THE USES OF DEMOGRAPHY IN DEVELOPMENT PLANNING

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Introduction

The role of social science in policymaking is in its infancy. While scholars have long been used as advisors by politicians and government administrators, it has been on an individual rather than an institutional basis. The one exception has been the important policy, and indeed political role, of economics over the last 2 or 3 decades. Training in economics is now deemed essential for many governmental positions, and the advisory/legitimating role of bodies such as the Council of Economic Advisors in the United States is an international phenomenon. But the most advanced application of economics in policymaking is in the field of development planning in Third World countries. While development planning does incorporate much of the unique political and social characteristics in each particular setting, it represents one of the few—perhaps the only—widespread policy applications of contemporary social science.

As development planning broadens its base to include more than traditional macroeconomic concerns, there is a growing awareness that other social sciences may provide useful contributions to a more holistic view of socioeconomic development. One such candidate for inclusion is demography, the study of population, its growth, distribution, and composition. The important links between economic development and population growth are the most obvious focus, but other demographic topics, such as urbanization and migration, the composition of the population by age and sex, and family formation, are also relevant to development objectives. In this essay, I review some of the prospects and problems of incorporating demography and demographic research into the process of development planning in Third World countries.

I suggest that there are two models of how demography might enter

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into the planning/policy framework. The first model, labeled "population planning," would stress the relevance of demographic theory and knowledge toward a few selected goals, the chief one being the reduction of fertility. An alternative model would claim that the greatest utility of demographic science lies in empirical population research which would not prescribe certain goals, but would measure progress along a variety of social and economic dimensions. While these two models are not completely mutually exclusive in practice, they do have quite different interpretations of the field of demography and its potential usefulness as a policy-relevant science. Before contrasting these two perspectives, I review the practice of development planning, with particular attention to the potential constraints that may affect the introduction of other social sciences, including demography, into the policy framework.

Development Planning

The Basic Model

The basic objective of development planning is to bring some degree of coordination (and therefore control) to the elements that play important roles in the process of development. In non-centrally planned economies (my focus here) there is an assumed autonomy of private market processes. This means that goals are set for the private sector (often stimulated by incentives such as taxes, trade regulations, and subsidies), but the central focus is the planning of public sector activities. This includes the expansion of educational, health, and extension services and the construction of physical infrastructure throughout the country.

A textbook introduction would begin the development planning process with the fixing of the key economic objective over the life of the plan, for example, the expected average annual economic growth rate. The next step is to fit together the pieces of the macroeconomic framework that are necessary to achieve this objective. The economy is broken down into sectors, and resources, such as capital, labor, raw materials, and technology, are estimated and projected for the period of the plan. Specific objectives and projects are planned for each sector, depending upon the limitations of resources and their probable contribution to the economy-wide targets. Because objectives always exceed available resources and the capacity of the government to implement projects and programs, the technical refinements of planning mechanics do not resolve all the judgments that have to be made. The planner (or political leader) is forced to decide among competing priorities and to judge the probabilities of organizational effectiveness.

Out of the planning process comes a written document that states broad objectives and outlines the major lines of strategy to achieve them. The development plan is actually implemented in a series of discrete but, it is hoped, integrated programs and projects by various public and

private agencies and enterprises. It should be remembered that careful preparation of a development plan does not necessarily guarantee its implementation. Administrative problems, political changes, and external events often modify the implementation of the original plan.

The Role of Theory and Empirical Research in Planning

In order to gain entry into the practice of development planning, demography (and other social sciences) must demonstrate a theoretical or empirical utility that is missing from the conventional framework. But the judges of the potential relevance of other social sciences will be development planners, who are almost exclusively trained in the discipline of economics. This is likely to be a handicap because of the relative roles of theory and empirical research that inform the thinking of most development planners.

Theory is the strong suit of the discipline of economics, as it is of all well-developed sciences. Students are introduced to the neoclassical economic paradigm of supply, demand, and general equilibrium through familiar examples of the workings of the economy. The expected relationships between wage rates and unemployment and between savings and investment are learned and internalized by all those who are trained in the discipline. The basic tenets of conventional economic theory are elaborated by systematic deductive reasoning from certain key assumptions about economic motives and behavior and then illustrated with complex econometric models of how the economic system works. The result is that students of economics, including most development planners, have a great faith in the application of economic theory for public policy. This heavy reliance upon the standard economic theory may have several drawbacks: (1) it leads to a certain reluctance to consider alternative approaches and questions, (2) it tends to neglect inductive empirical investigation, and (3) it sometimes leads to the generalization of inappropriate economic theory to particular situations. These are not completely independent issues, and their combined effect may be greater than each single handicap alone.

By viewing the world, or even the determinants of economic development, through the prism of neoclassical economic theory, many salient factors are neglected. The social organization of a society, including the links between town and country, between economic enterprises and families, and between owners and workers are rarely interpreted as anything more than patterns of behavior that embody the "economic rationalism" of the market. To the extent that such patterns diverge from the expected, they are labeled (traditional, premodern) but are not considered anomalies that require original research or theory. This narrow approach, which is typical of any mature discipline, avoids the problem of questioning the established orthodoxy of belief or the need to turn to alternative para-

digms.[1] For this simple reason, social scientists from other perspectives are at a disadvantage in entering the development-planning framework.

The role of empirical research in much of economics is somewhat different than in other social sciences, such as demography or sociology. On one hand, it is possible to characterize economics as the most advanced quantitative discipline. The technical sophistication of econometrics has few rivals from other social sciences. Moreover, the volume of empirical data used in economic analysis, such as in the construction of national accounts, input-output tables, or econometric modeling, is enormous. But the use of empirical data is usually constrained to few topics; the broad range of inductive empirical inquiry that is typical in demography or sociology is foreign to most economists, as are the techniques of survey research. It is my impression that most development planning tends to neglect empirical research on human resources and on socioeconomic conditions (and progress) of the population[2] (excepting the occasional nods to unemployment as a measure of labor underutilization).

Finally, there is the question of whether conventional economic theory (standard neoclassical economics with a few strands of Keynesian theory incorporated) is really applicable to the problems of socioeconomic development in Third World countries.[3] While there are questions even about its relevance to advanced capitalist countries—witness the confused and often contradictory response of economic policy advisors to the "stagflation" that emerged in the early 1970s—the problem is even more acute in less-developed countries. In such situations with relatively little empirical research on indigenous, possibly unique, socioeconomic institutions and problems, the applicability of conventional economic theory is often on very shaky ground. Of course, this does not mean that economic theory is an inappropriate guide for development planning, but only that detailed empirical research is required to test its relevance, and systematic empirical evaluation is required to measure the effectiveness of policies based upon it. This critical need for empirical research is precisely what is missing from the development-planning framework.

Thus, the greatest strength of economics—its strongly developed deductive theoretical framework—may actually be a blinder in the formu-

[1] This interpretation of the influences of a mature paradigm draws upon Thomas Kuhn, *The Structure of Scientific Revolutions*, 2d ed. (Chicago: University of Chicago Press, 1970).

[2] Lester Thurow charges that the advanced mathematics of econometrics "has shifted from being a tool for testing theories to being a tool for exhibiting theories. It becomes a descriptive language rather than a testing tool" in "Economics, 1977," *Daedalus* 106, no. 4 (Fall 1977): 79–94, esp. 83.

[3] For skeptical appraisals of the relevance of neoclassical theory to advanced economies, see Robert L. Heilbroner, "On the Limited 'Relevance' of Economics," in *Capitalism Today*, ed. Daniel Bell and Irving Kristol (New York: Basic Books, 1970), pp. 80–93; and John Kenneth Galbraith, *Economics and the Public Purpose* (Boston: Houghton Mifflin Co., 1973).

lation and application of development policy. The blinders in the development of policy occur by being unreceptive to other disciplinary approaches, by neglecting original empirical investigation, and by sometimes relying upon inappropriate economic theory. All of these factors present real obstacles to the introduction of demography into the development-planning framework.

Organizational Constraints

Development planning is institutionalized as part of the public sector bureaucracy, and this makes for quite a different set of structural influences on research than those encountered in a university setting. Perhaps most significant is the sensitivity to political issues and influence. While many elements of development planning are technical in nature, the choice of priorities for public policy is usually external to the planning process.

Another constraint is that government agencies are rarely designed for long-term research.[4] The transient nature of many of the staff in a government office, planning agencies included, is dictated by transfers, promotions, and study leaves. Thus, it is unlikely that a research question will be the focus of long-term inquiry. The short-term nature of the planning process is a corollary problem. The mechanics of plan construction, including data gathering, feasibility studies, projections, and drafting of the final document is a 6–12-month process. The intense pace of work during this period results in an amazing amount of output and accomplishment. But other priorities for the scarce talents of development planners and the urgency of deadlines preclude a long-term focus on research for planning purposes.

These pressures of work make it unlikely that new data are gathered or processed in the normal course of development planning. The long lag period between the planning of a census or survey and its availability plus the endemic problems in data processing make it difficult to consider alternative research strategies or questions. There is an almost natural tendency to do things as they were done before. This short-term focus and orientation of the development-planning process reinforces the reliance on economic theory and conventional wisdom at the expense of empirical research in the construction of a development plan.

The Case for Population Planning

Background

In traditional development planning, population factors were considered exogenous to the planning process. Specifically, this meant that popula-

[4] For an insightful discussion on this topic and the general dilemma of the appropriate institutional setting for policy research, see Amos Hawley, "Some Thoughts on Organizational Models for Population Policy Research," *Social Science Research on Population and Development* (New York: Ford Foundation, 1975), pp. 113–20.

tion projections were necessary for the projection of per capita growth rates, future labor force supply, and perhaps the demand for schooling, but there were no explicit links between population factors and economic change in the planning framework. There have been pressures for change in this narrow view of the relevance of population to development.

For the last 20 years or so, there has been a growing awareness that rapid population growth may have a dilatory effect upon socioeconomic development.[5] But because of opposition from religious circles and a general reluctance of political leaders to seek to influence reproductive goals or means, official support for reducing population growth was slow to develop. However, with the early initiatives of voluntary organizations such as the International Planned Parenthood Federation and philanthropic institutions such as the Ford Foundation and the Population Council, there was growing international support for family planning programs[6] throughout the world, especially in Third World countries where the problem was seen as most urgent.

By the late 1960s, the fledgling family planning movement had gained sufficient legitimacy to be widely adopted as a public sector program in many developing countries. In part, this was supported by substantial financial assistance from Western nations and the United Nations. The expressed aims of such programs varied, some stressing lowered fertility levels to aid development objectives, others emphasizing maternal and child health goals.

One might conclude that the population problem had been recognized and a programmatic strategy—family planning programs—had been organized to deal with it, and there would be no need for additional policy debates over what to do. But concern about the population problem seemed to grow among many, especially as it appeared that fertility rates did not come tumbling down as some enthusiastic supporters had initially hoped. And even in cases where fertility rates were declining, skeptics would claim that the general forces of modernization were more important than the activities of family planning programs.

In fact, the family planning movement, as a response to the population growth problem in less developed countries, faced a number of critical questions from both within and outside the movement. Almost all of these questions were doubts that the modal family planning program was an adequate remedy to the population issue. Kingsley Davis argued that family planning programs can only provide services and information to those already interested in fertility limitation and do not address the basic problem of lowering reproductive motivation in developing coun-

[5] These ideas were presented in a classic fashion in Ansley Coale and Edgar Hoover, *Population Growth and Economic Development in Low-Income Countries* (Princeton, N.J.: Princeton University Press, 1958).

[6] For a review of the activities and involvement of these organizations, see pt. 1 of *Demography* 5, no. 2 (1968): 541–77.

tries.[7] In other words, there is also a need for policies that will change the social structure so as to encourage the postponement of marriage and the desire for smaller families. This concern has not escaped the attention of those in the family planning movement. In his classic article "Beyond Family Planning," Bernard Berelson, then president of the Population Council, surveyed and appraised the potential of alternative population policies other than family planning.[8] But, as Berelson pointed out, alternative population policies were not simple, certain, or costless. While most deserved further consideration, none were really optimal on a broad range of criteria.

A related concern was that most family planning programs did not appear to be very well organized or to have a high priority in comparison with other national objectives. Part of the problem encountered by family planning programs was their location in health ministries or organizations. This led to their administration by medical doctors and also to a subordinate status in a peripheral government agency. Not only may doctors be poor administrators (a hotly debated topic), but they are likely to see family planning as an addition to their primary responsibilities in medicine (where public health has low priority). Moreover, health services are seen as a social welfare expense by most governments and are unlikely to receive increased budgets during periods of general fiscal belt tightening.

Gradually, another direction in population policy began to emerge in the early 1970s that was labeled population planning. It was argued that the population issue was too diffuse to be dealt with by a single program. Instead, what was needed was a continuous input into policymaking so that the broad range of factors that influence population variables and the consequences of population trends could be studied and perhaps modified in the direction of desired social goals. Since development planning was the most strategically located policymaking program in the government sector and had a very broad mandate, it seemed likely the optimal location for population-planning inputs.

In a surprisingly short span of time, this new interest in the development and application of population planning has generated a great deal of interest and activity. There have been foundation-sponsored conferences on the topic, extensive reviews of the theoretical and empirical literature on population policy, and evaluations of the extent to which population planning has already been incorporated into development planning.[9] In

[7] Kingsley Davis, "Population Policy: Will Current Programs Succeed?" *Science* 158 (November 1967): 730–39.

[8] Bernard Berelson, "Beyond Family Planning," *Studies in Family Planning* 1, no. 38 (February 1969): 1–15.

[9] See Social Science Research on Population and Development; William P. McGreevey et al., *The Policy Relevance of Recent Social Research on Fertility* (Washington, D.C.: Interdisciplinary Communications Program, Smithsonian Institution, 1974); Ronald Ridker, ed., *Population and Development: The Search for Selective Interventions* (Baltimore: Johns Hopkins University Press, 1976); Warren Robinson, ed., *Population*

order to judge the impact of this potential marriage between development planning and population planning, it is necessary to examine closely the content of the population-planning agenda for day-to-day activities and long-range goals—particularly in relationship to the nature of development-planning practice.

The Content of Population Planning

In a review of the emerging literature on population and development planning, several basic themes appear. One is the persistent effort to show that rapid population growth has an adverse effect on a wide range of socioeconomic goals from the accumulation of savings to the distribution of health services. The objective, to alert planners and policymakers of the danger of population growth, is conveyed by logical argument, by numerical illustrations of demographic-socioeconomic relationships, and increasingly by complex computer simulation models of the economy. The other key theme in these writings on population planning is discussions of how policies might lower fertility by changing opportunities and incentives for childbearing. Both of these topics, the population problem and potential solutions to it, must be critically examined in relationship to the goals and process of development planning.

First, one might wonder why there is still concern about informing policymakers that population growth is a critical problem. To many this may seem like a dated issue, perhaps a legacy of the earlier controversial nature of the population topic. But the situation is more complicated than that. While there is still opposition to recognition of population as a central obstacle to development for political and religious reasons,[10] there are also legitimate academic doubts as well. Not only are there respected academic voices that heretically challenge the whole thesis[11] (population growth has adverse economic consequences), but even sympathetic scholars note the lack of convincing research on the topic. For example, John Caldwell states, "All one can say is that very high rates of population growth, such as are now found widely in the developing world, probably reduce rates of economic growth in the short run and most certainly endanger the world's political, social, and economic health in the

and Development Planning (New York: Population Council, 1975); V. H. Whitney, "Population Planning in Asia in the 1970s," *Population Studies* 30, no. 2 (July 1976): 337–52; and World Bank, *Population Policies and Economic Development* (Baltimore: Johns Hopkins University Press, 1974). For a comprehensive bibliography of the population-development interface, see Richard Bilsborrow, *Population in Development Planning* (Chapel Hill: University of North Carolina, Carolina Population Center, 1976).

[10] Note the critical reaction to the initial draft on a World Plan of Action at the Bucharest World Population Conference in 1974 (see W. Parker Mauldin, "A Report on Bucharest," *Studies in Family Planning* 5, no. 12 [December 1974]: 357–96).

[11] Colin Clark, *Population Growth and Land Use* (New York: St. Martins Press, 1967); and Julian L. Simon, *The Economics of Population Growth* (Princeton, N.J.: Princeton University Press, 1977).

long run. Nevertheless, most of us will be relieved when better analyses exist of the contemporary experience and when theories conform to that experience."[12]

Perhaps the single most powerful argument for the adverse effects of population growth on economic growth has been the dependency rate thesis. When fertility is relatively high, as in most developing countries, there will be a higher proportion of the population in the youngest age categories than would be the case if fertility was low. This means that there will probably be a higher ratio of persons in the dependent ages—nonworking—to those who are in the economically active age group. The problem, according to this argument, is that with a high ratio of dependents to workers, potential savings for investment are gobbled up by the great numbers who consume but do not produce. This dependency burden is a drag on domestic savings at the household level and also a dilemma at the macro level when the government must invest more heavily in schools and health facilities for the young rather than in more productive sectors.

This interpretation of the dependency rate has been an axiom of demographic wisdom for decades and was a powerful argument for the population-planning school. But recent research[13] has questioned this axiom on both theoretical and empirical grounds. Often the choice is not between consumption and productive investment, but alternative forms of consumption. A family with fewer children may not invest any disposable surplus (especially in contexts where investment opportunities are limited) but rather tend to consume more per capita. Similarly, governmental budgets for education and other age-graded services may be only weakly related to the numbers of people involved. It is just as probable that reduced expenditures for the dependent population (if they were to occur) would result in more spending for the military or in higher salaries for government officials. Moreover, the major empirical studies do not reveal strong associations between dependency levels and savings rates at the household or at the national level.[14]

Perhaps the most prominent of all efforts to demonstrate the effects

[12] John C. Caldwell, "The Containment of World Population Growth," *Studies in Family Planning* 6, no. 12 (December 1975): 429–36, esp. 431.

[13] See Alan C. Kelley, "Population Growth, the Dependency Rate, and the Pace of Economic Development," *Population Studies* 27, no. 3 (November 1973): 405–14; and "Savings, Demographic Change, and Economic Development," *Economic Development and Cultural Change* 24, no. 4 (July 1976): 683–93; Richard Bilsborrow, "Fertility, Savings Rates, and Economic Development in Less Developed Countries," in *International Population Conference, Liege, 1973*, (Liege: International Union for the Scientific Study of Population, 1974), 1:445–58; and "Age Distribution and Savings Rates in Less Developed Countries," *Economic Development and Cultural Change* 28, no. 1 (October 1979): 23–45.

[14] One empirical study with the opposite conclusions was N. Leff, "Dependency Rates and Savings Rates," *American Economic Review*, vol. 59, no. 5 (December 1969): 886–96.

of population growth upon development goals has been in the large-scale simulation models of population and development interrelationships. The list of simulation models that have been developed in the last decade include the General Electric Company's TEMPO-I and TEMPO-II (pioneered by Stephen Enke); the University of Illinois's Population Dynamics Group model PDG/PLATO, the International Labor Organization's BACHUE-1 and BACHUE-2, and the U.S. Bureau of the Census's Long Range Planning Models, LRPM1, LRPM2, and LRPM3. While the developers of these models claim that they are invaluable tools in evaluating the consequences of alternative levels of population growth on developmental goals, critics[15] are skeptical of their utility for development planning. By the basic assumptions and formulas that are built into the models, the results of a negative effect of population growth on economic growth are predetermined. While this is true by definition if everything is held constant, this is rarely the case. Arthur and McNicoll[16] argue that the mathematical complexity of these simulation models may actually blind the policymaker to consider alternative strategies. With one or two assumptions driving the model, all other factors appear to be of minimal importance. However, most policy choices of kind and degree are rarely built into the parameters and relationships of these large-scale simulation models.

Of course, the lack of conclusive evidence that rapid population growth has a strong negative effect upon socioeconomic development is open to a variety of interpretations. To many scholars, it remains a strong hypothesis that requires more empirical study. For the policymaker and the population planner in development planning it is important to realize that lowering population growth rates will probably aid the development process, but is only one of a number of factors that *may* be critical. The same sort of reasoning can be applied to any other policy issue in developmental planning, such as education, health, etc. But it should give the proponent of population planning some cause to be careful not to oversell the scientific base, for the backlash of skeptics may be worse than the moderate enthusiasm that is currently the case.

The other element of population planning is the enactment of policies that will reduce population growth. Some general policies for lowering fertility levels can be supported by research findings, especially the expansion of educational and employment opportunities (outside the home)

[15] Allen C. Kelley, "The Role of Population in Models of Economics Growth," *American Economic Review* 64, no. 2 (May 1974): 39–44; Brian W. Arthur and Geoffrey McNicoll, "Large Scale Simulation Models in Population and Development: What Uses to Planners?" *Population and Development Review* 1, no. 2 (November 1975): 251–66.

[16] Arthur and McNicoll. For a response to this critical evaluation of simulation models, see Gerry B. Rodgers, Rene Wery, and Michael J. D. Hopkins, "The Myth of the Cavern Revisited: Are Large Scale Behavioral Models Useful?" *Population and Development Review* 2, nos. 3–4 (September/December 1976): 395–409.

for women. These two variables, female education and employment, have the strongest negative associations with fertility in a wide variety of empirical studies in less developed countries.[17] But those seeking specific policy guidance on how much fertility reduction will be achieved by certain amounts and types of public investment will likely be disappointed. Recent surveys of the policy implications of the theoretical and empirical knowledge have been rather pessimistic.[18] The nub of the problem of the policy relevance of current knowledge is summed up by Bernard Berelson: "The operational thresholds are not known in the sense that given values of a threshold can confidently be said to lead to specified magnitudes of fertility reduction in a specified period of time; indeed, there is even debate as to whether thresholds exist in any sense useful to policy or accessible to empirical demonstration."[19]

From these assessments, one must be somewhat skeptical that the science of population planning is far enough advanced to provide specific guidance in the manipulation of social structure to reduce fertility levels —at least in the terms of cost-benefit ratios that economists use to estimate the feasibility of specific projects.

One of the most widely discussed alternatives to family planning has been the introduction of governmental incentives or disincentives for higher fertility.[20] The idea has been around since the early 1960s, at least, but has become a more credible policy alternative with actual applications in Taiwan[21] and Singapore.[22] The idea is to generate "demand" for family planning services by economically rewarding couples who are effective in planning small families (or penalizing those who want large numbers of children or are ineffective family planners). It is doubtful that these programs will have more than a minor effect upon fertility, but I am more concerned about the likely regressive nature of such redistributive programs. To the extent that population-planning programs contribute (or appear to contribute) to a widening of the considerable economic gap in developing countries, they will certainly cease to be thought of as part of

[17] For an excellent overview, see Karen Mason, *Social and Economic Correlates of Family Fertility: A Survey of Evidence* (Research Triangle Park, N.C.: Research Triangle Institute, 1971).

[18] Thomas Burch, "Theories of Fertility as Guides to Population Policy," *Social Forces* 54, no. 1 (September 1975): 126–38; and McGreevey et al.

[19] Bernard Berelson, "Social Science Research on Population: A Review," *Population and Development Review* 2, no. 2 (June 1976): 219–66, esp. 230.

[20] See Ronald G. Ridker and Robert J. Muscat, "Incentives for Family Welfare and Fertility Reduction: An Illustration for Malaysia," *Studies in Family Planning* 4, no. 1 (January 1973): 1–11; and Robert J. Muscat, "Stimulating Demand for Family Planning," in *Social Science Research on Population and Development* (n. 4 above), pp. 313–26.

[21] C. M. Wang and S. Y. Chen, "Evaluation of the First Year of the Educational Savings Program in Taiwan," *Studies in Family Planning* 4, no. 7 (July 1973): 157–61.

[22] Wan Fook Kee and Margaret Low, "Singapore," *Studies in Family Planning* 5, no. 5 (May 1974): 163–65; Peter S. J. Chen and James T. Fawcett, eds., *Public Policy and Population Change in Singapore* (New York: Population Council, 1979).

an effort at progressive social change. This seems to be a very questionable direction to take at a time when there is considerable debate over the presumed effectiveness of slower population growth on developmental objectives.

It should be noted that with the increased attention on alternative policies of population planning, there is growing evidence that voluntary family planning programs do have significant effects on reducing fertility, independent of socioeconomic development.[23] In fact, Caldwell claims that energetic and innovative family planning programs have not really been tried in most countries and that other policies which may be coercive should be postponed until it is shown that family planning programs do not work.[24]

From this brief survey of the policy relevance of demographic research, there does not seem to be an extremely strong case for the introduction of population planning (as an advanced policy science) into the development-planning framework. There seem to be weaknesses in arguing the case for population growth as a central problem of developing countries and even greater difficulties in providing specific advice to development planners who desire to reduce fertility within the scope of programs and projects of the normal development plan. However, there may be alternative uses of demography as an empirical science in the development-planning process.

An Alternative Model: Applied Demographic Research

As discussed earlier, one of the weaknesses of conventional economic planning was its exclusive reliance on neoclassical economic theory and general neglect of original empirical research. The input of population planning, as described above, would simply enlarge these weaknesses to new substantive areas. While population theory in terms of the causes and consequences of fertility may be useful in some cases, it simply complements the heavy reliance on questionable theory in development planning.

An alternative model of the uses of demography in development planning would be a primary focus on the empirical bases of population research. In contrast with economics, most research in demography has been of an inductive variety, almost always empirical and quantitative. There are highly theoretical branches of demography, such as the stable population theory and the general theory of the demographic transition, but few empirical studies in demography are constrained by the heavy baggage of deductive theory. In fact, the common criticism of most demographic research is that it is merely descriptive of empirical reality or a set of empirical generalizations without sufficient theory to explain

[23] Ronald Freedman and Bernard Berelson, "The Record of Family Planning Programs," *Studies in Family Planning* 7, no. 1 (January 1976): 1–40; and W. Parker Mauldin and Bernard Berelson, "Conditions of Fertility Decline," *Studies in Family Planning* 9, no. 5 (May 1978): 89–148.

[24] Caldwell.

the bases of its empirical observations. While such criticism may not be entirely justified, demography does have a quite different approach to inquiry about social and economic phenomena than that in economics. And it may offer a significant contribution to the workings of development planning—not only because of its strong empirical focus which would fill a void in usual planning processes, but also because much demographic research would be relevant to developmental issues that are often ignored in conventional economic theory. I will illustrate these ideas with a brief overview of the content of typical demographic research and how this may relate to current developmental objectives.

Examples of Demographic Research

The training of demographers emphasizes the gathering, analysis, and interpretation of empirical data of human populations. Formerly, tradition pointed to census and vital statistics as the primary sources of data for demographic research, and cross tabulations as the typical technique of analysis. Limited as these sources and methods were, the prodigious volume of published research on fertility, mortality, migration, urbanization, and socioeconomic differentiation has largely informed our contemporary knowledge of these topics for all of the social sciences. But in the last decade or two, the increasing availability of sample survey data and the spread of sophisticated multivariate statistical models has widened the horizons of demographic research considerably. On such varied topics as social stratification, racial inequality, and women's labor force activities, the research of demographers has been at the frontier's edge of scholarship.

Two general patterns of demographic inquiry may be especially applicable to development-planning objectives, the study of social change and the study of inequality. Because of the natural occurrence of time-series data on population topics (censuses, vital statistics, surveys) a frequent demographic research question is to ask what differences have occurred over time. This not only involves a general measurement of change—in urbanization, migration, or fertility—but also an intense focus on the comparability of time-series data and an examination of the components of change. For instance, in a study of change in urbanization during an intercensal interval, it is important to consider first the possibility that the measured change is an artifact of differences in the two data sources. A great deal of attention is focused on potential problems of comparability, including definition and measurement. Next the inquiry would consider the possible components of population redistribution, namely, rural to urban migration, natural increase, and the shifting of towns across size-class boundaries. While such a study of trends in urbanization may not provide a complete account of the social and economic forces at work or result in a general theory, it does provide a close reading of the basic empirical patterns of social change. A similar style of research underpins considerable demographic research on the

processes of change in population growth, ethnic assimilation, educational expansion, and other socioeconomic topics for which data are frequently available.

The study of inequality between population subgroups is also endemic in demographic research. The common pattern is to investigate differentials between social or economic groups and then to explore the components of such differentials. For instance, a typical study would examine educational opportunities (indexed by achievement or enrollment) between those in rural or urban areas, or between ethnic and racial groups. Another example would be the study of morbidity or mortality across economic classes of the population. In such studies, the research will usually consider the possibility that such differences (inequality) are due to differential population composition (age and sex). For instance, mortality will be higher in populations with an older age structure, and the reported differences may have little to do with access to health services or other determinants of health.

Relevance of Demographic Research to Development Planning

How do the above characteristics of demographic research relate to the nature of development-planning activities? One obvious contribution would be the measurement and analysis of population variables. This would clearly fill a void in both the analytical skills of the development-planning agency staff and in the available knowledge on the state of society. But even more than this, I think the substantive content of demographic research will help to assess the problems and progress of developmental programs. The standard objectives of economic planning most often relate to macrotargets such as economic growth, or alternatively to physical projects such as roads, harbors, irrigation facilities, etc. The impact of these measures of output on the ultimate objectives of development—an improvement in human welfare—are indirect. However, the substantive focus of demographic research often directly taps human resources and welfare criteria, such as economic status, educational achievement, health conditions (mortality, morbidity), household and family living arrangements, and possession of consumption goods (in a housing census or specialized surveys). And with the typical demographic analyses of social change and inequality, it is possible to address directly the key development questions, How much progress has been made? and How equitably shared are improvements in overall social welfare (economic growth)?

One direction of such applications of demographic analysis is in the use of social indicators. By making a direct analogue to economic indicators, there is growing practice of monitoring social variables such as income trends, urbanization levels, and access to educational opportunities. Demographic data and analysis have played a significant role in the development of social indicators. But the contribution of demographic

research extends beyond providing key indicators of social change and equality.

One such application might be in the evaluation of the impact of programs and projects. Programs such as land reform or educational expansion are usually evaluated by the size of budgets or by the numbers of people served. But a more thorough evaluation might measure changes in the proportion of the eligible population served by such programs. Since the numbers of landless people and school-age population are subject to change by demographic (and other) processes, the topic requires a more complex analysis, but one that is fairly straightforward in demographic research. Similarly health projects, job creation efforts, and rural development programs could be evaluated by examining the socioeconomic characteristics of the population before, during, and after the initiation of a project. There are numerous methodological problems inherent in such exercises, most notably the effects of exogenous social change, but the basic idea is a feasible one.

Discussion

One image of policy research is the situation where experts inform political leaders of the optimal strategies to achieve certain goals. Such an orientation presumes that scientific knowledge, either theoretical or empirical, provides an understanding of how the world works and how selective interventions might influence the process. I think that economic theory may offer some guidance along these lines, but it is often stretched far beyond what is justified, especially in development planning. While demographic patterns of growth and distribution are intimately interwoven with developmental objectives, population planning—and the theory implicit in it—may not add a great deal of additional strength to the enterprise. While the need may be great, the assumptions of "expertise" rest on a rather shaky foundation.

On the other hand, applied demographic research as opposed to population planning seems to be a more appropriate contribution to the policy-planning process. In part, the greater value of demographic research is to promise less. The role is not one where experts provide concrete direction or policies to the policymaker—these are probably to be decided on political or external criteria. But rather the role of experts is a more modest one where salient information (data) on the real world is collected and interpreted in terms of national priorities. This would include evaluations of the effectiveness of current policies—in both economic and human welfare criteria, and advice on alternative strategies and policies. These would include both traditional macroeconomic objectives and a variety of other dimensions of socioeconomic welfare. The potential utility of demography—as applied to empirical research—seems to be far greater than the population-planning model for development planning in Third World countries.