. A population half or three-quarters the current one in the U.S. could ruin the potability of our fresh water supplies and poison our atmosphere by the unrestricted discharge of waste. . . . In fact, most of the social and economic problems ascribed to our excessive population in the U.S. or to its excessive rate of growth are affected more by *how* our population has chosen to distribute itself than by its *size*. . . . The density of population is much higher in France, the United Kingdom and Netherlands. Yet pollution, traffic jams and delinquency

are no worse in those countries than here. . . . We must attack the problems of pollution, urban deterioration, juvenile delinquency and the like directly, and if sensible programs are evolved, continued population growth in the order of one-percent annually would not make the programs tangibly less effective.

Economic Costs

Most economists no longer believe that substantial population growth is essential to confident investment activity and rising per capita income.^{27,28} On the contrary, population growth tends to retard economic growth in all but a very few countries in special circumstances (such as Australia). Dr. Coale states the argument simply:

In the short run, not only does a population with reduced fertility enjoy the benefit of dividing the national product among a smaller number of consumers; it enjoys the additional benefits of having a larger national product to divide.²⁹

For the United States specifically, economist Stephen Enke argues:

... an evergrowing population is not economically desirable . . . in fact, per capita incomes will be higher the sooner a stationary and stable population is attained.³⁰

According to Dr. Enke, the U.S. economy would benefit from a reduced or zero rate of population growth in two ways:

- In the short run, it would decrease the number of young dependents, thereby reducing private and public (i.e., tax) expenditures for education, training, subsistence and other support for the dependent population.
- In the longer run, it would increase capital/labor ratios (and hence productivity), as the smaller cohorts begin to enter the labor force.

Economist Alan Sweezy adds another dimension to the argument, suggesting that some of the more undesirable concomitants of economic growth (e.g., pollution and congestion) are caused more by the population-increase component than they are by economic development *per se*. He draws a distinction between two kinds of economic development: rising per capita income under conditions of constant population, and stationary per capita income under conditions of increasing population. He writes:

The larger the population component in growth, the more increased output will take the form of necessities and long-established comforts of life. The more increased output takes the form of necessities, the harder it will be to gain consideration for ecological, aesthetic and recreational values if they stand in the way of expanding production.³¹

U.S. Population Goals

What are the goals of those who call attention to a 'population problem' in the United States? Is there an optimum population or an optimum growth rate on which most commentators are agreed, or is the objective more generally to 'slow down' the current rate of growth? What are the demographic *constraints* upon achieving a given rate of growth (e.g., the relationship between current fertility rates and future growth rates) and what



Urban Crowding: Problem of population growth . . . or of population distribution?

are the demographic *implications* (e.g., age structure) of a population of given size or growth rate?

One point at least is clear: the necessity for the eventual cessation of population growth worldwide. As Dr. Coale observes:

A long-range average growth of zero will be the inevitable consequence of inevitable limits – on the one hand, standing room only, and on the other, extinction.³²

The relevant question, then, is not if the U.S. and other nations should at some time actively support a reduced rate of growth, but when, how and at what cost this reduced rate should be achieved. The question has given rise to speculations as to the ‘optimum population’ for the United States.

The concept of optimum population implies the existence of independent criteria (e.g., wealth, living space, per capita income, quality of life) upon which the judgment may be based. In theory, the ‘optimum’ may be defined for a given society at a given stage of technological development, and will change over time. In practice, however, the concept appears elusive. Writes demographer Lincoln Day:

So far as optimum size is concerned . . . the dependence of human well-being on the interplay of many diverse elements permits us to set only very broad limits. Recognition of the fort of ecological, resource and social limits sets the maximum number of people who can be supported and thereby narrows the range; but there remains, nevertheless, a considerable latitude within which the optimum size can be located.³³

While most writers have shied away from assigning a specific value to optimum population, a few have claimed that present population size exceeds it. Dr. Day, for example, holds that it would have been “better” if the U.S. population had stopped growing at 150 million persons, and that such an “optimum” population would afford the individual “serenity, dignity, order, leisure, peace, beauty, elbow room . . . necessary to the cultivation of the whole person.” Wayne Davis believes that “we have far more people now than we can continue to support at anything near today’s level of affluence.”³⁴ Referring to world population, the Committee on Resources and Man suggests that “A human population less than the present one would offer the best hope for comfortable living for our descendants. . . .”³⁵

The inherent problem of definition in the concept of ‘optimum population’ has limited its usefulness in the discussion of population goals and policy. More useful has been the notion of

current and projected growth rates. Writes sociologist William Petersen:

One is on firmer ground to contend . . . not that the United States is overpopulated, but that its population growth has been, and probably will remain, so great that the disadvantages consequent from it will become increasingly evident.³⁶

It is this theme – reduction in the U.S. population *growth rate*, rather than establishment of an *optimum size* – which has been most prominent in the discussion of population goals.

Reducing the Growth Rate

Of those commentators who believe that the present U.S. population growth rate is too high, some would have it reduced to a fraction of the present rate, while others would strive for a zero or even negative rate. David Lilienthal, for example, calls for “a slower rise in the size of our population rather than the present steep increase,”³⁷ while William H. Draper would have “the United States consider and then accept a zero growth rate as our national optimum goal here.”³⁸ Dr. Lee DuBridg, while he was President Nixon’s science advisor, urged “every human institution – school, university, church, family, government and international agency [to set reduction of our population growth rate to zero] as its prime task.”³⁹

Part of the reason for this sense of urgency rests in a simple demographic theorem: that a zero growth rate would be two or three generations distant even if fertility were reduced *now* to the level of the replacement. If this rate were achieved today, according to estimates prepared by Tomas Frejka,⁴⁰ a stationary population would not be reached until 60 or 70 years from now – the period of time required for the population age structure to assume a stationary pattern. Dr. Frejka warns that to achieve zero population growth immediately, it would be necessary for each family to limit itself to one child only for the next 20 years or so, with two-child families not permissible until after the year 2000. As Dr. Coale points out, this would so skew the age structure of the population as to disrupt the normal workings of the society.

Similar conclusions to those of Dr. Frejka have been reached by economist Stephen Enke; by his estimates, “the population ceiling for this country may be no lower than about 350 million and achieved no sooner than about 2065 A.D.”⁴¹

Census Bureau projections published in 1967 assume that

by the year 2000 completed family size of Americans would range from a high of 3.35 children to a low of 2.45 children, which would give the U.S. a population of from 280 to 356 million. Since 1966, these projections (mostly popularly, the "low" 300 million projection) have formed the basis upon which most writers have estimated the seriousness of the problem. In August 1970, however, the Census Bureau released a revised and considerably lower range of population projections. Explaining the revision, the Bureau commented that only the lowest of the 1967 projections (Series D) conformed with actual experiences of the succeeding three years.⁴² The highest series under the earlier forecast (Series A, based on the assumption of completed fertility at 3.35 children per woman) was dropped, and a new "low" series (Series E, based on the assumption of completed fertility at replacement, or 2.11 children per woman) was added. With these assumptions, the estimated size of the U.S. population in the year 2000 ranges from 266 millions to 321 millions. Demographer Donald Bogue comments on the shift in expectations:

Population growth is no longer a major social problem in the United States. . . . The era of zero population growth is nearly upon us. . . . This is a very different picture from that which presented itself only a few years ago [when] it looked as if the U.S. was heading into a very severe population crisis. It now appears that we have resolved it.⁴³

And Dr. Notestein states:

It is not at all beyond belief that, with contraceptives of ever increasing efficiency and legal abortion, fertility may fall below replacement level.⁴⁴

(He adds, however, "and of course it may not.")

The ultimate age composition in a stationary population has for some writers raised questions as to its desirability. Dr. Coale, for example, notes:

. . . a stationary population with an expectation of life of 70 would have as many people over 60 years as under 15. The median age would be about 35.⁴⁵

He suggests that under such conditions people might be more conservative and less receptive to change. Advancement in authority for the aspiring young person would be more difficult, moreover, since there would be as many people aged 50 years as there would be aged 20. Dr. Day does not see this as a problem, and points out that the age structure of a stationary population in the United States would be similar to that of contemporary Sweden and Britain.

Alternative Approaches to Checking Population Growth Emphasize Voluntary Practices or Governmental Coercion

Alternative strategies recommended by those who seek a reduction in U.S. population growth range from voluntary family planning practices to coercive governmental action. The pattern of policy choices corresponds rather closely, as might be expected, to the sense of urgency with which each writer views the 'population problem.' Those who see ecological crisis nearly upon us tend to favor more draconian measures, such as putting sterilants in the water supply, while those who consider that we

* One of the few who call for a net immigration rate of zero is Stephen Enke, himself an advocate of zero population growth.⁴⁶

have not yet reached crisis levels favor building on existing motivation. For most of the measures proposed, predictions of success remain untried and speculative.

The alternative approaches to the population problem are alike in one respect: they are directed exclusively towards reducing fertility, with the assumption implicit that any policy geared to increase mortality, the second determinant of population growth, would be clearly unacceptable. The third determinant, net immigration, is rarely suggested as a target,* though it contributes an increasing portion (currently, about 20 percent) of the annual growth rate.

The Family Planning Experience

The widespread adoption by nations of policies and programs of fertility control is a phenomenon primarily of the past decade. Even voluntary family planning programs were not considered seriously as a means to lower fertility rates until the 1960s when the development of the oral contraceptive and the intrauterine device (IUD) brought new hope that unwanted fertility could be eliminated through wide dissemination of these highly effective, relatively simple and inexpensive methods.

The first few years of experience with family planning programs in some Asian countries (notably Taiwan and Korea, and based mainly on the IUD) engendered considerable optimism about the possibility of significantly reducing birthrates. Frank Notestein,⁴⁷ for example, predicted in 1967 that population growth rates in developing countries would be reduced to 1-1.5 percent by the end of the century — a level sufficiently low to enable these countries to achieve necessary modernization. He based his optimism on four factors:

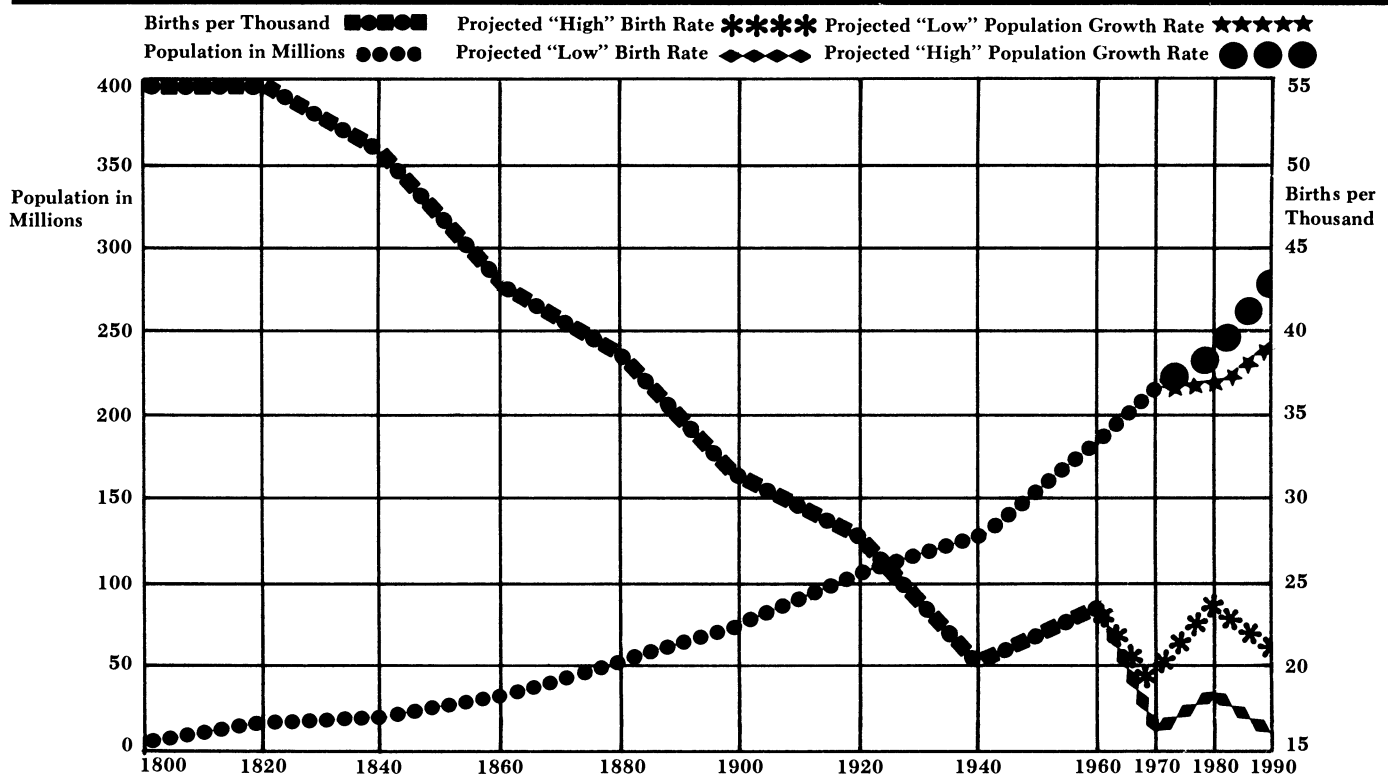
- development of national policies favoring family planning,
- demonstrated public interest in limiting childbearing,
- improvement of contraceptive technology, and
- reduction of the birth rate in several Oriental countries as the result of government birth control programs (Korea, Taiwan, Hong Kong, Singapore).

He concludes:

Whatever happens, it is probable that, short of a major rise in the death rate, population growth will not be stopped for some decades. Given the necessary effort, however, it does seem likely that growth will be reduced to levels that can be coped with in a world of rapidly developing science and technology. In the long run, of course, growth must stop. Quite possibly, it will not do so even if every couple is able to limit its childbearing to the precise number of children it wants. But a world in which all couples are able to choose the size of their family will be a world in which an alteration of institutional constraints would prove rather quickly effective.

A month after the appearance of Dr. Notestein's 'optimistic' projections, Kingsley Davis published a major critique of family planning as a means to population control.⁴⁸ Davis insisted that if family planning were to remain the only means taken by governments to reduce fertility, the rate of population growth would continue at an unacceptable level, both in industrial and in developing countries:

Zero population growth [is] the ultimate goal, because any growth rate, if continued, will eventually use up the earth . . . at most, family planning can reduce reproduction to the extent that unwanted births exceed wanted



Source: 1970-1990 Projections from *Current Population Reports, Series P-25, No. 448, 1970.*

births. . . . The elimination of unwanted births would still leave an extremely high rate of multiplication.

In another article, he declared:

Millions of dollars are being spent on the false assumption that population control can be achieved by family planning programs . . . couples can find the means to reduce their fertility if they want to do so, without any family planning programs to help them. . . .⁴⁹

Dr. Davis, like most subsequent critics, defined family planning as a euphemism for the distribution of contraceptive devices, and charged family planners with rejecting such "voluntary" birth control measures as legalization and encouragement of abortion and sterilization and "unnatural forms of sexual intercourse."⁵⁰

He also accuses family planners of neglecting problems of motivation and of being concerned only with the numbers of women who accepted contraceptive devices. "Overlooked," he says, "is the fact that a desire for the availability of contraceptives is compatible with *high* fertility." He also insists "that the social structure and economy must be changed before a deliberate reduction in the birth rate can be achieved. As it is, reliance on family planning allows people to feel that 'something is being done about the population problem' without the need for painful social changes." It represents "an escape from the real issues," in that no country has taken "the next step" toward population control, and in that "support and encouragement of research on population policy [other than family planning]" is negligible. It is precisely this blocking of alternative thinking and experi-

mentation that makes the emphasis on family planning a major obstacle to population control."⁵²

Two years following the publication of the Notestein and Davis articles, Bernard Berelson of the Population Council compiled an analysis of the various mechanisms proposed for population control.⁵³ Taking as his starting point voluntary contraception (family planning), which in addition to its primary mission as a socio-medical service to individuals and families is currently the only accepted method of population control in the United States, Berelson examined 29 alternative policies which governments were being urged to take beyond, or in addition to, family planning. While the scope of Dr. Berelson's review is worldwide, the examples he quotes are all relevant to the debate over U.S. population policy. His proposals are arranged according to eight categories, paraphrased below:

- *Extensions of Voluntary Fertility Control.* Institutionalization of maternal care services,⁵⁴ legalization of abortion,⁵⁵ promotion of voluntary sterilization.
- *Establishment of Involuntary Fertility Control.* Addition of temporary sterilants to the water supply;⁵⁶ "child licenses,"⁵⁷ and "child certificates";⁵⁸ compulsory abortion of out-of-wedlock pregnancies;⁵⁹ compulsory sterilization of men with three or more children.⁶⁰
- *Intensified Educational Campaigns.* Introducing population

* Male sterilization has played a central role in the Indian family planning program, female sterilization in the Puerto Rican program, and therapeutic abortion in the Japanese program. The literature does not indicate "unnatural forms of sexual intercourse" as an official component of a government-sponsored family planning program.^{60,61}



Some see government coercion the only answer to population control.

and family planning material in the schools;⁶¹ use of national satellite TV.⁶²

- *Incentive Programs.* Providing direct payments for delaying pregnancy,⁶³ for being sterilized,⁶⁴ for accepting contraception.⁶⁵

- *Tax and Welfare Benefits and Penalties.* For example, substituting an anti-natalist system of social services for the existing pronatalist system, by withdrawing maternity benefits or child and family allowances after Nth child,⁶⁶ or by limiting government housing, scholarships and loans to families with fewer than N children;⁶⁷ tax on births;⁶⁸ reversal of tax benefits to favor single and childless persons, and those having less than N children;⁶⁹ provision by State of N years free schooling to each nuclear family, to be allocated by family as desired;⁷⁰ pensions for poor parents with fewer than N children.⁷¹

- *Shifts in Social and Economic Institutions.* For example, increasing minimum age of marriage;⁷² promotion or requirement of female participation in labor force;⁷³ selective restructuring of family in relation to the rest of society;⁷⁴ promotion of two types of marriage, one childless and the other licensed for children;⁷⁵ encouragement of long-range social trends leading toward lower fertility;⁷⁶ improved status of women;⁷⁷ continuing efforts to lower infant and child death rates.⁷⁸

- *Approaches via Political Channels and Organization.* Insist on population control as condition of foreign aid;⁷⁹ creation of powerful super-agencies for population control;⁸⁰ promotion of Zero Population Growth as world or national policy.⁸¹

- *Augmented Research Efforts.* Social research to discover means of achieving lower fertility;⁸² biological research toward improved contraceptive technology;⁸³ sex determination research.⁸⁴

In evaluating each of the alternatives, Dr. Berelson asked a series of six questions:

- Is the scientific/medical/technological base available or likely?

- Will the Government approve?
- Can the proposal be administered?
- Can the society afford the proposal?
- Is the proposal acceptable ethically, morally, philosophically?
- Will it work?

On a time scale of 10-20 years, Dr. Berelson gave highest scores on all counts to family planning programs, intensified educational efforts and augmented research.

Dr. Berelson's paper provides a useful basis for discussion of the mechanisms proposed for population control, which are arranged below in two categories: those which aim to change fertility preferences and, if that fails, to resort to more direct means of influencing family size (e.g., the Davis position), and those which are predicated on *existing* motivation to prevent unwanted pregnancy (e.g., the Notestein position).

'Direct' and 'Indirect' Means of Altering Fertility Behavior Based on Overall Social Needs

Measures of this type are predicated on the belief that adequate fertility reduction will depend upon changes in the motivations upon which (or in the freedom with which) people conceive and bear children. The critical point here is that current motivations and freedoms relate to *individual preferences*, and that these may bear no relation to *overall social needs*. To quote Garrett Hardin:⁸⁵

The sum total of personal choices about family size on the part of individual couples acting in their own self-interest may very well add up to ruinous demographic conditions for society as a whole.*

The point has been stressed by a number of other commentators, including Paul Ehrlich,⁸⁷ Kingsley Davis,⁸⁸ and Alice Day.⁸⁹ Reference is frequently made to such sources as the 1960 Growth of American Families study,⁹⁰ in which the average family size preference of married women was reported as 3.2 children per family. This number, it is pointed out, exceeds the average completed family size which is associated with population stabilization (approximately 2.11). If a stationary population is to be achieved, it will be necessary first to motivate parents to have smaller families. Judith Blake, Chairman of the Department of Demography at Berkeley, expresses the point as follows:

... the principal cause of . . . [population] growth in the United States [is] the reproduction behavior of the majority of Americans who, under present conditions, want families of more than three children and thereby generate a growth rate far in excess of that required for population stability.⁹¹

* In the short run, however, Dr. Hardin concedes the possibilities of voluntarism. Says he: "I am sure that we can do a lot towards bringing the birth rate in this country down to a mere replacement level if we make it really possible for everybody to have birth control at the time and the place that he or she needs it."⁸⁶

In attempting to change the fertility behavior of the U.S. population, these and other writers would select from a range of measures, varying from moderate (e.g., population education) to extreme (e.g., placing fertility control agents in the water supply). They are not usually posed as mutually exclusive options for a society, but rather as alternative approaches which might be tried in progression. In a recent editorial in *Science*, for example, Garrett Hardin argues as follows:

How can we reduce reproduction? Persuasion must be tried first. Tomorrow's mothers must be educated to seek careers other than multiple motherhood. Community nurseries are needed to free women for careers outside the home. Mild coercion may soon be accepted — for example, tax rewards for reproductive nonproliferation.

But in the long run a purely voluntary system selects for its own failure: non-cooperators outbreed cooperators . . . If parenthood is a right, population control is impossible.⁹²

Kingsley Davis' pessimism is somewhat more qualified:

With indirect measures [that is, measures that leave people free to make their own reproductive decisions but which alter the conditions affecting those decisions], one hopes that compulsory measures will not become necessary. It can be argued that over-reproduction—that is, the bearing of more than four children—is a worse crime than most and should be outlawed. One thinks of the possibility of raising the minimum age of marriage, of imposing stiff penalties for illegitimate pregnancy, of compulsory sterilization after a fifth birth.⁹³

Some of the more adventurous chemical approaches to involuntary fertility control, chemist Carl Djerassi points out in a recent article, are and will continue to be beyond the reach of contraceptive technology for many years. Of such "Orwellian" proposals as the addition of temporary sterilants to water or staple foods, Dr. Djerassi says:

. . . it is perfectly clear that the development of such a universal birth control agent is outside the realm of possibility in this century. . . . Immunological approaches, though probably slightly more easily implemented in an 'Orwellian' society than the addition of a sterilant to food and water, are still so far away that they do not merit serious consideration within the context of [this article].⁹⁴

Some of the proposals would have universal impact, whereas others would have selective impact depending on the socio-economic status of the individual (see Table 1). The latter distinction may be important in terms of the anticipated political response to each program. Programs designed to restructure the family (for example, by postponing marriage or by increasing employment opportunities for women outside the home) might carry certain economic or political costs, but they would at least apply to everyone equally. They contrast with programs designed to eliminate welfare payments for mothers with more than two children, to sterilize unwed mothers, or to abort all out-of-wedlock pregnancies; such measures tend to strike selectively at the poor — and in specific instances have done so. Thus, a number of bills have been introduced to sterilize *welfare mothers* who have more than one out-of-wedlock child,⁹⁵ though no legislation has been introduced to sterilize parents *in general* who

Table 1. Examples of Proposed Measures to Reduce U.S. Fertility, by Universality or Selectivity of Impact

Universal Impact	Selective Impact Depending on Socio-Economic Status		Measures Predicated on Existing Motivation to Prevent Unwanted Pregnancy
	Economic Deterrents/Incentives	Social Controls	
Social Constraints			
Restructure family: a) Postpone or avoid marriage b) Alter image of ideal family size	Modify tax policies: a) Substantial marriage tax b) Child tax c) Tax married more than single d) Remove parents' tax exemption e) Additional taxes on parents with more than 1 or 2 children in school	Compulsory abortion of out-of-wedlock pregnancies Compulsory sterilization of all who have two children except for a few who would be allowed three	Payments to encourage sterilization Payments to encourage contraception Payments to encourage abortion Abortion and sterilization on demand
Compulsory education of children	Reduce/eliminate paid maternity leave or benefits	Confine childbearing to only a limited number of adults	Allow certain contraceptives to be distributed non-medically
Encourage increased homosexuality	Reduce/eliminate children's or family allowances	Stock certificate-type permits for children	Improve contraceptive technology
Educate for family limitation	Bonuses for delayed marriage and greater child-spacing	<i>Housing Policies:</i> a) Discouragement of private home ownership b) Stop awarding public housing based on family size	Make contraception truly available and accessible to all
Fertility control agents in water supply	Pensions for women of 45 with less than N children		Improve maternal health care, with family planning as a core element
Encourage women to work	Eliminate Welfare payments after first 2 children Chronic Depression Require women to work and provide few child care facilities Limit/eliminate public-financed medical care, scholarships, housing, loans and subsidies to families with more than N children		

Source: Frederick S. Jaffe, "Activities Relevant to the Study of Population Policy for the U.S.," Memorandum to Bernard Berelson, March 11, 1969.

have four, five or ten children. A similar judgment applies to proposals for the elimination of tax exemptions for children, or for the imposition of a "child tax," which would affect various socio-economic groups differentially.

Those methods which involve penalties and rewards for given modes of fertility behavior depend to a large extent upon a prior condition: equal access of all individuals to the means of effective birth control. In the absence of such a condition, a law of this kind would inevitably discriminate against those who were less able than others to fulfill its requirements. Economist Joseph J. Spengler draws attention to this in connection with his proposal to reward small families financially — on a deferred basis — through the social security system. He writes:

The arrangements cannot succeed unless the means to control family size are widely available and very cheap in relation to the incomes of the masses.⁹⁶

Many of those who advocate changing fertility behavior, whether by manipulating preferences or through coercion, are skeptical about the effectiveness of "education" or "persuasion" programs *per se*. Such programs, presumably, would need supplementing with other, more direct, legislative measures. Judith Blake, for example, writes:

We have a compelling reason to believe that developing peoples will never be merely propagandized or 'educated' into wanting really small families. . . . It does not seem that their desires for larger families will succumb to flip-charts, flannel boards, message movies, group leaders or 'explanations' about the 'advantages' of few children.⁹⁷

Similarly, Lincoln and Alice Day conclude that "we cannot rely on awareness of the facts of population pressure alone to provide the motivation for family limitation sufficient to stabilize our population."⁹⁸

More optimistic projections of the possibilities of population education include a recent paper by Professors Charles B. Arnold, Roger B. Wells and Betty E. Cogswell of the Carolina Population Center. As described in the April 1970 issue of *Studies in Family Planning*:

. . . [the paper] expresses a concept of sex education broad enough to encompass parts of the population awareness approach as well as sex and family life. . . . Arnold and his associates subdivide sex education into four areas [including] social science aspects of population (demography, human fertility, and the social determinants of population growth) . . . the Arnold group believes that educational programs . . . could lead to lower societal fertility, lower venereal disease rates, increase in the use of contraceptives [and] a rise in positive expectations regarding small family size.⁹⁹

A number of writers have outlined entire programs of action which include measures designed to alter fertility preferences or to force changes in fertility behavior.

Kingsley Davis,¹⁰⁰ for example, suggests that policies be designed to de-emphasize the family "by keeping present controls over illegitimate childbirth yet making the most of factors that lead people to postpone or avoid marriage, and by instituting conditions that motivate those who do marry to keep their families small." Limiting births within marriages might be achieved by allowing "economic advantages to accrue to the single as opposed to the married individual, and to the small as opposed to the large family." Among the examples he gives are

government payments for sterilization, payment of all costs of abortion, high marriage license fees, levying of a "child tax," and requiring that all out-of-wedlock pregnancies be aborted. Less "sensational" measures considered by Davis include the following: to cease taxing single persons at a rate higher than married persons; to stop giving parents special tax exemptions; to abandon income tax policies which discriminate against working wives; to reduce paid maternity leaves; to reduce family allowances; to stop awarding public housing on the basis of family size; to stop granting fellowships to married students; to legalize abortion and sterilization; to relax rules requiring medical supervision of harmless contraceptives; to require women to work outside the home or compel them to do so "by circumstances"; to pay women at the same rate as men and give them equal educational and occupational opportunities; and to organize social life around the place of work rather than around the home.

In a similar vein, though less precisely spelled out, is the proposal¹⁰¹ advanced recently by the Committee on Resources and Man of the National Academy of Sciences-National Research Council. University of California geologist Preston Cloud, Chairman of the Committee, testified recently before the House Conservation and Natural Resources Subcommittee. His testimony included proposals that Congress and the President exhort, by formal declaration, all American couples to have no more than two children; that tax and welfare laws be redrafted to discourage the bearing of more than two children; that legal restraints on homosexual unions be repealed; and that abortions on request be legalized and performed free for indigent women.

The committee which he headed called for intensification "by whatever means are practicable" of efforts to control population in this country and the world, "working toward a goal of zero rate of growth by the end of the century." "Population control" for the U.S. and the world is justified on the premise "that the community and society as a whole, and not only the parents, must have a say about the number of children a couple may have. This will require," the Committee concludes, "profound modification of current attitudes toward parenthood." The Committee's recommendations were based on a paper contributed by University of California demographer Nathan Keyfitz, who declared (with Kingsley Davis) that "the essential ultimate goal of real population control will require something more effective than merely eliminating unwanted births."¹⁰²

Carl Taylor, of Johns Hopkins University, laments what he calls "the sharpest polarization today between proponents of family planning and advocates of 'population control' [i.e., altering fertility preferences or coercing changes in fertility behavior]," and proposes a five-stage program which borrows from both approaches.¹⁰³ His suggestions are as follows:

- *Open up clinics and tell women where to go.* This, he says, can reach 15 percent of target, but will then level off. Unrealistic expectations based on rates of initial acceptance can lead to extravagant targets which will not be met.
- *Develop good technology and convenient administration.* Careful and considerate attention should be paid to quality and convenience of service, to avoid backlash. Priorities should be good follow-up care; respect for patient's privacy and dignity; and the availability of a variety of contraceptive methods.
- *Provide comprehensive health care for mothers and children.* As long as parents think their children might not survive to adulthood, they will want "extra" sons for "insurance."
- *Devise methods of economic control.* These will "alter a

family's view of its own economic prospects and its understanding of the financial implications of more children" (e.g., it is better to have two educated children than six uneducated ones; hand labor of extra children is not as valuable as money to buy a new tractor, etc.). Taylor suggests eliminating a number of pro-natalist tax and welfare provisions, such as tax concessions to large families, welfare allowances, paid maternity leaves, favored housing for large families, and special educational benefits for students with children. He advocates encouraging women to work; the offering of direct dollar incentives for people to undergo sterilization or to recruit candidates for the IUD. He warns, however, that "most direct legal manipulations are politically hazardous. . . ."

• *Modify socio-cultural factors in motivation.* ". . . the most difficult to implement." We should begin now, he says, to try to postpone age at marriage, and to promote the further education of women.

Voluntary Fertility Control Based on Individual Needs

Voluntary programs assume existing fertility aspirations as given, and attempt to maximize the freedom of each person to fulfill his or her individual preferences. They represent a continuation or extension of the philosophy of family planning, and may be summarized thus: to make comprehensive birth control services, including legal abortion and sterilization, available and accessible to all persons, whatever their socio-economic status, on a voluntary basis. Unlike the measures discussed in the last section, voluntary fertility control measures have historically been used primarily to enhance maternal and child health, to alleviate poverty and generally to strengthen the health and well-being of the individual family; only secondarily has their purpose been to curb population growth. Recent and prospective advances in contraceptive technology, combined with the wider availability of legal abortion and sterilization, however, have raised the potential of voluntary fertility control as a means of limiting growth. Reductions in the net reproduction rate to below replacement level have been achieved in four countries (Japan, Hungary, Bulgaria, Czechoslovakia); and in all four of them the method used was to make abortion available on demand.

Primary among the advantages of voluntary fertility control is its political and ethical acceptability:

. . . it is a natural extension of traditional democratic values: of providing each individual with the information he needs to make wise choices, and allowing the greatest freedom for each to work out his own destiny.¹⁰⁴

Moreover, it is the only approach which has been tried to any degree. The very fact that it is operational stands as a challenge to competing methods of population control. In part because of its privileged position, the effectiveness of voluntary fertility control in reducing population growth has become one of the central issues in the population debate.

As Kingsley Davis published the first major attack on family planning programs abroad, so his wife, Judith Blake, has led the attack on family planning programs in the United States. She writes:

. . . for most Americans, the "family planning" approach, concentrating as it does on the distribution of contraceptive materials and services, is irrelevant, because they already know about efficient contraception and are already "planning" their families. It is thus apparent that

any policy designed to influence reproductive behavior must . . . relate to family-size goals [rather than just to contraceptive means].¹⁰⁵

Family Planning and the Poor

Organized programs of voluntary fertility control, in the United States as in the developing countries, have been geared primarily to serve the poor, who can least afford the services of private physicians. Accordingly, attacks on the concept of 'voluntary family planning' in this country have been framed for the most part specifically in terms of poverty-oriented programs. In the article quoted above, Judith Blake claims:

• Publicly supported birth control services are not "appropriate to the attitudes and objectives of the poor and uneducated in matters of reproduction." In general the poor favor birth control — and particularly poverty-oriented birth control programs — *less* than do the more affluent.

• The poor not only have larger families than the well-to-do but "want larger families and consider them ideal."

• The notion that there are five million poor women who "want and need" publicly subsidized birth control help¹⁰⁶ is grossly exaggerated, and fails to take into account, a) the actual numbers of such women who are at risk of conception, b) the percentage who are sterile or less than normally fecund, and c) those who would object to birth control on religious or other grounds.

• The estimate of five million includes those who are already practicing effective birth control, and assumes that all poor women "need the pill and the coil." It is "fantastic" to seek to "substitute scarce medical and paramedical attention for all contraceptive methods now being used by poor couples."

• In addition to being ineffective, wasteful of funds and irrelevant both to the needs of the poor and the attainment of population stability, government-sponsored birth control programs may be actually dangerous.

• Rather than concentrating on the "irrelevant" distribution of contraceptive materials and services, she says, the government should seek to create new institutional mechanisms replacing traditional pro-natalist policies with anti-natalist policies. This would involve "basic changes in the social organization of reproduction that will make nonmarriage, childlessness, and small (two-child) families far more prevalent than they are now." This might be accomplished by lifting penalties for such anti-natalist behavior as "already exist among us as part of our covert and deviant culture, on the one hand, and our elite and artistic culture, on the other."

Oscar Harkavy, with Frederick S. Jaffe and Samuel Wishik,¹⁰⁷ took issue with Dr. Blake's assumptions. Responding to her article, they declared:

• Federal support of family planning programs for the poor has been based on providing for them the same opportunities to plan the number and spacing of their children as has been traditionally enjoyed by the more affluent. Government policy has also operated on the assumption that access to voluntary family planning programs will assist the poor in escaping from poverty, and will help reduce their incidence of infant and maternal mortality and morbidity.

• Dr. Blake's contention that the poor desire larger families and favor birth control less than the non-poor is based "on responses to opinion polls and ignores the three major national studies conducted since 1955, covering larger and properly

structured random samples of the U.S. population.” What is more, she invalidly equates ‘ideal’ family size with ‘desired’ family size.

- The three studies referred to show near-unanimous approval of birth control by *all* socio-economic groups, and reveal no significant differences in *desired* family size between the poor and the non-poor.

- The estimate of five million women who need subsidized family planning help is defended as a “reasonable approximation” based on U.S. Census Bureau tabulations of the characteristics of the poor and near-poor.

- The greater reliance of the poor on non-medical and less reliable methods of birth control cannot be attributed to their personal preferences or lack of motivation “in view of the considerable research demonstrating that the poor have little access to medical care for preventive services [and that] when access to modern family planning services, offered with energy and dignity, has been provided, the response of poor and near-poor persons has been considerable. . . . In virtually all known programs offering a variety of methods 85 to 90 percent of low-income patients voluntarily choose either pills or intra-uterine devices, the most effective methods currently known.”

Oscar Harkavy and his colleagues (and Arthur Campbell, Deputy Director of the NICHD’s Center for Population Research¹⁰⁸) challenged Dr. Blake’s assertion that desired family size among the poor was larger than among the affluent. They did not, however, confront the assertion that family planning programs, as essentially “catch-up” programs for the poor, would be insufficient to induce a zero rate of population growth (though Frederick Jaffe, with Alan F. Guttmacher,¹⁰⁹ had earlier suggested that voluntary fertility control programs for all classes could have significant effectiveness in reducing fertility). This challenge has been made by Charles F. Westoff and Larry Bumpass.¹¹⁰ They examine what would happen in the U.S. if “couples are able to avoid having more children than they themselves want and are also able to avoid having children before they want them.” Such perfect fertility control, they say, “might well require social policies aimed at expanding research for more efficient systems for their distribution, as well as legalizing abortion on request.” Summarizing his report at Planned Parenthood’s 1969 Annual Meeting, Dr. Westoff declared:

If the fertility patterns of the last decade continue, these three measures by themselves could reduce U.S. population growth considerably. They would not require any change in the number of children couples appear to want now, thus not requiring governmental policies designed to change family-size norms which in theory might be much more difficult anyway. Since no one knows of any alternative measures which can hold out the promise of this much of a reduction in U.S. population growth, it seems apparent that a major program along these lines should become the first order of business among those interested in reducing the U.S. rate of population growth.

To determine unwanted fertility, the authors analyzed responses from the 1965 National Fertility Study, and found that 22 percent of births from 1960 to 1965 were unwanted by at least one spouse, 17 percent by both (the average was 19 percent). More than one-third of non-white births were found to be unwanted. They found that the incidence of unwanted births is negatively related to education and income. Among the poor and near-poor, one-third of births were unwanted, compared

with 15 percent among the non-poor; and among women with less than a high school education, unwanted fertility was more than twice as high as among women with high school education or better.

For out-of-wedlock births (the 1965 study was of married women only), the authors assumed the same proportions of wanted and unwanted children as for births which occurred in marriage. This assumption, they admitted, was “undoubtedly a bias in the direction of underestimating the extent of unwanted fertility.” Another source of bias exists in that women asked retroactively about children already born have a tendency to characterize them as wanted, even though they may have been unwanted at the time of conception.

The authors estimate that in the six-year period 1960-1965 there were some 4.7 million births “that would have been prevented by the use of perfect contraception.” Some two million of these births occurred to the poor and near-poor, of which half were to non-whites. For 1960-1968, they estimate that there were 6.8 million unwanted births. Their comment:

The conclusion seems inescapable that the elimination of unwanted fertility would have had a marked impact not only on our recent birth rate, but also on the life situation of millions of American women in or near poverty.

Of wanted births between 1960-1965, Drs. Westoff and Bumpass add that “two-fifths would have occurred later than they did if their timing had been controlled.” Another result of such control would be a reduction in the *number* of children wanted (and, in a perfectly contracepting society, those that are born), since each delay makes it more likely that a woman will change her mind, or become sterile.

Donald Bogue¹¹¹ predicts wider availability and higher quality of voluntary fertility control in years to come, suggesting that:

. . . by [the year 2000] the present methods of contraception, as highly effective as they are, will have been replaced by newer, more pleasant, and completely effective methods which have longer-lasting effects. These methods will be easily within the economic grasp of every citizen, and with our steadily expanding system of universal medical care, will be part of the routine medical service available to everyone, irrespective of age, marital status, or income. Abortion to avoid unwanted pregnancy will be legal and a routine part of health care.

Desired family size, Dr. Bogue suggests, is “the only supportive factor that seems capable of exerting a sustained upward thrust [on fertility rates].” He comments, however, that:

The full impact upon the society of the dysfunctional effects of the ‘baby boom’ is only now beginning to be felt, and the pressures against bearing children of third or higher order may be expected to get progressively stronger as the years pass.

Voluntary fertility control composes the core of the approach to population control which is favored by Bernard Berelson.¹¹² Family planning programs, he claims, compare favorably with other proposals; as “soft” measures, moreover, they should be tried first before resort is taken to the “harder” measures designed to persuade or compel people to change their fertility preferences. He suggests emphasis in program implementation as follows:

... on the informational side, on encouragement of commercial channels of contraception, on the use of paramedical personnel, on logistics and supply, on the training and supervision of field workers, on approaches to special targets ranging from post-partum women to young men under draft into the armed forces. If the [family planning] field did well what it knows how to do, that in itself would in all likelihood make a measurable difference – and one competitive in magnitude with other specific proposals – not to mention the further impetus of an improved contraceptive technology.

A voluntary approach, what is more, meets what Dr. Berelson (after Ansley Coale) describes as an “ideal” program of population control; this he defines as a program which:

- would permit a maximum of individual freedom and diversity,
- would help promote other goals that are worth supporting on their own merits . . . and would not indirectly encourage undesirable outcomes, e.g., bureaucratic corruption,
- would not burden the innocent in an attempt to penalize the guilty,
- would not weigh heavily upon the already disadvantaged [and] tend further to deprive the poor, and
- would be comprehensible to those directly affected . . . and subject to their response.

Summary

This paper has drawn upon the views of some of the nation’s leading scientists and social theorists and other commentators – biologists, ecologists, demographers, economists, sociologists – who have addressed themselves to the question of U.S. population growth and its consequences.

The specialists agree that world and U.S. population growth must at some time be brought to a halt (though there is considerable disagreement as to *when* this should be accomplished)

if the quality of life is to be preserved, the world’s finite resources to be husbanded for future generations, and the environment to be saved from irremediable pollution and degradation.

They disagree over the specific role played by U.S. population growth in creating or exacerbating such problems as environmental deterioration, urban crowding, ecological imbalances and world resource scarcity. Some believe, for example, that these problems stem from our failure to control technology; others, that the chief culprit is multiplying man with his multiplying demands for goods and services. Some social scientists fear the political and social consequences of a stationary U.S. population, with a higher median age and narrower opportunities for advancement among the young: might there not be less scientific, technological and cultural innovation with such an age distribution? Others suggest that zero population growth might be economically beneficial, reducing the tax load and possibly accelerating the rise in the standard of living.

Perhaps the sharpest division among the experts is over the methods we should employ in achieving zero growth. The main arguments are:

- Our family size preferences are innately too high, and can be reduced only through coercive means (e.g., compulsory sterilization after a certain number of illegitimate births, or temporary sterilants in the water supply).
- Family size preferences are currently (but not innately) too high, and can be reduced through public education, or through other means of persuasion (e.g., tax incentives, rewards through the social security system).
- Current family size preferences are low enough, and population growth can be sharply reduced – perhaps by half – merely by extending contraceptive, abortion and sterilization services to all who want and need them. Supporters of this argument call for more funds for research in human reproduction and contraceptive technology, and for a more rational service delivery system.



Voluntary fertility control is perceived by many as the ‘ideal’ method of population control.

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- Note: References 54-84 were taken, almost verbatim, from the excellent review of the literature prepared by Bernard Berelson ("Beyond Family Planning," *Studies in Family Planning*, The Population Council, No. 38, February, 1969).

Credits

p. i, viii: drawings by Robert Osborn, *Mankind May Never Make It*, New York Graphic Society Ltd.; p. v: *New York Daily News*, U.P.I.; p. xiii: Bernard Cole, International Planned Parenthood Federation.