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Some Reflections on National Family Planning Programs*

IT is commonplace that there are many ways in which one could assess the I accomplishments of national family planning programs. A straightforward method would be to calculate the so-called "returns" from investments in these programs and compare them with the "costs". But the method one would use for, and the significance one would attach to the results of, any such exercise would partly depend upon whether logically meaningful and ethically acceptable justification can be found for public intervention in population matters. This reasoning leads to the following questions.

Suppose we admit that we do care about each other and our descendants. What can we then say about the justification for the introduction of national family planning programs ? What light does this caring tendency shed on the costs and benefits aspects of these programs, and in particular about the opportunity costs ? These questions receive attention in this paper.

I

As is ordinarily understood, national family planning programs involve the more or less deliberate efforts by governments to affect population growth by

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bringing family planning information, services, and supplies to the population. Such programs are still alive and well, despite the 1974 Bucharest slogan "Development is the best contraceptive of all" (see Watson and Lapham, 1975).

Now, if population control is the aim of the government, then, one may ask, why not go "beyond family planning" ? Everyone knows that population growth can be influenced by manipulating mortality, migration, or fertility. But any upward manipulation of mortality is morally repugnant, and deliberately tampering with migration is practically and politically difficult. Thus, by elimination, one comes to fertility. Unfortunately, there aren't too many things a government can do to manipulate fertility (Berelson, 1974).

"It can talk to its people, hoping that they would listen.

"It can bribe them to behave in the preferred fashion.

"It can force them to do what they are told, whether they like it or not.

"It can make life miserable or cozy and let the demographic chips fall where they may.

"OR it can simply go along with the people, helping them achieve what they want and escape from what they don't."

These options are not all equally attractive or equally efficient. Changing the living conditions is sure to have some impact on fertility, but the effect may be slow. Merely talking to people without any significant changes in the living conditions will produce little results. Forcing people not to have babies is a "no-no". Bribing is an expensive affair. In this way, one is led to identifying the most commonly adopted fertility control strategy, which involves helping people practise family limitation the way they want. According to this strategy, family planning information, services, and supplies are fully made available to all couples so that they need reproduce only if they choose. The philosophy behind this strategy is that there are too many unwanted births occurring everyday, and that if they are prevented, the run-away population is effectively arrested. There may be some validity to this position, depending upon what is meant by unwanted births.

From an economist's point of view, there is no such thing as unwanted births. For an economist, it is a truism that every economic agent is always

as well off as he or she can possibly be. So if a woman chooses to have a baby, it is because she feels that she would be better off with the baby than without it. For her, then, the baby is not unwanted; it is wanted. Since all women who give birth to infants in any year are supposed to be as well off as they can possibly be with their new babies than without them, the question arises whether the society at large is also likely to be better off with the coming of these babies. This is a special case of the all too familiar question of the conflict between the individual interests and the societal interests.

If individuals are left free to make their own choices, and if they are in pursuit only of their self interests, are they and their descendants necessarily doomed, as some of us seem to believe ? If you had asked Adam Smith this question, he would have given a negative answer. For, according to his principle of the "invisible hand", pursuit of private interests is not inconsistent with collective welfare maximization. A more modern version of this idea reads like this : "A decentralized perfectly competitive price mechanism will, under suitable technical conditions and the right tax-subsidy corrections, produce a Pareto-efficient allocation of resources." Mathematical economists have demonstrated that this theorem holds for the Walrasian world in which there is no uncertainty of any kind, not even with respect to the numbers and preferences of economic agents yet unborn. But would this hold in our non-Walrasian real world too-a world in which bad debts and bamboozlers abound and information is withheld and facts are often distorted ? Some of those who have searched for an answer to this question have expressed the belief that it would be useful to exploit the concept of altruism in this connection.

The manner in which a person's altruistic behavior finds its expression can be described in terms of the following hypotheses (Arrow, 1975, p. 17), which are not necessarily mutually exclusive or exhaustive.

(1) The welfare of each individual will depend both on his own satisfaction and on the satisfaction obtained by others.

(2) The welfare of each individual depends not only on the utilities of himself and others but also on his contributions to the utilities of others.

(3) Each individual is, in some ultimate sense, motivated by purely egotistic satisfaction deprived from the goods accruing to him, but there is an implicit

social contract such that each performs duties for the other in a way calculated to enhance the satisfaction of all.

The first hypothesis has been exploited occasionally by economists to explain charitable behaviour and the like. Of particular relevance in the present context is a suggestion put forward by Gary Beeker (1974).

By using the concept of "social income" (which stands for the sum of a person's money income and the monetary value to him of the relevant characteristics of others) and the idea that any individual's utility function depends on, among other things, relevant characteristics of other individuals, Beeker (1974) argues that, if all family members behave according to the principles of utility maximization and the like, the family would have worked out within it a system of transfers of resources so that fortunes and misfortunes of each member would be shared by each other member in the family. Under such an arrangement, the argument continues, it makes sense to regard the family as maximizing a single utility function, subject to constraints involving family variables (e.g., family income).

Let me now make the suggestion that we extend this notion to the country as a whole. To be more specific, let us imagine that each country is a big extended family. In this extended family, each person "cares" about each other. Each person derives satisfaction from each other's well being. In other words, alter's welfare enters ego's utility function. The consumption behavior of this extended family can then be analyzed by regarding the utility function of the head of the state as the utility function of the country.

Assume that the head has the utility function

$$UA = f(ZA, U_B, Z_B, \ldots) \qquad (1)$$

where Z_A, Z_B, . .. stand for vectors of commodities consumed by *A, B,* . . . and U_A, U_B, . • . stand for the welfare of *A, B,* . . .

Now the commodities that constitute the elements of $\mathbf{Z_A}$, Z_B, ... are to be attached with production functions. Normally, we expect to find that the output of any good *X* is dependent on the inputs of the various factors of production and nothing else. But it is possible that the amount of *X* which can be produced from a given vector of factors of production is affected by the out-

put of other goods, Y, W, ... Symbolically,

$$X = g(a_x;\ Y,\ a_y;\ W,\ a_w;\ \ldots) \qquad (2)$$

where a_y, ay,...are vectors of inputs and $X, Y,$...are outputs of X, Y. Many examples have been given

Many examples have been given in the literature showing how the production of one commodity Y may impose a cost or confer a benefit on the production of another commodity X : the contribution of apple-growing to the production of honey ; the improvement in climate and, hence, of agricultural production due to afforestation; the damage done to the fishing industry by pollution of waters from industrial waste; and so on.

In analyzing the consumption behavior of the head of state, it is assumed that the expression (1) is maximized subject to one set of constraints imposed by the production functions, such as (2), and to another set of constraints imposed by the limitations of resources available.

In theory, this framework is flexible enough to accommodate the fact that any person's utility function is an intertemporal one and that production and consumption of commodities such as perenthood, good health, etc., involve commitment of resources over a period of time. Also, it recognizes the possibility that the production of a given commodity may result in several byproducts which may impose a cost or confer a benefit on the production of another commodity. Existence of common overheads in the production of two or more commodities is not necessarily ruled out either.

In this imaginary world, there will be no inconsistency between what is best from the society's point of view and what is best from the individual's point of view. Both are the same.

When a new member is added to this society, a transfer of resources from other members to this new member becomes inevitable. Another way of saying the same thing is that the cost of an extra member to each of the existing members is the sacrifice the latter will have to make because of the addition of the new member. On the benefit side are two things : (1) The intrinsic satisfaction that the new member brings to the existing members (e.g., the satisfaction from becoming a parent, a grandparent, an uncle, and so on), and (2) the

stream of contributions the new member makes to the collective productivity. How to combine these two types of benefits in order to provide a single benefit score is an open question. For purposes of discussion, let us assume that a scoring procedure has been devised. Using this score, it is possible to distinguish between two types of new members:

(1) Those who confer more benefits than the cost they impose, and

(2) Those for whom this is not the case.

We shall call the latter unwanted children.

There is no reason to suspect that a prospective addition would appear as unwanted to some and otherwise to the rest. For the entire group is now viewed as an extended family, and each member has the welfare of all other members at heart. What is directly satisfying to one is at least indirectly satisfying to all others. So, if a new member is unwanted in the eyes of one, the same will be true in the eyes of others as well.

It should not be too difficult to demonstrate that the optimization rule mentioned earlier would call for doing whatever is necessary to prevent unwanted births, provided that the cost of the instrumental action involved in the process is justifiable.

II

This brings us the costs and benefits considerations of family planning programs. A good deal has been written on this subject recently. More often than not, the conclusion has been drawn that the net benefit conferred on the society by national family planning programs is indeed very large-about twice the per capita income for each birth averted.

When calculating costs and benefits related to family planning programs, it is invariably the case that the potential victims of the programs are treated differently from the humans already in existence. Thus, when calculating the cost-benefit balance that may be expected by averting a birth, the goods and services to be consumed by the child, if allowed to be born, enter the calculations, but the satisfaction that child gets from consuming those goods and services is ignored. All calculations are made by viewing this child as an

outsider. The question asked is: How much does it cost to shape him up and how much help can be expected of him to get things done around here? Because of the very nature of this question and because of the biological fact that human organisms are not born with a suit of clothes and a kit of tools, each individual is seen to start consuming much earlier (many years earlier) than they start producing. As a consequence, the net money value of this person, calculated as the discounted stream of production minus the discounted stream of consumption is invariably negative. The conclusion then becomes inescapable that the society would be better off if the individual in question were not allowed to come into existence.

It is not difficult to see that by the same logic one would conclude that the society would be better off by slaughtering the very old and eliminating the very young. For are not the very old parasites, consuming resources and producing nothing? Are not the very young a net liability to the society as are children yet to be born? Extend this logic, and you will soon conclude that all societies will be better off with no births at all! There is definitely something wrong somewhere in this logic. What is basically wrong is the viewing of children yet to be born as outsiders. They should be viewed as extensions of existing individuals. When calculating the streams of production associated with an individual, the production of children should form part of the calculations.

Another way of saying the same thing is this: When a baby is born, it becomes a party to a social contract. The contract says that the baby shall be provided with a certain amount of human capital. This is not to be supplied all at once. It is, in fact, to be built up over the lifetime of the person. The family, the community, and the society, all are involved in this process. There is another part to the contract. This says that each person shall contribute toward extending the life of the human capital created in that person beyond the lifetime of that person. This is to be done by producing children and contributing to their socialization and training. I help train my children; they in turn help train their children; and this goes on and on. By paying school taxes and the like, I help train my fellow persons' children too. My indebtedness to the society that becomes accumulated over the first several years of my life is repaid in instalments over time. This I do by producing my own children and contributing to their socialization and training as well as to that of other children.

The social contract just referred to, it must be emphasized, is an implicit

contract. Its enforcement is not through courts of law but through informal arrangements known as cultural institutions. Through these institutions, societies create and maintain a strong desire on the part of their members to "have a family", "become a parent", and so on.

No doubt, if these considerations are taken into account the cost-benefit analysis of family planning programs would become somewhat more tedious than it would otherwise. When these considerations are taken into account, it is not difficult to see that in a stationary society each person, on the average, pays back all of, and nothing more than, what he or she receives. In a growing society, each person, on the average, would be repaying more than what he or she receives. I do not think that if we view from this angle the so-called cost effectiveness of family planning programs it would appear to be as high as some have painted it to be. For it will no longer be true that each person's net value is invariably negative.

III

When we talk about the costs of any program, attention needs to be given to the opportunity costs elements which stem from the foregone opportunities that have to be sacrificed in spending scarce resources in the given program. One way of estimating the opportunity cost of national family planning programs is as follows.

Fix a target for fertility reduction, e.g., a reduction of the gross reproduction rate from 3.0 to 2.0 in 15 years. Translate this into a time profile of births to be prevented. Now compare two situations: one in which the fall in fertility occurs without any expenditure of domestic resources and one in which domestic resources are expended in order to bring about the needed prevention of births. Keeping everything else the same, compare the time profile of some welfare measure such as per capita income associated with these situations. This comparison provides a measure of opportunity cost of family planning programs. One exercise of this kind has been reported in a recent monograph by Ruprecht (1974). Some of his results are reproduced in Table 1. In this table, estimates of opportunity cost are presented under three different plausible pathways for the economy of the Philippines. Under each chosen pathway, time profiles of per capita income are shown for a situation in which the fertility reduction is achieved with no drain at all on domestic resources, and one

TABLE 1-EFFECT ON TIME PROFILES OF PER CAPITA INCOME OF RESOURCES SPENT ON FAMILY PLANNING INSTEAD OF CAPITAL FORMATION UNDER THREE DIFFERENT TYPES OF ECONOMIC DEVELOPMENT SIMULATED FOR THE PHILIPPINES

Year	Econ. Dev. Type I			Econ. Dev. Type II			Econ. Dev. Type III		
	"Zero cost"	"Full cost"	"Full" X 100 / "Zero"	"Zero cost"	"Full cost"	"Full" X 100 / "Zero"	"Zero cost"	"Full cost"	"Full" x 100 / "Zero"
1970	401.4	401.3	100.0	402.3	402.1	100.0	403.9	403.7	100.0
71	404.6	404.2	99.9	406.4	405.9	99.9	408.9	408.4	99.9
72	407.4	406.7	99.8	410.4	409.6	99.8	414.5	413.6	99.8
73	409.8	408.8	99.8	414.4	413.2	99.7	420.7	419.4	99.7
74	411.9	410.5	99.7	418.4	416.9	99.6	427.8	425.9	99.6
75	413.6	411.9	99.6	422.5	420.6	99.5	436.0	433.4	99.4
76	416.2	414.0	99.5	427.8	425.4	99.4	446.4	443.1	99.3
11	418.6	415.9	99.4	433.2	430.3	99.3	458.4	454.1	99.1
78	420.9	417.6	99.2	438.7	435.1	99.1	472.2	466.7	98.8
79	423.2	419.2	99.1	444.4	440.0	99.0	488.2	481.3	98.6
80	425.7	420.9	98.9	450.3	445.1	98.8	506.2	497.8	98.3

81	429.5	423.8	98.7	458.5	452.2	98.6	528.7	518.5	98.1
82	432.8	426.0	98.4	466.9	459.3	98.4	554.1	541.8	97.8
83	435.8	427.8	98.2	475.9	466.9	98.1	583.0	568.0	97.4
84	437.1	428.3	98.0	484.6	473.9	97.8	614.8	596.8	97.0

SE : [illegible]cht, T. K. (1975), Table 38, p. 196.

in which the full cost of the program is paid from domestic funds. The former is labeled the "zero-cost" approach and the latter the "full-cost" approach. The figures under the latter approach are expressed as percentages of the corresponding figures under the former. These percentages provide a measure of the opportunity cost of the specific family planning program proposed. These figures indicate that "the opportunity cost of diverting governmental funds from capital formation to family planning is reasonably moderate" (Ruprecht, 1974, p. 197).

The way of calculating opportunity cost of national family planning programs can be criticized from several angles. The model of the economy used in the projections may not satisfy all of us. Some of us may see it as too simple, some may see it as unrealistic, and so on. Then there is the question of how to translate the needed reduction in fertility into expenditure of resources. In this matter, some would opt to be stingy while some may be generous. When it comes to estimating the effect on fertility of a given expenditure on family planning, it is hard to provide a set of calculations that would satisfy everyone. I shall not comment any more on these matters. Instead I shall turn to one consideration that seldom gets its due recognition in discussions of this kind. This concerns a value position: Should we not give importance to the liabilities caused by economic growth? Remember that by economic development is usually meant economic growth in the Western style. Is this what the less developed countries should value most? Recently a few economists have, at the risk of becoming outcasts, begun to preach that the Western type economic growth is definitely against the interest of the human species as a whole. I wish to outline some of the thoughts of one such economist, Georgescu-Roegen (1975).

The way the Western societies have gone about developing economically involves quintessentially the continuous and irreversible transformation of low entropy into high entropy. To understand what is meant by entropy, consider burning a lump of coal. This produces some heat, some smoke, and some ashes. Together these products contain as much energy as there was in the lump of coal to begin with. But once the coal is burnt, the energy becomes so dissipated that it will be unavailable for further use, and the process cannot be reversed. Entropy is a measure of this dissipated energy.

All living organisms absorb low entropy and give out high entropy. The

Sufi is the ultimate source of low entropy for all species except man, who has learned also to exploit terrestrial stocks of low entropy, such as minerals and fossil fuel. If life feeds on low entropy and gives out high entropy, the same is true of economic process. The basic inputs of economic process are the solar flow of low entropy and the terrestrial stocks of minerals and fossil fuel. The outputs are high entropy in the form of pollution, dissipated matter, and heat.

From this point of view, mechanization of agriculture is bad, because this involves replacing the water buffalo and its manure (both the product of solar energy, which is almost a free good) with the tractor and chemical fertilizer (both derived from terrestrial sources of low entropy). Thus, what goes on in this process is a replacement of something that is abundant with something that is scarce. By so doing, it may be possible to allow a larger population to survive now at the expense of a greater reduction in the amount of future life.

Similar comments apply to building steel mills and manufacturing Cadillacs, to Green Revolution and the introduction of supersonic airplanes, to junking automobiles when they are three or four years old, to using detergents to get one's clothes whiter, and so on. All these activities reflect man's tendency to lead a fiery, exciting, and extravagant life now, even if it inevitably implies a substantial reduction in the amount of future life.

This line of reasoning leads one to the conclusion that, speaking on behalf of future generations, the so-called developmental investments are all bad investments, insofar as the aim is to duplicate the Western-type growth patterns. If investing resources in this kind of developmental effort is about to cause more harm than good, in the long run, then diverting resources to other programs is not a bad idea, provided that those programs are not likely to cause more harm than good. Family planning programs seem to belong to this latter category. From that point of view, the opportunity costs of family planning programs can be seen as opportunity benefits, a blessing in disguise.

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