

Population Problem: In Search of a Solution

The time has come to face the population problem forthrightly and with major emphasis on motivation.

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There's little we can do about erroneous teachings, but do the taxpayers have to subsidize them?—NICHOLAS VON HOFFMAN

Misgivings are to be silenced. Rewards will come later. I Ching: The Book of Changes

No problem commands more attention in the world of discourse than the population problem. The solution consists in halting population growth promptly. Yet man's efforts to accomplish this are remindful of the efforts of an acrobat who bounds up and down on a trampoline in the vain hope that eventually a rebound will carry him up to the top of the Empire State Building.

Why has a solution not been forthcoming? The answer is very simple. Forgotten is the fact that positive repressants will halt population growth in a pressure-ridden world if preventive measures are not taken in time to preserve this world's potential for comfort. No society really wills a solution. A solution will nowhere be found until it is willed, Panglossian voices are stilled, and whatever needs to be done is done.

The Problem

The population problem flows from the finiteness of the world in which man is multiplying. Excesses may assume two forms. No more growth may be indicated because a country's existing stock of population may be large enough. Or the rate of flow of additions to it may be too large even though the stock is of less than opti-

mum size. Growth of components of man's average standard of life is limited by the growth of elements entering into each component, above all by those elements whose supply increases least rapidly. Of these elements, the food supply is only one, and not always as critical as Malthus assumed 171 years ago. Man's mobility is very much greater, however, with the result that consciousness of density is correspondingly greater.

Even Malthus's fears may at last be irremediably confirmed. Within little more than a century the world's population may have grown abreast of the world's food supply of that time, even if the latter should grow eightfold and near to the attainable maximum. So great an increase in the world food supply, while feasible under one-world conditions, is unlikely in a hostility-ridden divided world; it presupposes a doubling of world acreage under cultivation and a quadrupling of average yield per acre. A population octuples in just over 105 years, if it grows 2 percent per year; in about 140 years, if it grows 1.5 percent per year.

The rate of population growth has accelerated over the past three centuries. Of most concern is the acceleration in the present century. By the 1950's the world rate of population growth was about $3\frac{1}{3}$ times the 0.53 percent per year experienced in 1900–10. The rate is expected to be slightly higher in 1960–90; thereafter it may decline slightly.

The rate of population growth has progressed differently in the underdeveloped than in the developed world. In 1900–10 the annual rate in the developed world was 0.87 percent, nearly $2\frac{1}{2}$ times the 0.36 percent experienced

in the underdeveloped world. By the close of this century the rate in the underdeveloped world will be double that in the developed world. The latter, usually responsive to the impact of war or economic depression, is expected to approximate 1 percent in 1960–2000, a rate about one-seventh above the 1900–10 level. Meanwhile, in the underdeveloped world, the annual rate, only 0.36 percent per year in 1900–10, is expected to average slightly over 2 percent (1).

It is not surprising, therefore, that population threatens to overtake the food supply as well as other slowly growing components of the budget of life. Suppose the current world food supply is increased eightfold; even then, should world population continue to grow at a rate falling within the range of rates projected by the United Nations Secretariat to the year 2000—1.5 to 2.2 percent—it also would octuple by the latter part of the next century or soon thereafter.

Population would continue to grow for some time even after the *true rate* of increase had descended to zero, because its age composition must become transformed into that associated with the fertility and mortality patterns destined to produce balance between births and deaths. In the United States, for example, an increase of 30 to 50 percent might still take place after net reproduction had settled to unity (2). Higher percentages might be found in some countries.

The dangers of population growth are not confined to the underdeveloped world. In the United States, for example, what Washington rhetors promised would be a "Great Society," could become a "Eudaemonically Puny Society." The population of the continental United States will number 300 million or more by the close of this century. Should the American population continue to grow about 1 percent per year, it would number one billion early in the 21st century. Of these, 80 to 90 percent would be situated in cities, many of them elements of crowded and continuous "metropolitan" areas. Land of *all* sorts would be down to 2 acres (0.81 hectare) or less per person. Much of it would not be very accessible, and little of it would be suited to supply the amenities of finite nature, demand for which is rising with the rapid growth of *discretionary* time and income per capita.

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Social Response

The degree to which population growth is controlled, given a stable mortality pattern, depends upon the means of control available and the degree of pressure members of a population are under to employ these means. Up to now, few administrators or scholars have given much attention to the pressure or motivational aspect of population growth; among the exceptions are Stephen Enke and Leonard Bower (3). Moralists, of course, have always indulged in what journalists call "jaw-bone control," urging the fecund either to reproduce, or to refrain from reproduction, for the good of state, cult, or private situation. Some technologists and publicists for money-hungry Mission Controls put forward as solutions for many of man's problems (among them the control and feeding of his numbers) the complicated gadgetry and superb organization which has put men on the moon. Septuagenarian ecclesiastical celibates, on the contrary, are still content to rule effective solutions off limits.

It is true, of course, that the population problem is of relatively recent vintage. The need to regulate fertility hardly existed before the 19th century, so high was mortality. In the Middle Ages, and perhaps at other times, young people were often advised not to marry until they could support children in keeping with their own station in life. Voluntary and involuntary celibacy also served to curb fertility in Western Europe more than in Asia. In the 19th century, long before modern methods of control had been developed, general fertility was quite effectively regulated, in Ireland by deferment of marriage and nonmarriage, and in France by these and available contraceptive methods. One may say, therefore, that in these countries the General Will to regulate numbers was strong, well fortified by the universe of rewards and penalties operative in each country. In other Western countries fertility passed under partial control, greater in amount than had obtained earlier, but less than was to be found in Ireland and France. Outside the sphere of Western European civilization, however, fertility changed very little because it was counterbalanced, as a rule, by unchanging high mortality.

The need for greater population control was not considered acute until the

present century, particularly after the 1930's, when the decline in mortality accelerated in various underdeveloped countries. With little or no decline in fertility, the decline in mortality more than tripled the annual rate of population growth between the first and the sixth decade of the present century. Meanwhile, the increment of population discharged into a finite world each decade rose from about 90 million in 1900-10 to about 482 million in 1950-60; it may approximate 942 million by the 1990's.

The recognition of the acute need to control numbers, together with the necessity of providing families with a means of limiting the number of children to three or four or less, stimulated research on the improvement of contraceptive methods. Intrauterine devices and the contraceptive pill were added to the methods in use, and some of the latter were improved. Even more satisfactory means are in the offing.

While effective research has been done on contraceptive means, little has been done on the motivation to make use of these means. Man seemingly has acted upon Samuel Johnson's dictum, "How small . . . that part which laws or kings can cause cure." Advocates of birth control (4) have counted on individual incentive and on private "conscience," oblivious of the fact that free rein is thus allowed to men without "conscience" whose number may be legion. Little account is taken of the fact that man lives in a universe of penalties and rewards and tends to pursue courses of action free of penalty and productive of reward. Even less account is taken of the fact, stressed by Hardin (5) and economists generally, that the birth of a child gives release to a stream of external effects, some adverse and costly, which are incident upon others than the parents. Indeed, in many countries, among them the United States, this incidence is accentuated by legislation and administrative practice. Hence much of the cost of producing children is shifted to others than the parents, with the result that reproduction is stimulated. Furthermore, in sanctionless "free-ride" societies such as our own, efforts to shift even more of the cost from responsible parents to others are quite powerful, supported as they are by ideology, strong organization, and an imperfect understanding of cost-shifting by its victims.

Failure?

In view of what has been said, it is unlikely that population growth will be halted, either in the developed or in the underdeveloped world. Optimistic reports come from those engaged in pressing for fertility control, though they have little effect, in view of the magnitude of the problem. One senses an *ex parte* aura about these reports. Nor does one find strong grounds for optimism in the fine reports of the Population Council or in recent world reviews of the state and extent of contraceptive practice (6).

There is little evidence of a General Will in any country to regulate numbers effectively. In no developed country has the so-called right to parenthood been transformed into a privilege to be earned before it may be exercised. In no developed country has effective response been made to the fact that poverty is associated with excessive family size. In no underdeveloped country has a government undertaken, or been allowed to undertake, a really effective fertility-control policy.

Failure is writ large in *Population Bulletin No. 7* of the United Nations, issued in 1965. The countries of the world, it was found, fell into two categories: the developed, with gross reproduction rates below 2 and averaging about 1.4; and the underdeveloped, with gross reproduction rates above 2 and averaging 2.6 or more. Around 1960 crude birth rates averaged 22 per 1000 inhabitants in the developed world and 41 to 42 per 1000 in the underdeveloped world. The world as a whole, with a crude birth rate of 35 to 36 per 1000, produced 105 to 110 million births, close to four-fifths of which took place in the underdeveloped world. Three decades from now, only about one-fourth of the world's population will live in the present developed world; in 1960, as in 1900, about one-third lived there.

The muted conclusion of the United Nations Secretariat is quite pessimistic. "The launching of new countries upon the transition from high to low fertility seems to have been temporarily halted; with a few possible exceptions, there is little sign of decided downward trends having begun in the remaining countries of high fertility" (7). Moreover, in some countries when fertility has declined, the decline has been at least partly offset by a decline in mortality much as

happened in 19th- and early 20th-century Europe. Of course, the impact of further declines in mortality is small after expectation of life at birth moves into the 70's.

Stabilization Proposals

Population growth can be halted, but it will not be halted until a General Will to halt it develops and becomes effectively institutionalized and supported by adequate sanctions. It is preferable, of course, that institutionalization assume the form of controlling mechanisms which are economic and fairly automatic in character and as free as possible of cumbersome administrative intervention.

A clear-cut target needs to be established. This would consist in, for example, an average number of living children per family sufficient to replace a stable population, given the prevailing mortality pattern and the population's marital composition. This average in most countries would fall within a range of from just over two to somewhat over three children per married couple. This average would aggregate into an annual number of births sufficient, in the longer run, to balance the number of deaths. In the shorter run, as noted earlier, births would continue to exceed deaths until the stable age composition associated with a zero rate of growth had been achieved. Of primary importance, however, is not statistical nicety but the establishment of a target number of births and living children, to be followed by such modification of the universe of rewards and penalties as proves necessary to assure realization of this target.

A distinction needs to be made between the number of births R required to replace a population and the excess E when the total number of births $T > R$ (or whatever is the number of births needed to assure the target rate of population growth). The cost of births R may be viewed as the overhead cost of replacing a population and therefore properly chargeable, at least in part, to the total community. It need not and should not be charged to the community entirely or even in major part, however, because the utility or satisfaction which parents expect to derive from their children is so great that they will bear much if not all of the cost of producing them. Halting population growth may then be crudely said to consist of preventing E through re-

ducing T to R —mainly by raising the cost of E to a level high enough to discourage births in excess of R when population replacement is the objective. The births included under E may be described as *demerit wants*, a penalizable category of wants that may, as Louis Gasper suggests in another connection, be treated as counterparts to *merit wants*, a normative category of wants whose satisfaction the state is likely to finance (8).

The halting process is somewhat more complicated, of course, than has been suggested. Reduction of fertility to a replacement level gradually produces a change in a population's age composition, and this in turn modifies the number of births until they move into long-run balance with deaths. Of major importance from an economic point of view, besides the slowing down of the rate of population growth, is the increase in the relative number of persons of productive age. For purposes of illustration consider the transformation of a stable female population described by Coale (9) and characterized initially by an expectation of life at birth of 70 years and a gross reproduction rate of 2.25, as in some underdeveloped countries. We should then have an annual growth rate of about 2.64 percent, with a population of which 3.05 percent would be aged 70 or more years, and 48.83 percent would be aged less than 20. Suppose now that the gross reproduction rate declines to 1.25 and the population again assumes stable form with a growth rate of about 0.55 percent. The percentage of the population aged 70 years or more rises to 8.13 while that of persons under 20 declines to 31.77. The percentage of the population of working age—20 to 69—rises from 48.12 to 60.1, signifying an increase in average potential productivity of about 25 percent and a decline of about 39 percent in the ratio of persons of dependent age to those of working age.

Roughly similar changes would take place in the male population component, corresponding to those of the female component, and together they would constitute the total population. Male life expectancy is lower than female life expectancy and male age composition differs slightly from female age composition (9).

Of primary concern here are the potential economic benefits associated with the decline in fertility. These are the increase in the ratio of persons of productive age to the total population,

the decline in the ratio of dependents to persons of productive age, and the virtual disappearance of increase in population pressure occasioned by population growth.

The transformation described, together with its beneficial effects, does not come about automatically, although it has been approximated in part in the developed world as a result of the long-run decline in natality. Even given general availability of cheap and effective means of contraception—a condition not present in perhaps two-thirds of the world—achievement and maintenance of the requisite gross reproduction rate would not result. There exists no socioeconomic mechanism adequate to bring this result about automatically, much as the price mechanism brings about balance between supply and demand. The existing universe of rewards and penalties is not currently constituted to eventuate in R births and no more. Nor is there disposition to alter the incidence of carrot and stick suchwise as to improve the net impact of current rewards and penalties. Indeed, this universe is being made more rather than less favorable to reproduction in many countries, among them the United States, with the result that forces making for poverty and deprivation are accentuated.

In the past, as noted earlier, reliance has been placed almost entirely upon "private conscience" despite the fact that the reproductive behavior of a considerable fraction of any population is little influenced by conscience. Herein lies the inadequacy of planned parenthood programs, admirable as they are and pathbreaking as they have been. There is need in addition for suitable motivation for the carrot and the stick.

Motivation to reproduction assumes a variety of forms, several of which are overriding except in marginal cases. Control of fertility may therefore be achieved through replacing these motives in part by functionally equivalent motives which do not result in reproduction. This may be done suchwise as merely to reduce average family size from current levels to levels compatible with stabilization of the population if that is the objective.

It is highly desirable, of course, that children not be penalized by policies intended to discourage reproduction. Such a policy could in effect penalize both innocent children and society insofar as it denied children their due share of opportunity to develop their potentials. A case in point might be

recourse to the imposition of taxes upon low-income parents with excessive numbers of children. As a result, means for the rearing and training of these children might be unduly reduced by such a tax.

Of the diverse motives for reproduction several have always been dominant. One is the expectation of filial affection throughout life and especially in old age. This need cannot, as a rule, be met adequately through collective arrangements designed to replace the services of children; but it can be met nicely so long as there are one or two children. The other and probably more important motive for reproduction in most countries is the parents' expectation of economic support in their old age at the hands of their children. This motive may not, of course, be so powerful any longer in advanced countries with pension and social security systems. It exists even there, however, since pecuniary provision for support in retirement years, even when well-planned, is apt to be eroded by modern governments which sometimes prove more inclined to unproductive expenditure (armament races, space and other potlatch, and war) and savings-eroding inflation than to maintenance of the purchasing power of retirement income.

A first step to the effective control of fertility in underdeveloped countries is the gradual introduction of a social security system for those over 65 years of age, for instance. Given this arrangement, potential parents will be less inclined to have a family in excess of replacement size in order to be reasonably assured of support in old age. For this system to work, however, its benefits must be limited to those with no more than x children when the value of x is in the neighborhood of the replacement number of births (some of which will be multiple) under existing mortality conditions. The system would need to be financed through something like proportional income taxation and to yield correspondingly variable retirement income. The system would have to be introduced gradually and initially limited to families with x or fewer children and susceptible of further increase. The social cost of this system would fall quite short of the cost of reproducing and rearing the additional children who would have been born had the system not existed, in part because support of the aged is an overhead societal cost, much of which will be borne by society in any event.

It is essential to the success of this

program that those under the social security system expect to be decidedly better off in their old age than they otherwise would have been. This requirement is easily met, however, as was indicated above in "Stabilization Proposals." Not only will the decline in natality release a large amount of resources formerly absorbed by population growth, but also the decline in the relative number of young persons of unproductive age is only partially offset by increase in the relative number of persons aged over 69, with the result that potential output per capita is significantly increased. For these reasons, together with the fact that savings per older person will be higher absolutely and in relation to his preretirement income, the situation of those under the social security program will be decidedly better than it otherwise would have been.

Under this social security system the deterrent to excessive reproduction in underdeveloped countries adopting it is the threat to families of not sharing in retirement benefits upon reaching age 65 if the number of living children should be excessive. This system can be made part of the fertility-regulating institutional structure of underdeveloped countries, most of which are without retirement systems. Such a system might also be grafted onto social security systems current in advanced countries.

This conditional social security arrangement may need to be supplemented or replaced in countries where it cannot be made effective. Such additional arrangement must meet three needs: (i) make potential parents aware at marriage of the probable aggregate cost of caring properly for two or three children; (ii) help assure adequate material support for children subsequently born to these parents; (iii) provide these parents with incentive not to exceed what is for them the target number of children. At the time of marriage a couple might be required to pay into a combination insurance and interest-bearing fund, designed to support surviving children in the event of the household-head's death, and otherwise to supplement the support of the couple's children in their more expensive teens. Should a couple remain childless or have fewer than the target number of children, all or some of the cumulating proceeds would be restored. Some time—say 20 years—after the birth of a couple's first child, they would be awarded a bonus if they had

not produced more than the target number of children. The bonus would amount to a partial reward for a couple's contribution to the collective cost of population replacement. The arrangement described may be modified to increase the number of births if it should fall below the replacement level, or below some other desired level, as may happen in the United States.

The joint incentive flowing from the prospect of a share in both retirement benefits under the social security system and the insurance-bonus arrangement should be sufficient to induce most families not to exceed the target number of live children. Moreover, should this joint incentive not prove powerful enough, it might be strengthened by increasing the financial advantages associated with compliance. Recourse to physical sanction (for example, sterilization) should not, therefore, prove necessary, even if social approval of its use were given with respect to physically or mentally submarginal individuals.

In what has gone before, no provision has been made for varying the distribution of the stipulated aggregate number of births and children among the families composing a population. Such a provision becomes necessary, however, in proportion as a society accepts the principle that parenthood is not a right but a *privilege* to be reserved to those financially and morally capable of meeting the responsibilities of parenthood. A considerable number of any nation's population is physically, mentally, or otherwise unfit to assume and support these responsibilities. This is especially true of modern urban societies, into whose economies very few submarginal persons are economically absorbable under modern governmental, trade-union, and related constraints. At the same time a considerable number of families are willing and able to rear four or five children. Hence arrangements need to be made for the distribution of responsibility for the aggregate desired number of births and children. While state agencies might accomplish such distribution, it would be preferable to use deferred incentives of the sort already described, and thus allow the incidence of costs and returns to govern interfamily distribution of births and children.

Compliance with postredistribution quotas or targets might be assured through adaptation of the social security and insurance fund arrangements

described earlier. This would maximize the degree of freedom of choice compatible with realization of the target. Participation in retirement benefits would be limited to those who did not exceed their reduced or enlarged quotas. Right to receipt of a bonus would be contingent upon an insuree's not exceeding his postdistribution quota. Required payment into the insurance fund would vary directly and proportionately with the number of children in the insuree's postdistribution quota. An arrangement of this sort would be preferable to the state's licensing the right to have one or more children and then distributing the licenses in some manner. This arrangement would call for sanctions against violation in much greater measure than the arrangements proposed above.

Conclusion

A dilemma arising from a conflict of freedoms confronts the inhabitants of most countries. In any one country, there is little advantage and much disadvantage to be had either from any population growth (most of Europe, Asia, parts of Africa, and the Western Hemisphere), or from a population growth at a rate, for instance, in excess of 0.5 to 1.0 percent. Growth at an excessive rate arises largely either from ignorance of effective means of birth control, or from current arrangements which permit much of the cost of excessive population growth to be shunted from parents with excessive numbers of children to nondiscretionary members of society, or from both—in sum, from *unrestricted freedom to procreate*. Exercise of this freedom thus conflicts with a variety of freedoms of the remainder of the population.

Solution of the population problem consists in reconciling exercise of this freedom to procreate with exercise of other freedoms—in equilibrating the two in such a way as to prevent continuation of disadvantageous population growth. Thus, the underlying problem is not novel, although the form which it assumes is novel. New also is the fact that continuation of undesirable population growth gives rise to irremediable evils, whereas continuation of most other disequilibria among freedoms gives rise mainly to evils which are

remediable. Cushioning of excessive population growth does, of course, reduce its *visible* costs, but at the expense of *less visible* resources—use which might otherwise contribute to the increase of average material income, leisure, access to amenities, and so on.

Reconciliation of the freedoms in conflict may be accomplished through administrative measures based on appropriate legislation and decrees. This approach is not to be recommended, however, except as a last resort. It is cumbersome. It could become another “brick” in an emerging police state. It generates antigovernmental response from persons affected, since they tend to believe themselves to be arbitrarily deprived of options from among which they should be free to choose. It violates the rule that, since a great deal of government necessarily consists either of administrative or police action, or both, additions should not be made to a government's total administrative and police load when alternative measures, especially economic measures, may be used to accomplish particular collective purposes. Avoidable administrative measures are particularly undesirable in present-day states, whether developed or underdeveloped, because competent bureaucrats are in very short supply and governments already undertake a great deal of activity which they are quite unfit to conduct efficiently.

It is extremely desirable that population growth be halted in most countries and slowed down in others. As yet, however, there exists no General Will to bring about these objectives. Furthermore, even if a General Will should develop, it might be weakened if recourse were left entirely to administrative and police measures. It is essential to reorient the composition of the universe of penalties and rewards in such a way as to induce men to replace in part the freedom to reproduce by other freedoms. Two arrangements have been outlined that are jointly utilizable and compatible with retention of a high degree of freedom of choice. They have not been described in detail, since detail would necessarily vary with country and situation.

The two arrangements proposed—arrangements which are susceptible of considerable improvement—entail as little interference as possible with individual freedom of choice. Emphasis is

placed upon the composition of the options available and to which individuals respond. The advantage of the proposed arrangements consists in the fact that payment for compliance is deferred until noncompliance is no longer possible. The incentive to limit family size appropriately thus is continually present so long as the wife is of reproductive age. Payment need not be repeated as under programs designed to encourage use of intrauterine devices. The ultimate payment can be made large enough, however, to encourage strong efforts at compliance. Furthermore, compliance in most instances is compatible with a family's having two or three children and therefore enjoying the utilities and advantages associated with having these children.

The arrangements proposed are designed to reduce the functional importance of more than two children in most instances. The weaknesses in these arrangements are three. First, among those whose discount of the future is very high, future monetary rewards may offer only limited incentive in the present when decisions respecting reproduction must be made. Second, confidence in the governmental apparatus of the state may be limited. It may be feared that when rewards come due 20 to 45 years hence, the state will refuse to pay or pay in full. A combination of this fear with a high discount rate could, therefore, greatly reduce the capacity of the joint incentives to diminish fertility. Finally, 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.

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