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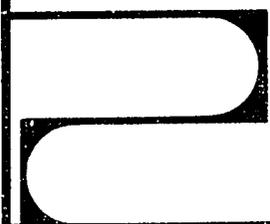
# Center for Policy Studies

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## Working Papers

Research in Population and Development: Issues and Comment

Paul Demeny



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### Abstract

This paper is composed of three commentaries on research issues in the field of population and development. The commentaries were written for and delivered at three conferences, the author serving in the role of invited discussant. The topics addressed by the conference papers discussed are diverse--the role of demographic variables in development plans; disciplinary perspectives on economic demography in the 1980s; and the problem of preparing demographic estimates for contemporary developing countries. Correspondingly, the discussion touches upon a variety of issues, ranging from the basic needs development strategy to problems of estimating fertility and mortality from limited data sources. A unifying theme that runs through each of the discussions is the question of how to allocate research efforts between conflicting claims for researchers' attention. This issue is addressed both as a question of relative emphasis on the various aspects of research topics pursued by individual researchers and as a problem of allocating effort within the field of economic demography as a whole. The responsibility of the individual researcher for approaching scientific problems with due sensitivity to their social significance emerges in both perspectives. The second perspective, in addition, highlights the importance of securing an institutional framework for research that is hospitable to creative individual effort.

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## INTRODUCTION

This working paper is composed of three commentaries on research issues in the field of population and development. The commentaries were written for and delivered at three conferences, the author serving in the role of invited discussant. The most recent of these occasions was the Annual Meeting of the Population Association of America that took place in Philadelphia in April 1979; the two earlier presentations were made at conferences of the International Union for the Scientific Study of Population (IUSSP) in Mexico City (August 1977) and in Helsinki (August 1978).

The topics addressed by the conference papers discussed are diverse: the role of demographic variables in development plans; disciplinary perspectives on economic demography in the 1980s; and the problem of preparing demographic estimates for contemporary developing countries. Correspondingly, the discussion touches upon a variety of issues, ranging from the basic needs development strategy to problems of estimating fertility and mortality from limited data. A unifying theme that runs through each of the discussions is the question of how to allocate research efforts between conflicting claims for researchers' attention. Two perspectives are explored in addressing this issue. The first is allocation of effort at the individual researcher's level: does the relative emphasis accorded by the investigator to various aspects of a chosen research topic reflect their relative importance? In the second perspective, the focus is on allocation of effort within the field of economic demography as a whole. Both views highlight the responsibility of the individual researcher for approaching scientific problems with due sensitivity to their social significance. The second perspective, in addition, calls attention to the importance of securing an institutional framework for research that is hospitable to creative individual effort.

## DEMOGRAPHIC VARIABLES IN DEVELOPMENT POLICIES AND PLANS\*

The subject matter we are presently addressing—the role of demographic variables in the formulation of development policies and plans—covers a distressingly wide territory. Its judicious division among three relatively brief papers\*\* must have presented a difficult task to Dr. Milos Macura, organizer of this session. The potential scope of our topic will be more readily appreciated if one substitutes the more old-fashioned notion of social and economic policy for the term of development planning—a substitution presumably consistent with the original intent of the designers of the program. If so interpreted, the focus of the session would encompass the twin questions of how demographic characteristics and their changes influence the design of public policy in social and economic matters and, in turn, how such policies are likely to affect demographic change. Since the answers to these questions differ greatly from country to country, depending on the particular configurations of the achieved levels of development and, even more importantly, on the nature of the sociopolitical arrangements within any given country, proper coverage of the subject would call for a comparative analysis using an explicit typology of developmental stages and political systems.

Such an ambition is conspicuously absent from these three papers. What we find instead is a country case study and two sector case studies: one on

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\*Discussion at the session on "The role of demographic variables in the formulation of development policies and plans," IUSSP International Population Conference, Mexico City, August 1977.

\*\*Jozef Pajestka and Kazimierz Dzienio, "Socio-demographic factors and premises conditioning development strategy—The case of Poland"; N. Alexandratos, L. Naiken, and Walter Schulte, "Demographic variables in sectorial policies: The case of agricultural development"; Kailas C. Doctor, "Demographic variables in sectorial policies: The case of labour and employment". These papers appear in International Population Conference, Mexico 1977 (Liège: IUSSP, 1977), Vol. 2, pp. 93-143.

agriculture and one on labor and employment. The sector papers have been prepared by authors affiliated with the appropriate United Nations specialized agencies: FAO and ILO, respectively. As to the type of political institutions, the emphasis is on the role of demographic variables in systems of central governmental planning. Such a narrowing of the focus is the result in part of the selection of Poland for the sole country case study, and in part, one presumes, of the natural institutional habits of the FAO- and ILO-based authors. Concerning levels of development, the coverage is slightly wider. Poland is, of course, a medium-income country at a relatively advanced stage of urbanization and industrialization and one that has built up a fairly elaborate system of welfare measures that respond to and shape demographic trends. In the sector papers, the level of development the authors have in mind is not explicitly stated, but their main focus is clearly on the poorest developing countries.

Having made these general comments on the focus and character of the analyses under discussion, I now turn to comments on the individual papers.

My chief complaint about the paper on Poland, by two economists associated with the Planning Commission on the Polish government, is its lack of historical perspective in examining Poland's demographic past and its reticence to peek into and speculate upon the foggy future. This lucid but largely descriptive paper is essentially confined to the period 1950 to 1975. The authors claim to discern an exceptional interaction of processes of socioeconomic progress and demographic change during the postwar decades, and buttress their claim by illustrating the evolution of vital rates during the last quarter-century. Thus, they note, the birth rate fell from its immediate postwar level of 28.6 per thousand to a 1966-70 low of 16.3, while the death rate fell from 10.9 to 7.7 per thousand. But such changes are less spectacular if compared with changes that took place in the earlier stages of Poland's

demographic transition--a transition that was already in a quite advanced stage by the eve of World War II. The birth rate in 1900 still stood at 44 per thousand; but it fell some 10 points, to 35.4, by 1913, and another 10 points, to 24.6, by 1938. The temporary postwar recovery of the birth rate reflected in the figures quoted by Pajestka and Dzienio was hardly surprising in view of the war's impact, including the drastic territorial dislocation experienced by Poland, and was, in any case, very much in line with developments elsewhere in Europe. So was the resumption of the downward fertility trend by the late 1950s. All in all, the evolution of Polish fertility very much fits the general European pattern; and within Poland, postwar developments in fertility change dovetail neatly with those of the first 40 years of the century. It is not at all clear that things would have turned out differently in the absence of the particular development strategy that was, in fact, pursued. Mutatis mutandis, the same comments could be made concerning changes in mortality, nuptiality, and age structure.

As to future development, the paper provides little guidance in suggesting what we can expect and to what extent such developments are likely to be linked to the particular mix of the demographically relevant measures that are part of Polish development policy. A recent projection of the Polish Central Statistical Office forecasts a population of 38.4 million in the year 2000--that is, a growth of around 17 percent over a period of 30 years. The calculation implies a rate of natural growth of less than 1/3 of 1 percent per year in the last decade of the century. Are such patterns of growth welcomed or merely accepted by Polish planners? What would be their reaction if growth suddenly accelerated or if it declined even further? Is the growing plethora of welfare measures that support the family and lessen the burdens of working mothers explainable, at least in part, by demographic concerns? Unfortunately, questions like these are not discussed or even posed.

A striking phenomenon of the postwar years in Poland, as in other European countries, was the increase in women's labor-force participation. The concept of labor-force participation eludes satisfactory definition in agriculture; hence the change is best illustrated by figures relating solely to the non-agricultural sector. By the early 1970s, the proportion of economically active women aged 25 to 49 was 80 percent--roughly double what it was two decades earlier. The authors single out the role of a seemingly temporary consideration in economic policy in bringing about this dramatic change, namely the need to mobilize manpower resources for accelerated accumulation and industrialization. But once those tasks are accomplished or recede in priority, backtracking is obviously difficult: the system becomes locked in a regime of high labor utilization in the organized wage sector--that is, as distinct from, and at the expense of, labor utilization in the informal household economy. With such high female labor-force participation rates, the expected family wage, to which households' aspirations for a general living standard and for specific consumption targets become geared, will tend to be permanently associated with the two-earner family. Short of fundamental institutional reform, most individuals cannot opt out of such a system without making an exceptionally large material sacrifice. Thus, families that elect to have children are likely to be financially squeezed. The likely influence of this phenomenon on fertility levels is fairly obvious. It would be interesting to know how far planners in Poland would be prepared to go in recommending policy measures capable of counteracting the implicit long-run downward fertility trend, but Pajestka and Dzienio do not consider that issue.

In contrast to the paper just discussed, the sector papers lack the concreteness and interest imparted by the examination of actual relationships embodied in a specific geographic, historical, and institutional setting. The papers could have amply compensated for such shortcomings had they attempted to

distill from the variety of planning and policymaking experience those issues in which demographic considerations are particularly salient, and had they proceeded to analyze at least some of these issues and to discuss alternative policy options for resolving them.

In the field covered by the agricultural sector paper, issues that could have been addressed include the problems of market and nonmarket exchanges between the agricultural and nonagricultural sectors, in particular the adequacy of and trends in the marketed agricultural surplus and the terms of trade between the two sectors; the capacity of the agricultural sector to absorb and/or release labor; tendencies in the agricultural sector to shift from traditional systems of mutual obligations toward formalized employer-employee relationships and the implications of this shift on landlessness, employment, and income distribution; the exodus of rural labor to urban areas in search of employment; the environmental and ecological implications of agricultural change, in particular the effects of expanding the cultivated areas to marginal lands; and institutional aspects of agricultural change, including issues of land reform, cooperative movements, local administrative organization, property rights, and inheritance arrangements. All of these issues, as well as others that could be singled out, have important demographic ramifications, both through the effect of demographic behavior on the structure of the underlying problems and through the strong influence of their particular resolution on demographic behavior. Admittedly, to develop any one of these separate yet interrelated themes satisfactorily would be a difficult task; but even an attempt in that direction would have been highly worthwhile. The offering we get, instead, is considerably less satisfying.

In the first part of the analysis, after a perfunctory and somewhat pointless taxonomy of demographic variables, we find ourselves in the dreamland of central agricultural planners, busy deciding what crops to grow where, when,

and with what technology and what combination of inputs, and selling the product to whom, at what prices, and for whose benefit. (One less than surprising proposition advanced concerning the last question is that the ultimate beneficiaries are "the people.") To help accomplish their admittedly difficult tasks, planners fortunately have at their disposal handy models that describe the agricultural sector as a system in which "the agricultural resources, technologies, market structures, institutional factors, motivation of producers and consumers, as well as government policies are brought together and inter-related in a manner reflecting real-world interdependence (supply-demand interaction for all commodities; supply interdependence among all commodities sharing the same limiting resources) leading to the production of given levels and patterns of agricultural output, consumption, prices, incomes, employment, etc." Two such modeling exercises are described, but not in sufficient detail to warrant discussion. Demographic factors enter them essentially exogenously and in a crudely aggregated fashion. Any conclusion the models might suggest concerning the role of demographic variables would seem to be trivial. The reader and presumably the learned planner-users of those models (one of which was constructed, we are told, because "a team of analysts charged with the task of preparing policy recommendations found it necessary to build a computerized framework of analysis in order to evaluate the effects of alternative policies on the decision criteria") will have difficulty remembering that the crucial decision-making level in agriculture is that of the individual farm where decentralized information and experience can alone be efficiently marshaled. Nor is it acknowledged that, from the perspective of the social interest, the institutional arrangements and cumulative effects of past policy interventions often grievously distort the signals that condition the production and the reproductive decisions of peasant cultivators, and that, plausibly, the task of policymakers is not to issue commands on what, where, and how to produce and

for whose benefit, but to create and sustain a legal-institutional framework in which the striving of individual households for their own betterment gets adequate scope.

The second part of the agricultural sector paper briefly and lucidly discusses the use of demographic variables in FAO country-perspective studies. Seventeen such country studies have been prepared since 1972. These studies represent a useful, if limited, exercise in macroanalysis. They consist of working out the implications of alternative hypotheses on the gross domestic product and its agricultural and nonagricultural component, in a 20-year perspective. Variables examined include aggregate trends of food demand, production targets and trade, and estimates of agricultural investment, employment, cropping patterns, and technology use. Demographic considerations are introduced by examining the sensitivity of such estimates to alternative patterns of population change. Posited relationships between population growth and GDP growth in some exercises confer a pseudo-endogenous status to that demographic variable.

The last section of the paper, which discusses the impact of agricultural development policies and programs on demographic variables, is potentially the most interesting. Knowing more about that subject could be of significant policy interest, helping to answer the questions of how to shape development policies and how to mix specific programs to achieve desired demographic outcomes. Unfortunately, this section is also the briefest: less than two pages long. The discussion points out how little we know about linkages between development policy and demographic behavior; thus, it reads more like a catalog for research to be conducted than a brief for policymakers or advisors. Nevertheless, the discussion soundly stresses that rising aspirations play a crucial role in influencing fertility change. Accordingly, it is suggested that an agricultural development strategy bringing widespread benefits to large

numbers of small farmers (a "unimodal" strategy) will accelerate the spread of family planning in rural areas. One suspects that the validity of this proposition depends more on the type of policy measures proposed--none of which is spelled out in the paper--than on their "unimodal" character. In any event, the authors remain wisely skeptical about the possibility of achieving fertility effects that are "automatic, prompt, or of sufficient magnitude." Hence, they conclude that "the need for family planning programmes would appear to remain". One can be in full sympathy with this conclusion yet find the logic of the conjunction tenuous. Family planning programs are helpful in translating a desired lower fertility into reality rather than in offering an alternative policy to "motivate" people.

I turn finally to comment on the third paper, whose ostensible objective is to examine the role of demographic variables in development policies with reference to the labor and employment sector. Actually, however, apart from a brief and rather narrowly conceived survey of relevant national experiences, the paper offers a careful and clear exposition of what appears to be the current ILO orthodoxy in these matters, along with a discussion of relevant ILO programs--in particular the research effort concerning employment-population relationships conducted under the World Employment Programme, and the large-scale development modeling efforts known under the name of BACHUE. No substantive results are discussed in any detail, but a number of research products originating from this branch of WEP are now available and can speak for themselves. It may be suggested here, however, that in estimating the potential policy usefulness of the BACHUE family of large-scale simulation models, the paper's comments are rather more optimistic than would seem to be warranted either by the models' achievements thus far or by their prospective promise.

The most interesting sections of the paper argue the relevance to population policy of ILO's emphasis on what is known as the basic needs approach to reducing poverty. We are given the now-familiar list of the failure of the earlier, allegedly only growth-oriented emphasis of development planning to solve the problem of poverty. But the indictment is perhaps a bit too categorical. Have there been no successes in the postwar development story? If there have been, and indeed a number of obvious examples come readily to mind, what were the reasons for success? More pertinently, a diagnosis of the causes of true failures—and their numbers are many—is missing. Yet, it is likely that the causes of many problems enumerated by the paper—excessive capital intensity, unemployment of overeducated urban youth, excessive migration from the countryside, worsening income distribution—can in most instances be readily located in some facet of misguided policy intervention: for instance, artificially maintained exchange rates; industrial wage policies reflecting narrow group interests; biases of the educational system as to content, structure, and distributional effects; fiscal transfers from rural to urban areas, in particular to the capital city; government-protected trading monopolies; subsidies to favored branches of industry; and so on. Given such a record, it is not at all clear what would prevent those holding governmental power from turning basic needs-oriented activities to their own advantage while contributing yet another set of distorted incentives and administrative burdens that hamper economic growth in so many developing countries.

The objection just made holds even if one can assume that a reasonable hierarchy of ends could be agreed upon, rather than imposed by fiat. But that assumption, in turn, becomes tenuous as the list of desiderata is extended. If a basic-needs approach would refocus the government's attention on areas that represent the provision of public goods more narrowly defined—protection of public safety, enforcement of the respect for law and for

contracts, extension of basic education and public-health services, and development of basic social infrastructure. Such a shift would of course be salutary. These areas are often badly neglected in many developing countries, in part because energies and resources are dissipated in fruitless and often counterproductive efforts to tackle a wider range of problems. A basic-needs strategy aimed at greatly improved performance in key governmental roles would have far-reaching beneficial effects on, among other areas, individual demographic behavior. But the ILO's interpretation of the strategy clearly goes far beyond such a narrow definition: it assumes that agreement on a detailed list of social and individual purposes and needs is feasible. This is a treacherous assumption. That men or voluntary associations of men can cooperate and engage in mutually advantageous exchange without approving of or indeed without knowing and caring about each other's particular goals was the first great discovery of modern economics. Whenever a social institutional framework for the pursuance of private needs is sustained, sufficient wealth is eventually generated to permit the creation of a safety net for those whose basic needs remain unsatisfied through voluntary exchange of products and services. Admirable humanitarian intentions notwithstanding, a reorganization of economic life with a central focus of production and distribution to satisfy a set list of basic needs would seem to be calculated to maximize conflict and would sooner or later lead to coercive social arrangements. The recent shift of population policies in that direction should be seen as a forewarning of the dangers of the basic-needs approach, brought to its logical conclusion.

## DISCIPLINARY PERSPECTIVES ON ECONOMIC DEMOGRAPHY\*

What will economic demographers, or demographers whose interest encompasses economic issues, concern themselves with in the 1980s? This is the question that was posed to the authors whose papers I will discuss today. We have been given three thoughtful and stimulating answers, approaching this matter from three disciplinary perspectives: economics, sociology, and demography.\*\*

As one would have predicted, the three answers differ greatly, reflecting not only differences of the disciplinary viewpoints, but also idiosyncracies of the particular viewer. Professor Simon has an elaborate and imaginative list of concerns for the 1980s. That he is an economist is unmistakable; but beyond that, one also discerns what may be the table of contents of his next book, with generous hints about the comparative lengths of the individual chapters. He claims, however, more general validity for this catalog of topics. The list, he says, is derived from reflection on the three main influences he feels will condition the allocation of effort in economic demography: the nature of the social problems to which researchers respond; developments in economic theory; and availability of, and demand for, new bodies of empirical data that represent the lifeblood of economic research.

Despite the sense of the special Simonian perceptions--for example, the notion that the main stimulus from economic theory will come from work on

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\*Discussion at the session on "Disciplinary perspectives on economic demography," IUSSP Conference on Economic and Demographic Change: Issues for the 1980's, Helsinki, August 1978.

\*\*Julian L. Simon, "Population Economics in the 1980s: What ought it to be?"; Lincoln H. Day, "Demographic concerns for the 1980s and the applicability of economic and sociological frames of reference to their analysis"; Wilhelm Fliieger, "Economic demography and the future of demography." These papers will appear in the Proceedings of the Helsinki Conference to be published under the auspices of IUSSP in 1979.

industrial organization and the economics of productivity (a notion buttressed by scholarly references ranging from Gustav Cassel to Franco Modigliani), Professor Simon's categories are comfortingly familiar. He describes future research activity stuffed in such time-honored boxes as determinants of fertility, mortality, and labor-force participation; consequences of population change on natural resource availability; production of new knowledge; and unemployment. Within population change, effects of migration, including international labor migration, and those of the brain drain receive special emphasis.

Professor Day organizes his list of the major research concerns for the 1980s under different but equally unsurprising labels. If we follow the path marked by his subtitles, we encounter in due order such commonplaces as fertility, marriage, and household formation, health and longevity, geographic mobility, and population size. The lively discussion under each of these titles is couched not in the form of declarative predictions in the manner of Professor Simon, but in the form of questions to be answered by researchers of the 1980s. The mode changes in the second part of the paper, where Professor Day discusses the relative merits of what he calls the "economic and the sociological frames of reference." From that comparison, the latter emerges as an unqualified victor. That was to be expected, Professor Day being a sociologist. The victory is Pyrrhic, however, as both economic and sociological frames of reference are found wanting in comparison with a third frame, which, somewhat jarringly, comes under the label of "behavioral drift." More about that drift later.

Professor Flieger in his short paper provides a discourse more narrowly focused, inasmuch as his discussion of concerns is limited by what he feels developing countries are likely to consider especially important in the 1980s. He puts greatest emphasis on studies of economic-demographic interrelations as

they bear on the interests of development planners and policymakers. Reassuringly, within that general concern, the topics singled out for special attention are such parochial subjects as better definition and measurement of labor-force concepts, improved categorization of households, and better social indicators to remedy the countless weaknesses of that perennial whipping boy, GNP. A special place of honor, however, is given to economic-demographic models, particularly to large-scale macro-simulation modeling capable of handling a large number of variables simultaneously. What such models at present cannot do, second-generation models are confidently expected to rectify. In line with UN orthodoxy, Flieger suggests that the adequacy of the treatment of the population sector in these models has to be "evaluated in terms of the degree of endogenization or exogenous treatment of the included population variables."

For those of you in the audience who have bravely resisted the behavioral drift that undoubtedly kept pulling you in the general direction of downtown Helsinki and who, continuing to resist that main drift, will attend this afternoon's plenary session on large-scale demographic-economic simulation models, my brief recitation of the research themes these three papers identify as prime concerns for the 1980s inevitably will invoke a sense of *déjà vu*. This, of course, is not at all surprising. Visions of our future activities tend to be cast in the dominant current concepts and paradigms of the trade. Certainly the program structure of the present Conference is so cast. Fortunately, although the general framework is a bit shopworn, it is also broad enough to accommodate diversity--indeed, to accommodate even the eccentric. As I suggested, the three papers under discussion display both characteristics. Having said that, I could continue my comments in two directions.

First, I could single out for praise or criticism a number of the more intriguing or objectionable items in the perspectives offered. Certainly

this would be a tempting course to follow since there is much both to praise and to object to in each of the three papers. Thus, to illustrate with criticism, one finds in Professor Simon's analysis the declaration that "mortality in the more developed countries is too stable for there to be much policy for scientific interest in it." In an age when medicine is increasingly capable of keeping gravely ill people alive at a sometimes staggering economic cost, and in an age when the cost of medical treatment is increasingly or even exclusively covered from the public purse, hence is the subject of policy decisions, Professor Simon's view is nothing short of astonishing.

Only a slightly more elaborate argument would be needed to conclude that the same characterization fits the sharp contrast perceived by Professor Day between the economic and sociological frameworks of analysis (as if they could not accommodate each other), and, even more so, his plea for the "behavioral drift" as a substitute for both of these frameworks. For instance, he describes analysis based on this concept as capable of tracking such phenomena as the fact that "people tend to behave in their accustomed manner because of the psychic comfort of doing the familiar." But surely there is nothing in the utility calculus--the mainstay of the economic frame of looking at behavior--that would rule out psychic discomfort as a significant factor in that calculus, whether conscious or implicit. On the other hand, once the element of choice is discarded and, with it, the predictability of responses to specified shifts in the weights of pain and pleasure, advantage and disadvantage, we are left with no terra firma whatsoever. The respect for history and close approximation to behavioral realities claimed as a merit of the "behavioral drift" frame of analysis would seem to amount to nothing more than a rationalization of any behavior and, on the aggregate, any course of demographic events, ex post facto. Thus, presumably the United States drifted into a baby boom after 1945, and the developing world had drifted into a downward course of its

birth rate since the early 1960s. The facts are certainly there, but the explanation somehow lacks force.

A second line of commentary would be to offer an alternative set of predictions and preferences for work in economic demography in the 1980s. In this regard, suffice it to say that a favored list I might have drawn up for researchers in the next decade would have organized the agenda along two main lines. One is perhaps so obvious that the three papers may have omitted mentioning it because it was taken for granted. It is work organized for territorially defined populations--ranging from quite small, such as a village, up to the country level. Analysis would draw on the most important elements of demographic-economic interaction to arrive at a comprehensive picture, combining historical background, diagnosis of the current situation, and exploration of future trends. The particular mix and the specific weight given to various issues, processes, and relationships in such studies would be dictated by the particular circumstances of the country or area in question. A second axis would identify policy issues, not as defined by the standard categories of demographic analysis--fertility, mortality, migration, growth, and the like--but as they appear in the political agenda: family policy, public health programs, rural development policy, administrative organization, and so on. In practice this would translate to identification and analysis of specific conflict situations that are significantly affected by demographic processes--conflicts of interest groups, classes, generations, regions, and countries--conflicts affecting definition and allocation of public goods, of property rights, income distribution, entitlements to various services and, in general, the rules of the game that set the frame of a body politic. I feel that analysis along such lines would bring refreshing new currents into the field of economic demography, a field much in need of revitalizing influences.

Instead of trying to elaborate this theme, however, I will conclude with some thoughts of a different character. I will suggest that examining the issues under discussion in a less teleological perspective than was imposed on the three authors would have been salutary. Even as a matter of sheer description, it is surely more realistic to think about the future course of research in economic demography—and, indeed, about research endeavors similar to ours but in other fields—not so much as directed by guidelines emanating from conferences, study groups, reviews, and funding decisions (though all these do matter, of course), but rather as the result of a more anarchic, disordered, and decentralized process. There are 400 participants at this Conference. Each of us brings here a particular background, experience, capacity, orientation, and ambition of which the other 399 can be only dimly aware. Since, broadly defined, we all work in the same field, obviously there is much overlap, duplication, and redundancy in our work. Yet, the chemistry of the particular responses with which we react to stimuli we receive and to the demands placed upon us by others and ourselves is unique in each combination, and its particular and collective outcomes are hardly predictable. Moreover, even in our small field—economic demography—the gathering in Helsinki is but the tip of an iceberg. The issues that occupy us, if at different degrees, agitate a much larger number of people worldwide. Working under a variety of conditions, personal pressures, and institutional frameworks, coping with the prosaic problems of making a living, and listening to a multiplicity of drummers, we and our fellow researchers think, scan, calculate, debate, and make decisions on what research to do next. Or, being true scholars and in due deference to Professor Day, seemingly we just drift from one topic to the next one, yet, all the same, responding to dimly understood stimuli. Whether we are conscious decisionmakers or mere drifters, the information at our collective command and our collective capacity—potential and actual—to locate and

identify relevant issues is far greater than any conference discussion or any all-star planning and review group could ever muster. As to the future, what new ideas, new paradigms, and new solutions will be born from the tâtonnement process through which our field is evolving, no one can tell. Certainly, to use the classic, if in the present context perhaps unduly immodest example, when Galileo started rolling balls down inclined grooves and watched them carefully, recommendation to undertake that strange research activity--the results of which eventually took men to the moon--could hardly have resulted from deliberations of a prior meeting of officials of grant-giving agencies or even from a symposium of practicing fellow scholars on the key tasks of a future research agenda. In all probability, such gatherings would have advised Galileo to devote his time to something really worthwhile, like trying to turn lead into gold. Excessive interest in lists of topics to be researched, let alone interest in prescriptions on where research results are supposed to lead, is especially misplaced in situations, most frequent in developing countries, where both the physical and intellectual preconditions of promising research are plainly deficient. As to the former, often not only research posts are missing, but even paper clips and pencils are in short supply. As to the latter, it is difficult to expect creative analysis when the researcher's inclination to think for himself can cost him his job, or worse.

As I have said, all this is by way of description. But if the description is at all accurate, certain prescriptive propositions also emerge. If we are interested in doing the right research in the 1980s, there is a greater task than addressing the question of what exactly should be done in economic demography during the next 10 years, topic by numbered topic, neatly ordered by priorities and assigned to assorted research teams. There is merit in that activity, too, but its usefulness is less in its promise of new and creative ideas and solutions than in the more prosaic and subordinate though necessary

domain of research administration: performing periodic stocktaking, eliminating unnecessary duplication, signaling to neighboring fields our state of healthy existence, and claiming our legitimacy and share of resources for the years to come. The most important task in ensuring that the right things will be done, and done rightly, calls instead for the establishment and continuous husbanding of institutional environments that generate and make the most creative use of information at the command of individual researchers and foster their spontaneous competitive and cooperative interaction.

Translating this general prescription into a specific agenda would lead us to discuss such matters as how to attract bright new talent to the field of economic demography and how to keep talent within it; the organization of academic training and research related to those twin issues; efficiency in managing research, including the problem of agreeing on division of labor among independent research institutions while maintaining freedom of choice of research topics and approaches; appropriate arrangements for peer review in allocating funds; maintenance of an adequate range of academic journals and other publications for research, along with rigorous standards of control on what gets printed; and fostering an atmosphere of criticism, debate, and efficient interchange between producers and users of research to provide optimal conditions for the germination and flowering of new ideas and analyses and their utilization and application for social betterment.

If we should succeed in coming to agreement on these issues and tackle the corresponding organizational-institutional tasks, we would be, by and large, able to forget about setting up lists of topics and asking agonizing questions on what, specifically, ought to be done in economic demography in the 1980s. We could then rest confident that the system resulting from our labors would produce the best possible answers without anyone even asking the questions.

## ESTIMATING FERTILITY AND MORTALITY IN DEVELOPING COUNTRIES\*

The three papers under review\*\* represent different facets of the work of the National Research Council's Committee on Population and Demography. Since its establishment in 1977, this Committee of 12 distinguished demographers—11 from the United States and one, Professor William Brass, from Britain—has been carrying out a program with two main objectives. The first is to estimate levels and trends of fertility and mortality in selected developing countries. The second, subsidiary, objective is to improve the techniques of estimating fertility and mortality from incomplete and erroneous data. The work of the Committee—chaired by Professor Ansley J. Coale and supported by 12 specialized panels, four working groups, and a small, fulltime professional staff—is far from completed; but it is well past its halfway mark. The present occasion represents the most extensive unveiling of ongoing work to the broader demographic community. Although an adequate assessment of the Committee's accomplishments by an outsider is not yet feasible—none of the individual country studies, of which there will be perhaps 15, have been released yet—the three papers presented here should be harbingers of the final product. Within the self-imposed discipline of the program's strictly demographic objectives, the quality of the offering is impressively high, representing the product of the most sophisticated demographic analysis the profession can offer. I will

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\*Discussion at the session on "Estimating current levels and recent trends of fertility and mortality: The work of the NRC Committee on Population and Demography," Population Association of America, Annual Meeting, Philadelphia, April 1979.

\*\*Robert J. Lapham, "Estimates of levels and trends of fertility and mortality: Findings to date by the committee on population and demography"; Hania Zlotnik and Ken Hill, "The use of hypothetical cohorts in estimating demographic parameters under conditions of changing fertility and mortality"; William Seltzer, "Issues in the collection of data for estimating levels and trends of fertility and mortality."

briefly comment on each of the papers, although weaving into my remarks some more general observations that apply to the work of the Committee as a whole.

Dr. Lapham's paper is a lucid and straightforward if highly selective report of the findings of country panels on levels and trends of fertility and mortality. The selection was dictated by the rate of progress among individual panels. The uneven progress, in turn, is likely to reflect, in addition to purely fortuitous factors, the varying difficulties encountered in the effort to distill from inadequate and fragmentary (yet often voluminous) statistical evidence plausible estimates of demographic change and status. Two of the three reports summarized by Lapham in some detail—on Thailand and Korea—are based on the cooperative work of a number of scholars (i.e., panel members), although in the instance of Korea, effective panel membership appears to have been limited to an efficient threesome. Seven persons are given chief credit for the Thailand study while, in preparing the Honduras report, Ken Hill apparently had the company of himself. Needless to say, before they are finally released all individual country reports will have also to pass the rigorous review process established for such work by the National Academy of Sciences.

Although the work Lapham describes is notable for its analytical sophistication, the findings themselves present no surprises. The reported levels and trends are broadly in line with the received wisdom concerning fertility and mortality in the three countries, although reference to received wisdom concerning the demography of Honduras—a country with a population size comparable to that of the Philadelphia metropolitan area—is perhaps a grandiose turn of phrase. The time reference for the three studies is broadly the post-World War II period, and particularly the years since 1960, up to as close to the present as possible. During this period both Korea and Thailand are known to have experienced rapid mortality decline, as well as substantial fertility decline

(more than compensating for the former in terms of the effect on the growth rate). This is confirmed by the thorough analyses reported by Lapham, which utilized all available and reasonably promising methodological tools that could be applied to the carefully collected and sifted raw statistical evidence for the two countries. For Honduras, the findings, though more tentative, indicate no measurable fertility decline. Again, this is congruent with the commonly available estimates in standard sources, particularly if we discount (as we probably should) estimates of crude birth rates suggesting a level well above 50 per thousand around 1960 (estimates that would be consistent with a more pronounced recent decline). The only seemingly significant discrepancy that I could find between what the Committee's panels estimate and what is commonly available in standard sources is a World Bank estimate of 6.3 for Thailand's total fertility rate in 1975. This contrasts sharply with the figure of 4.5 to 4.9 cited by Lapham as the estimate of the Thailand panel for that year. But the World Bank's estimate (published in World Development Report, 1978, p. 104) is clearly wrong, being obviously inconsistent with the Bank's corresponding birth rate estimate of 34. Indeed, the apparent conflict is likely to find its simple explanation in a proofreader's error rather than in any disagreement on how to read the available evidence.

Still, even though no surprises are offered to the interested reader, it is gratifying to see the stamp of named expert approval on unfolding stories of demographic transition in the developing world. These stories have been narrated thus far only or mainly by the unsigned reports of institutions that regularly supply processed aggregate demographic country statistics—institutions like the United Nations, the Bureau of the Census, and the Population Reference Bureau. It is also gratifying to have these estimates further refined, although arguably such pleasures can be experienced only by the select few. It does take a dyed-in-the-wool demographer to derive great satisfaction

from the knowledge that, say, a 1960 birth rate resting heretofore peacefully in the demographic yearbooks as 42 was, in fact, somewhere between 43 and 45.

Such fine revisions, of course, can be more than mere quibbles if, in succession, they suggest a qualitatively different interpretation of the character of time trends. Thus, two small modifications for two different years that are of opposite sign may amount to a clear suggestion of an increase or a decline, rather than to constancy. Such an occurrence, however, is likely to be a rare yield to heavy investment of effort. In the case descriptions offered in Lapham's paper, its only example, I think, is the apparently solid establishment of a fertility increase in Korea during the late 1950s. In fact, the more likely outcome of the methodological-analytical sophistication brought to the data by the expert panels will bring about the opposite result: a softening of former certainties on demographic quantities—certainties that were of course merely apparent, not real. If so, that will be a solid gain, well worth a good deal of laborious investment. But for the general public and the governmental consumers of the estimates, the new-found fuzziness will be clearly a gain with a vengeance.

An intimation of this occurs in particular in the report on Thailand, in which demographic estimates are presented as ranges: a practice of unquestionable merit, but, not surprisingly, greatly disliked by those on the receiving side. Needless to say, at least over short time spans, providing range rather than point estimates underlines the tenuousness of any firm propositions concerning the validity of a minor decline or rise as expressed in a single figure. A fortiori, range estimates will tend to fatally weaken propositions about changes in time trends, such as an acceleration or a slowing of a decline. The added qualifications that need be introduced on that score are also well illustrated in Lapham's report on Thai fertility trends.

Yet Thailand, in comparison with many developing countries, offers an unusually solid statistical base available for analysis; in addition its demographic trends, notably its post-1960 fertility decline, have been relatively clear-cut and rapid. What happens when neither of these conditions holds--when there are no opportunities to apply a wide variety of techniques to data of at least minimum validity originating in independent statistical sources, or when change over time occurs very slowly--is suggested by the tone of Lapham's interim report on the progress of the India panel's investigation. We enter a world in which estimates, at least for the time being, carry a heavy baggage of qualifiers: "interpreted by Preston," "according to Brass's approach," "resulting from Martin's techniques," and the like. This, of course, is a far cry from the neat headcounts desired by the sponsors or, for that matter, by all putative consumers of demographic statistics. The exercise also has a slight flavor of historical demography--the only really solid source of information being the Indian census, of which the last took place eight years ago. But again, if Indian demographic statistics compare unfavorably with those of Thailand, they shine in comparison with statistics available for China or for most countries of Africa that together comprise the majority of the population of the developing world. If the Committee's panels succeed in driving home these unhappy facts to all consumers of aggregate population statistics, with their many implications for valid interpretation and valid use in planning and policymaking, they will have made a very important contribution.

The preceding remarks underline the great importance of the kind of work to which the paper coauthored by Dr. Zlotnik and Dr. Hill is devoted. Their task is to make a silk purse out of a sow's ear. Many senior members of the Committee and its panels have distinguished records in just such an activity and, indeed, a main function of the Committee is to refine earlier successes of

formal demographic analysis and to initiate new efforts to serve the Committee's needs. Drs. Zlotnik and Hill, who, through their past work are already known as eminent practitioners of the art of making do with bad data, here address themselves to an often noted weakness of indirect estimating techniques: their sensitivity to changes in underlying demographic processes. To ascertain the character of these processes is the very objective of the estimating effort, yet the underlying model relationship on which the estimating techniques rest ideally would require prior knowledge of the quantity to be estimated. The problem is relatively easily handled under conditions of stability, but when fertility and/or mortality are changing over time--either in overall level or in age patterns--the power of indirect techniques is greatly weakened. In the contemporary world, such changing situations are of course far more typical than is stability.

It is possible to cope with this problem if the underlying model relationships can incorporate changes that are not arbitrarily chosen but are validated by statistical observation. Zlotnik and Hill describe an ingenious method that unfortunately defies a more concise summary than the one provided in their paper. Suffice it to say that the method requires observation of well-identified cohorts (such as by age or by date of marriage) at two points in time, spaced five or ten years apart. From such observations of two separate data sets, they construct and analyze a revised data set that shows the effects on a hypothetical cohort of the average fertility and mortality conditions during the intersurvey period.

If this sounds complicated, it does so because it is. Zlotnik and Hill apply the technique to the estimation of fertility and of child and adult mortality, using in part data from Thailand for 1970 and 1975. Persuasive as their argument is as to the power of the technique, its promise is marred by

the rarity of statistical situations that permit its straightforward application. The most important limitation is the need for surveys or censuses spaced exactly by multiples of five years apart so that conventional cohorts can be identified. Zlotnik and Hill offer a brief discussion of procedures that provide some remedy in the general case when the length of the intercensal interval is not the required one, but no analysis of sensitivity. In all probability, that will require further experimentation with actual data sets, in addition to formal analysis. Another problem is the absence of certain types of information, such as on proportions orphaned, that would readily lend themselves to analysis through use of hypothetical cohorts. It is unlikely that these considerations alone or even in combination with other arguments could have much effect on the timing of future censuses (as Zlotnik and Hill hope they might), but it is possible to be more optimistic about seeking additional information, such as on orphanhood, in future surveys once the potential usefulness of such information becomes better established. This remark illustrates another possibly important return to the Committee's labors: the beneficial influence on the content and organization of future data-gathering efforts.

This theme and considerations closely related to it are the subject of William Seltzer's thoughtful paper. Seltzer discusses a number of important questions on data collection that are of evident interest to the Committee—for example, the diverse needs of users of fertility and mortality estimates as to detail, timeliness, and accuracy; the comparative performance characteristics of major alternative data-generating systems (census, civil registration, and sample survey); and the considerations (including resource costs) that ought to be taken into account in reconciling conflicting claims on the design of statistical systems. His treatment of these and related issues is admirable for its judiciousness, balance, and attention to detail, clearly reflecting

both the advantages of looking at these matters from the vantage point of his post in the United Nations Statistical Office and their systematic reexamination with the organizing focus provided by the mandate of the Panel on Data Collection on Fertility and Mortality, which Seltzer chairs for the Committee.

The very merits of the paper, however, also delineate its major weaknesses. By construction, the treatment is resolutely general, applicable to the developing world as a whole. Not surprisingly, the result is a document of utter reasonableness, lacking in hard edges and bereft of attempts to strike a balance on any issue or recommending anything as clearly preferable to something else. If it were offered as a resolution in the General Assembly of the United Nations, it would be passed unanimously. The problem, I think, is that the issues and choices Seltzer discusses are, in all their concrete manifestations, rooted in the historical, political, and institutional configurations of particular country situations, and hence have no interesting solutions without such details being specified. The paper makes not even a gesture to introduce that crucial ingredient in the analysis. I am not suggesting that the abstract classifications and lists of characteristics, cost components, and the like are superfluous, but merely that they can be no more than preparation for operationally useful analysis.

There is a parallel here to the treatment of techniques of demographic analysis and their application to specific country data. It would seem that by forming a separate panel on data collection, the Committee effectively removed that issue from the purview of the twelve country panels. If so, that was an unfortunate decision. The gathering of statistical information in preparation for the estimating task ahead should have made the members of the country panels uniquely sensitive to assessing the strengths and weaknesses of the statistical systems of the countries in question. The task of providing a specific historical-institutional analysis and critique of the status of each

country's data-gathering system, mapping the alternative approaches available for improving that system, and making recommendations on the best choices could have been ideally combined with the primary task--estimation based on existing data--with which the panels were charged. Doing so could have lent a special importance to the final product of each panel. Seltzer's paper provides an excellent general discussion of alternative systems of demographic statistics, but merely appending such a discussion to the country reports can no more be a substitute for country-specific analyses than an abstract discussion of estimating techniques can dispense with the need for applying such techniques to country data.

I think that an interpretation of the task of the various panels that had included preparation of country-by-country analyses of statistical performance and recommendation for improving the statistical system would have had beneficial implications also for explicating the objectives of the fertility and mortality estimating effort. Country-specific diagnoses of why statistics are bad, country-specific considerations of the needs and uses of the estimates produced, and assessment of the acceptable tolerance limits for errors in various specific needs would have led to questioning the Committee's central orientation toward preparing better aggregate fertility and mortality measures --an orientation that calls for solving the type of problems I characterized earlier as determination as to whether the birth rate is 42 or 43, or, I might add, even whether it is 42 or 38. I can think of very few decisions that would, or should, depend on such a determination. As is, the work of the Committee seems to reflect a global view in which countries are the smallest constituent units--a view from New York or Washington, as it were. Or, to a lesser degree, it reflects a view from the local capitals, looking at the country as a whole, with perhaps a glance at an urban-rural split. Discounting passion for tidiness in international statistical bookkeeping as an overriding

goal in itself, and considering, as I pointed out earlier, that the rough correct magnitudes are accessible to lesser efforts, and that the goal of great precision may be elusive in any case, the Committee's almost exclusive focus on aggregate country measures would seem to represent a less-than-optimal allocation of scarce analytic talent.

That attractive opportunities exist for alternative allocations of analytic effort is evident. For instance, an explicit consideration of the forces that shape a statistical system—how and why data are produced and used within each particular country—would have opened up an area of investigation calling for greater emphasis on how to foster decentralized local capacity to collect and use statistical information. Such an emphasis also paves the royal road leading eventually to better global statistics. The theme is not one I would venture to elaborate upon at this occasion—for one thing, I would be clearly going beyond my assigned role. As a mere suggestion, let me note that, historically, multitudes of small-scale but complete birth and death registration systems had come into being well before anyone felt the need to aggregate them into a consolidated total. Thus, for example, a complete baptismal and a complete burial record can be a natural occurrence among members of a parish; yet there is no obvious reason, save for curiosity, why a bishop ought to consolidate such information routinely into a single statistic. Similarly, most European cities had developed strong statistical information systems long before national statistical bureaus were established. In contemporary China, observers have widely noted the contrast between the apparent precision of local-level vital statistics and the absence or extreme vagueness of equivalent figures at higher administrative units. The interpretation usually makes reference to a Chinese puzzle, but more straightforward and insightful explanations are readily at hand.

There exist, in any society, enormous amounts of decentralized statistical information in constant use--after all, we regularly size up numbers in our immediate family, or at least count ourselves daily. How far up such information needs to be aggregated, by whom, for what use, and within what tolerance limits of accuracy--and why low-level pooling of such information fails to take place or takes place so sluggishly and poorly in today's developing countries--are the key questions in approaching their statistical systems and in seeking their improvement. The now dominant statistical approach appears to be quite different: it implicitly assumes that individuals, beyond being members of a family, are members--subjects--of the state and that there are no organizational memberships in between that are important in their own right, rather than as an instrumentality. Hence, individuals ought to be registered and counted by the national government, which need information about them first and foremost. It seems to me that such an approach corresponds poorly to how people actually live, work, and interact, either as a description of fact or as a social ideal. If so, that ought to be reflected in statistical evaluation and advice, more than this has been done in the work of the Committee thus far.

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