

Demographic Considerations and Population Policies  
in Development Planning: A Survey of Third World  
Countries with Case Studies of Bangladesh and Pakistan

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## ABSTRACT

This thesis seeks to determine the attention and importance given to population growth in the overall strategy of development planning. The first part of the thesis analyzes the population content of the national development plans of 60 developing countries.

The findings indicate a surprising dearth of demographic data in development plans of the Third World. With a few exceptions, the data found in these plans are inadequate and are not presented in forms easily used by planners. The recognition of population problems is substantial: two-thirds of the countries studied mention a wide spectrum of population problems in their plans. Forty-three per cent of the countries studied propose some policy to reduce the rate of population growth. Still, the most important conclusion is that too few plans are preparing to accommodate for the inevitable growth of the population.

The second part of the thesis is an investigation of population and development on a national level for the countries of Pakistan and Bangladesh. The analysis of Pakistan's and Bangladesh's development plans presents a picture of population planning in extremely adverse circumstances. Even though the plans did propose programmes to reduce population growth, implementation was difficult because of little demand for contraceptives, administrative and political obstacles and logistical complexities.

Four conceptual frameworks incorporating theories of fertility

decline, when analyzed for their relevance and utility in Pakistan and Bangladesh, all reveal theoretical or practical flaws. The family planning approach, the policy mainly relied on, has so far not been efficiently administered or demographically effective.

A detailed analysis of a planning framework which incorporates population, income distribution and the evaluation of alternative development strategies illustrates the importance of the distributive aspect of development strategy, but reveals that the model lacks both the sophistication and the appropriate data to be analytically useful.



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## INTRODUCTION

The United Nations World Population Conference held in Bucharest in 1974 adopted a World Population Plan of Action that asserted: 'Population and development are interrelated: population variables influence development and are also influenced by them'. The Plan therefore recommended that 'population measures and programmes should be integrated into comprehensive social and economic plans and this integration should be reflected in the goals, instrumentalities and organizations for planning within the countries'.

This thesis seeks to determine the attention and importance given to population growth in the overall strategy of development planning. The first part of the thesis analyzes the population content of the national development plans of 60 developing countries. These include all plans from the Third World that were

available to the author at the time of the study and that were relevant to the 1970s.<sup>1</sup> The second part of the thesis is an investigation of population and development planning on a national level, for the countries of Pakistan and Bangladesh.

### National Development Plans

The decade of the 1960s was marked by a widespread proliferation of development plans. Previously, many governments planned no more than two years ahead for fiscal budgets, somewhat longer for investment projects. The five-year plan became popular because it is a more integrated and comprehensive approach to development planning, it fulfills a need for a longer-range fiscal plan of public investment, it is often a prerequisite for foreign aid, and it has effective national and international publicity value. Individual development plans vary widely in objectives, programmes, comprehensiveness, details, types of change proposed, and degrees of private and foreign involvement. Each plan reflects the social and economic system for which it was designed and the nature and extent of changes desired by political elites.

Many serious questions have been raised concerning the extent to which development plans address themselves to the real obstacles to development. The degree of implementation, the inconsistent

<sup>1</sup>This study reviews plans written in the 1970s and a few that were published in the late 1960s but which cover periods extending into the 1970s. See Appendix B for the plans studied; for a more comprehensive list, see International Bank for Reconstruction and Development, List of National Development Plans, 4th ed., Washington D.C., September, 1973.

objectives, the emphasis on fiscal budgets rather than on structural changes, and the role of international agencies in encouraging the plans also have been debated. One must keep these questions in mind in order to understand the role of population in the planning framework.

It is hazardous to make cross-national comparisons of plans derived from different systems of development planning and applied to different types of economic, social, and demographic development. Countries vary widely in the emphasis they place on development planning, from those that develop very comprehensive plans to those that do almost no planning. The relationships of development planning to actual programme implementation and of implementation to actual development also cover a wide range. But a systematic content analysis does allow important inferences to be drawn about the way various aspects of population are used in actual development plans.

#### The Plan Period

There are three types of national development plans: the short-range plan (usually for one year), the medium-range plan (from three to seven years but most often for five), and the long-term plan (ten or twenty years). The medium-range plan outlines national policies, programmes, goals, and targets, and serves as a guide for the important policy decisions for the annual budgets.

The first part of this thesis focuses mainly on medium-range plans, though three countries studied (Costa Rica, Haiti, and Saudi



Arabia) had only short-range plans available, and two (the Dominican Republic and Panama) had only long-range plans. In four cases (Sudan, Sri Lanka, Taiwan, and Turkey) both medium-range and perspective plans were available, and these long-range plans have also been examined. Of the medium-range plans, the most common are for five years, though a few cover shorter periods.

The duration of the planning period affects the consideration of population matters in a number of ways. Many social services, including education, health, and urban development, have long-range lead times beyond the scope of the five-year plan to accommodate for future population growth. The training of a teacher, for example, may have to begin before the birth of the student. Many current expenditures must be based on needs of projected populations. In the longer-range perspective the consequences of rapid population growth are likely to become much more serious because, in addition to the rate of growth and the age structure, the sheer size of the population added every year may begin to place heavy burdens on resources.

Policies for reducing population growth through fertility declines are also likely to have a long lead time before they become demographically effective. Moreover, the final payoff from reduced fertility will extend even farther into the future. The payoff in the education sector would not even begin until the "lower fertility" cohort reached school age, another five years later. The benefits from slowing the growth of the working-age population would not begin for at least 15 years. Thus, if the planning period is

limited to five years, the most important considerations in regard to both influencing population growth and accommodating to long-run growth may be overlooked.

### The Unreality of Planning

Marshall Wolfe has argued that development "planning can receive a good deal of formal backing and publicity without any serious attention on the part of the national authorities to the practical measures needed for its implementation."<sup>1</sup> On the other hand, Gerald Desmond has pointed out: "It is fashionable these days to discount the effectiveness, or even the reality, of many development plans....In some cases these reservations are probably deserved and in others they may be unduly cynical."<sup>2</sup> Gavin Jones has warned that the development plan should not be looked upon as the "prime mover in development but rather as an attempt to channel the powerful forces at work...in ways that will result in the greatest advantage or, at worst, the least disadvantage, to the country's development efforts."<sup>3</sup>

<sup>1</sup>Wolfe, Marshall. 'Between the Idea and the Reality: Notes on Plan Implementation', International Social Development Review, 1971, Vol. 3, p. 34.

<sup>2</sup>Desmond, Gerald, 'The Impact of National and Regional Development Policies on Urbanization', in Urbanization and National Development, ed. Leo Jakobsen and Ved Prakash, (Beverly Hills, California: Sage Publications) 1971, p. 70.

<sup>3</sup>Jones, Gavin, 'Implications of Prospective Urbanization for Development', Paper presented at the Seminar on Population and Development: The Urban Focus, sponsored by SEADAG and the Institute of Population Studies, 1972, p. 10.

One might well ask: What is the use of studying development plans if most of their programmes are never fully implemented and they represent an unreal world--if not a Platonic ideal, than something like a collection of political campaign promises? First, whatever the implementation, the use of demographic data in planning is probably highly correlated with certain data that are found in a plan. So the plans provide an indication of the extent to which these data are used and the degree of emphasis placed upon them. In addition, there are advantages to pulling demographic data out of the plans and making them available so that independent checks can be undertaken.

Second, it is important to determine the perception of various population problems. The pattern of problem recognition gives some indication of the ways in which rapid population growth is affecting development efforts, and sheds some light on the way programmes are being designed to accommodate population growth.

Finally, even if none of the proposals for population policies are fully implemented, they are of some interest in and of themselves. At least the scope and pattern of intervention tools are identified. If the scope of proposed policies is narrow (limited to the family planning approach, for example), that in itself is an important finding. If broad population policies are to be implemented, they must first be proposed; and proposing them in a national development plan is strategically effective, since broad social engineering may involve the actions of more than one ministry or department, and the plan can provide substantial publicity

and influence on behalf of its policies. Broad policies of this sort are usually effective only when they are implemented and coordinated within a strategy of integrated reinforcing programmes. At any rate, it is important to know what policy was proposed and by whom, even if it was not fully implemented--if only to find out that very little was proposed to begin with. In order to evaluate the execution of a programme, one must know (among other things) what was proposed and what goals were set.

Caution should be exercised in interpreting the information presented in Part One of this study. It should not be assumed that the policies proposed have actually been implemented or that countries have been limited to the policies proposed in their plans. Furthermore, these countries were not filling in a systematic questionnaire when they wrote their plans. The plans were written with many objectives in mind, and there is no reason to assume that the planners felt any need to outline all their problems. They may have felt that some problems were self-evident. As we shall see later on, omissions of data, problems, and policies may be explained in a number of ways.

## Organization of the Thesis

This thesis is organized into two parts. In Part One findings are categorized into three major areas of analysis--utilization of demographic data, recognition of population problems, and dimensions of population policy.

Demographic data **are** essential for realistic development planning. Chapter 1 analyzes the use of eight demographic parameters found in national plans. The study determines which countries used rates of growth, estimates of fertility and mortality, and population projections in their plans. It also looks at current and future projections of the school-age and working-age populations. Countries not including such data in their national plans are identified as well.

In Chapter 2 development plans are analyzed for their recognition of a number of important problems: whether the growth of the working-age and school-age populations is viewed as a population problem; if it is felt that economic growth is being reduced by population growth; if there is perceived population pressure on social and health services, on housing, on individual or family welfare, or on food or agricultural systems; if the dependency

ratio is a burden; and if high population density is viewed as a problem. The objective here is not to determine whether these problems actually exist but to determine how they are perceived by development planners.

Chapter 3 discusses the patterns of population policy strategy found in the development plans. Some 16 population policies are analyzed.<sup>1</sup> The policies range from the specific, such as family planning, to the broad, such as a reduction in fertility as a consequence of socioeconomic development. All of them have at least the partial but intended aim of reducing population growth.

The supporting research notes for Chapters 1, 2, and 3 are published as the second part of Population and Planning in Developing Nations<sup>2</sup> which is being submitted as a supplement to the thesis. It reviews all of the 60 development plans studied. Each plan description begins with a list of the demographic data used, problems recognized, and policies proposed in the plan. All population projections found in a national development plan, as well as estimates of fertility, mortality, and rates of growth, are presented. Sources of estimates and methods of estimation are stated as well

<sup>1</sup>See page 61 for a full list of these policies. Although migration is often an extremely important demographic aspect of development planning, it has not been included within the scope of this study because of the large volume of material to be surveyed. With the exception of migration, and within the limitations and definitions described in Chapters 2 and 3, most of the explicit population problems and policies found in the plans are included in one or more of the categories of this study.

<sup>2</sup>Stamper, B. Maxwell, Population and Planning in Developing Nations, A Review of Sixty Development Plans for the 1970s, (New York: The Population Council), 1977, 265p.

(if these were given in the plan). Simple checks were made to see if the demographic data were internally consistent.

All important statements about population problems and all relevant population policy proposals found in the national development plans have been included in each country plan description. A brief policy perspective is also given for each country to provide a better framework in which to view the plan and its possible implementation.

Chapter 4 begins the specific examination of population and development planning in Pakistan and Bangladesh. The first, second, and third national plans of Pakistan and the first plan of Bangladesh are reviewed for their utilization of demographic data, their recognition of population problems, and their proposed population policies. The plans and their population policies are examined within the wider social, economic, and political context in which they were proposed. The implementation of the population programmes is evaluated, and the administrative and policy obstacles which impeded demographic effectiveness is also examined.

Chapter 5 investigates various theories about fertility decline and analyzes four conceptual frameworks and their relevance and utility for development planning in Pakistan and Bangladesh: the family planning approach, beyond family planning measures, the development hypothesis and the transition theory, and the distributive hypothesis and fertility decline. Various specific policy interventions are analyzed in regard to their administrative feasibility, economic reality, and political acceptability, as well as their potential for demographic impact.

Chapter 6 is an exploratory examination of a planning framework which incorporates population, income distribution, and the evaluation of alternative development strategies. It involves an extension of the social welfare index which attempts to incorporate the effects upon fertility of differential income growth. Pakistani data on income distribution and family size from the years 1963/64, 1966/67, and 1968/69 are employed in an attempt to evaluate the utility of the model and perhaps shed some light on the quality of the data as well.



## CHAPTER ONE

### DEMOGRAPHIC DATA USED IN DEVELOPMENT PLANS

Not a great deal is known about the actual usages of demographic data in the Third World. In countries experiencing rapid population growth, as almost all of these are, development programmes must take demographic changes in population size, age structure, and distribution into account. It is not possible to know the full extent to which these data are actually taken into account in the planning process, but some indication can be found by analyzing the content and emphases of the national development plans. Tables 1-4 show the use of eight demographic parameters in the national development plans of 60 countries.

It seems likely, although not necessary, that countries seeking to accommodate rapid population growth in their national development plans would present at least a few of the eight parameters looked for in this study. A country's omission of one of these parameters may indicate that:

1. The planners did not have the data.
2. They had the data but felt they were not sufficiently important, accurate, useful, or relevant to be published in the planning document.
3. The statistical office possessed the data but did not furnish them in tabulations that could be readily used by the planning agency.
4. The planners were inexperienced and possibly lacked demographic skill.
5. The planning models and techniques used did not readily accommodate demographic statistics.
6. The planners were unwilling to make demographic assumptions about the future or to make use of those made by others.

#### Rate of Population Growth

The rate of population growth is obviously one of the most important demographic measures used in planning and should form the critical basis for many policy and programmatic assumptions. Although it is impossible to know the full extent to which population growth rates are actually employed in the planning process, we can get some idea of their use by analyzing those that appear in national development plans.

Of the 60 countries studied here, 48, or about 80 per cent, present some type of estimate of the rate of population growth in their national development plans. The Asian countries are most strongly represented, but there is not a great deal of variation among regions (see Table 1). Even though a large number of the countries studied do include rates of population growth in their plans,

TABLE 1 Demographic data included in national development plans of 1970s by (A) percent of countries under study and (B) percent of population of countries under study

Demographic parameters	Percent of countries under study		Percent of total population of countries under study		Africa		Asia		Latin America and the Caribbean	
	(A) (N=60)	(B) (N=1,485M)	(A) (N=22)	(B) (N=218M)	(A) (N=20)	(B) (N=1,062M)	(A) (N=18)	(B) (N=205M)		
Rate of population growth	80	83	77	64	90	87	72	85		
Estimate of fertility	43	60	32	21	50	73	50	30		
Estimate of mortality	45	58	32	14	45	72	61	38		
Projection of future population size	68	80	64	50	80	87	61	78		
Estimate of current school-age population	58	75	55	24	75	94	44	29		
Projection of future school-age population	45	72	32	17	70	92	33	26		
Estimate of current working-age population	75	86	68	73	85	88	72	89		
Projection of future working-age population	67	85	59	72	85	88	61	82		

M = Million.

it is still alarming that any country might neglect such an important parameter, one that influences so many aspects of social planning. Were the development programmes of the remaining 12 countries planned without knowledge or use of growth rates, or were the rates simply not published in the planning documents? Clearly, some countries that make no mention of population growth rates in their plans have reasonably good estimates available to them. Algeria, Indonesia, Sri Lanka, Chile, Uruguay, and Venezuela fall into this category; the Algerian plan, in fact, presents a population projection. On the other hand, Ethiopia, Somalia, Sudan, Haiti, and Paraguay have not had high-quality demographic data, and their planners may not have had satisfactory estimates available to them.

In the plans that do include rates of population growth, many of the estimates are either unsatisfactory or of dubious quality. The prevalence of inaccurate estimates can almost be assumed if only because of the very uncertain nature of many demographic statistics in the Third World. Apart from the uncertainty of the data, many of them are unsatisfactory because they are out of date. A number of countries published intercensal rates of growth, but some went back as far as 1940. Peru, for example, published what is apparently an intercensal rate of growth averaged per year over the period 1940-1960, a time when the country experienced rapidly declining mortality. This rate was used for the planning period 1970-1975.

No source is given for most of the estimates published. It is most likely that the planning commissions obtained the estimates from the national statistical offices, whose data are often based on an incomplete vital registration system, census data, and sometimes sample surveys. In most plans no method of estimation is given,



TABLE 3 Demographic data included in national development plans of 1970s, Asia

Countries	Rate of population growth	Estimate of fertility	Estimate of mortality	Projection of future population size	Estimate of current school-age population	Projection of future school-age population	Estimate of current working-age population	Projection of future working-age population
Afghanistan 1967-1971	X			X	X	X	X	X
Bangladesh 1973-1978	X	X	X	X	X	X	X	X
India 1974-1979	X	X	X	X	X	X	X	X
Indonesia 1969/70-1973/74					X	X		
Iran 1968-1972	X			X	X	X	X	X
Iraq 1970-1974	X			X			X	X
Israel 1974-1978	X			X	X	X	X	X
Korea, Republic of 1972-1976	X			X	X	X	X	X
Laos 1969-1974	X	X	X					
Lebanon 1972-1977	X							
Malaysia 1971-1975	X	X	X	X	X	X	X	X
Nepal 1970-1975	X	X		X	X	X	X	X
Pakistan <sup>a</sup> 1970-1975	X	X	X	X	X	X	X	X
Philippines 1972-1975	X	X	X	X	X	X	X	X
Saudi Arabia 1970	X	X	X		X	X	X	X
Sri Lanka 1972-1976		X	X	X			X	X
Taiwan 1969-1972	X			X	X	X	X	X
Thailand 1972-1976	X			X			X	X
Turkey 1973-1977	X	X	X	X	X	X	X	X
Vietnam, Republic of <sup>b</sup> 1972-1975	X			X	X		X	X

<sup>a</sup>Before the independence of Bangladesh.

<sup>b</sup>Before unification with North Vietnam.

TABLE 4 Demographic data included in national development plans of 1970s, Latin America and the Caribbean

Countries	Rate of population growth	Estimate of fertility	Estimate of mortality	Projection of future population size	Estimate of current school-age population	Projection of future school-age population	Estimate of current working-age population	Projection of future working-age population
Argentina 1974-1977	X	X	X	X			X	X
Barbados 1969-1972	X	X	X	X			X	X
Brazil 1972-1974	X			X			X	X
Chile 1971-1976					X	X		
Colombia 1970-1973	X	X	X	X	X	X	X	X
Costa Rica 1974	X			X	X		X	X
Dominican Republic 1968-1985	X	X	X	X	X	X	X	X
El Salvador 1973-1977	X	X	X	X				
Guatemala 1971-1975	X	X	X	X	X	X	X	X
Guyana 1972-1976	X	X	X	X			X	X
Haiti 1970-1971					X			
Panama 1970-1980	X		X					
Paraguay 1971-1975								
Peru 1971-1975	X		X				X	X
Puerto Rico 1969-1972	X	X	X	X	X	X	X	X
Trinidad and Tobago 1969-1973	X	X	X	X			X	X
Uruguay 1973-1977							X	
Venezuela 1970-1974					X	X	X	

although a number of countries do present the crude birth and death rates. In many cases the growth-rate figure was obtained simply by subtracting the crude death rate from the crude birth rate. In most countries international migration has a trivial demographic effect, but it is substantial in a few small countries, and therefore distinctions are sometimes made between the rate of "natural" increase and the "actual" rate after migration. In no plan is the intrinsic rate explicitly used.

Although 26 countries give estimates of the level of fertility and 27 give estimates of mortality level, only a few give both estimates from the same year in a comparable form so that a natural rate of increase can be calculated. And not in every case does the natural rate correspond with the rate assumed in the plan. This discrepancy is probably due to the use of migration statistics or an intercensal rate of growth.

#### Estimate of Fertility

Although fertility estimates are of less direct importance in development planning than some of the other parameters studied here, they are a necessary component of good projections. Information on the number of births is useful in some specific planning contexts, and it is of great importance to countries that wish to reduce their rates of population growth.

Only 26 countries, representing 60 per cent of the combined population under study, include fertility data in their plans. Fertility information usually comes in the form of a crude birth rate and is discussed in the context of the rate of natural increase. In only a few cases is it presented as the age-specific fertility rates ne-



cessary for component projections. In some plans in which it is discussed in detail, targets for reducing the birth rate are explicitly introduced. Of the 26 countries presenting fertility data, 19 present policies to reduce fertility, and one, Argentina, proposes to increase it.

Of the seven African countries that provide fertility data (see Table 2), only two present comparative figures. Mauritius reports that its crude birth rate dropped from 50 in 1950 to 40 in 1960 and to 27 in 1969. Tunisia reports that its crude birth rate dropped from 46 in 1961 to 37 in 1972 for a general fertility rate of 162, a decrease of 5 births per 1,000 women of reproductive age between 1965 and 1971.

Of the ten Asian countries (see Table 3), Bangladesh and Laos have the highest crude birth rates, each with 47 births per 1,000. India and Malaysia have the lowest, with 35. India's plan expresses disappointment in the figure, since the aim of its earlier plan had been to reduce the birth rate from 39 in 1968 to 32 by 1974, and it had been assumed that the rate would then drop further to 25 by 1981. That goal, the 1974-1979 plan states, no longer appears "feasible."

Of the nine countries of Latin America and the Caribbean (see Table 4), Argentina and Barbados report the lowest crude birth rate, 22. Barbados hopes to lower it further and Argentina wants to raise it. The plan of Trinidad and Tobago reports a decline in their combined birth rate from 38 in 1962 to 30 in 1968. El Salvador, with the highest crude birth rate reported in the region, also has experienced a sharp drop, from 50 in 1961 to 43 in 1973.

#### Estimate of Mortality

Mortality data are essential for establishing health conditions as

well as setting requirements and priorities for health programmes and, later, evaluating their progress and effectiveness. Not only the level or mortality but also the causes of death, the sex- and age-specific rates, infant mortality, and other measures are crucial for effective health planning. Data on the geographic distribution of mortality as well as on the population distributions and the age structure of the population are needed. Mortality data are, of course, necessary for projections of population growth.

Only 27 countries include data on the total level of mortality in their plans. Most of these countries devote at least a chapter of their national development plans to health services, and it is in this context or in a discussion of population growth that mortality data are presented. In most cases only crude death rates are mentioned; seldom are age-specific rates or expectation-of-life figures given. Infant mortality measures and figures on deaths by certain major causes are sometimes given, but more attention is paid to medical-administrative statistics, such as ratios of doctors, nurses, and hospital patients to population.

Of the seven African countries that report mortality figures in their plans (see Table 2), crude death rates range from 25 per 1,000 in Senegal to less than 10 in Mauritius, and Mauritius expects its death rate to decline to as little as 6 per 1,000 by the early 1980s. Life expectancy at birth, its plan reports, was 50 years at the beginning of the 1950s and 60 years at the beginning of the 1960s. "It can be expected, on present trends, to increase to about 70 years by the early 1980s."

Nine Asian countries include mortality estimates in their plans (see Table 3), ranging from 23 per 1,000 in Laos to 7 in the Philip-

pines. Sri Lanka reports a decline in its crude death rate from 20 per 1,000 in 1946 to 8 in 1968.

Eleven countries of Latin America and the Caribbean provide mortality figures in their plans (see Table 4). Peru's figures illustrate the inadequacies of and contradictions in the demographic data included in the plans of many Third World countries. An official figure of 10 deaths per 1,000 is given, but the plan estimates that the true figure is between 15 and 16; yet the plan goes on to present mortality rates by cause.

It is possible that more countries have used mortality data than those that publish them in their plans. Thus the use of mortality data cannot be completely assessed, but the information available indicates that they have received very little attention and emphasis.

#### Projection of Future Population Size

The future is the essence of planning. And yet, though most countries use future population projections in planning, they have not been salient features of development planning documents.

In this study a population projection is defined very broadly: Any country whose plan estimates the future size of its population is classified as having a population projection. Forty-one countries -- 68 per cent of those studied -- present some basic population projection or some estimate of the future size of the population. Thus 19 countries project no estimates or projections of future population size.

About a third of the African countries studied, representing 50 per cent of the African population, do not give this basic information (see Table 2). Demographic data in these countries are notably incom-

plete, and failure to present projections must be traceable in large part to this lack. Of the 14 African nations that do give this information, Botswana gives projections through the year 2000 at varying growth rates. Population growth seems to be of concern to Botswana's planners solely for economic reasons: Each per centage point of growth rate, the plan notes, represents a decline of 1 per cent in the rise of per capita income. Morocco presents two projections for the years between 1971 and 1999, one assuming a "normal" decline in fertility and the other assuming an increased decline as a result of the country's family planning program.

In Asia 4 of 20 countries, representing about 13 per cent of the Asian population under study, give no such estimates (see Table 3). The availability of demographic data is less of a problem in these countries than in Africa, and other factors must be responsible for their failure to publish estimates or projections of future population in their plans. Indeed, two of these countries, Indonesia and Saudi Arabia, do publish school-age projections, and Saudi Arabia publishes a working-age projection as well, thus indicating a projection of the age distribution. Sixteen Asian countries do include population projections in their plans. India gives projections for three periods between 1971 and 1986 by sex and age group, and details seven assumptions on which they are based. Nepal gives projections by age at five-year intervals, and also estimates future population density by region.

Seven Latin American countries give no projections (see Table 4), and they represent 22 per cent of the Latin American and Caribbean population under study. Among the 11 countries in this region that do provide population projections, Brazil notes that important

demographic data from the 1970 census were not available for inclusion, but nevertheless projects a population increase of 11 million between 1970 and 1974. In the plan of the Dominican Republic a projection of mortality patterns by age is incorporated into detailed projections of population by age and sex at five-year intervals to the year 2000.

The methods used to make these projections and the assumptions on which they are based are not often explained, and the reliability of the base data is rarely discussed. Furthermore, most of the projections are made for only one future date and one total size; a range of possible projections to encompass various alternatives is usually not given. The lengths of the projection periods vary, of course; most are limited to the duration of the development plan period. It is apparent that most projections are not based on the component projection method of age distribution, but are merely products of the current estimates of total population multiplied by the current estimates of rate of growth. The projections are therefore of little use in social and economic planning, since this requires a projection of the age distribution.

Of the countries presenting component systems, few stress the variability of the components, perhaps because of the short periods covered by the estimates. From the evidence in most of the plans, it does not appear that the projections used are designed to allow for future revisions to accommodate new or more complete data. This study found neither a widespread use of the component system of projections nor a system projecting future approximations of demographic situations or possible emerging trends. On the other hand, however limited the projections may appear, they may be based on procedures adequate to the given situation in the country concerned.

### Estimate of Current School-Age Population

Estimates of current school-age populations are published in the development plans of only 35 of the 60 countries studied. The inclusion follows regional patterns, with 75 per cent of the Asian countries including such data but only 55 per cent of the African countries and 44 per cent of the countries of Latin America and the Caribbean. The Asian countries represent over 90 per cent of the combined Asian countries under study, as compared with less than 30 per cent of the respective populations for the other two regions.

It is not certain why 42 per cent of these Third World countries would not include such rudimentary information as size of school-age population. In most of them the exclusion is probably due to a lack of emphasis on educational planning as a part of the overall development strategy as much as to the unavailability of data or a failure or unwillingness to publish them. In many African countries, however, these data are still likely to be unavailable.

Burundi, which provides no projection of population size, no current estimate or projection of working-age population, and neither fertility nor mortality rate, is one of the 12 African countries that do give figures for current school-age population. So are Somalia, which offers no other data among the categories under discussion here, and Mali, which otherwise notes only its growth rate. Both Somalia and Mali discuss their need for statistical information and their plans for acquiring some.

Among the 15 Asian countries that provide information on current school-age population, Afghanistan bases its estimate on a UNESCO survey. India's statistics on school-age population are, as usual, sophisticated.

Among the eight countries of Latin America and the Caribbean that present this information are Haiti, which estimates the school-age population and size and per cent of school enrolment but offers none of the other demographic data under study here, and Venezuela, which otherwise provides data only on future school-age population and current working-age population.

Of the nine countries that provide data on only one or two of the categories under consideration, four give estimates of current school-age population. Both Indonesia and Chile provide data only on current and future school-age populations.

Of the plans that contain school-age population data, most do not give these data by single-year ages, but aggregate them by primary school and secondary school, and many present them only indirectly. In fact, many of the 35 plans containing school-age data really present only the primary school enrolment figures and estimates of their per centage of the primary school-age population.

#### Projection of Future School-Age Population

Educational planning by its very nature is one of the longest range planning functions for a development strategy. Its long lead time necessitates population projections for realistic planning of classrooms and teachers. Training of teachers often begins before the birth of the children they will teach. Educational planners cannot assume that the school-age population is increasing at the same rate as the total population; in fact, since fertility rates are high and mortality rates, especially of the young, are declining in these countries, the school-age population may be growing at a significantly higher rate than the population as a whole. In these

situations, an adequate demographic projection is essential for realistic planning.

Projections of the school-age population (in many cases only primary school) are published in the development plans of only 27 of the 60 countries. The countries that do present projections follow regional patterns; over two-thirds of the Asian countries include them but only about one-third of the nations of Africa and of Latin America and the Caribbean.

The school-age projections range in quality from demographic projections of the primary school-age groups by single-year age distribution to estimates of the future aggregate primary school-age group. The few countries that present projections of the total population with single-year distributions are presented in a context other than that of education. Some of the plans contain projections of enrolment. The enrolment figures and their per centage of the school-age population usually come from ministries of education, many of which may not be able to give accurate estimates of the school-age population.

#### Working-Age Populations

The International Labour Office estimates that 237 million persons may be added to the Third World labour force during the Second United Nations Development Decade (1970-1980): Africa, 33 million; Asia, 178 million; Latin America, 26 million. This increase in the labour force is an extremely serious problem in these regions, since the supply of labour already outstrips demand.

Working-age population projections are the principal component of labour force projections. The working-age population is defined



here as the total population between the ages of 15 and 65. The figure is often broken down by age and sex. The working-age population must be distinguished from various measures of economic activity, such as labour force and employment.

Trends in the working-age population alone are not sufficient for projection of trends in the labour force, because the rates of activity vary greatly, as do the ages of those participating in work and the participation of women. Nevertheless, in most Third World countries the increase in the labour force is determined to a large extent by the growth of the working-age population. Therefore, simple projections of the labour force are usually made by multiplying expected age- and sex-specific activity rates by age- and sex-specific working-age projections. These rates must be distinguished from labour-force-demand projections, which estimate future employment needs in various sectors; demand projections are of economic rather than demographic concern, and thus are not treated at all in this study.

Estimate of Current Working-Age Population. Seventy-five per cent of the countries studied have published some kind of estimate of current working-age population in their development plans (see Table 1).

These countries represent almost 90 per cent of the populations of both Asia and the Latin American Caribbean area under study and 73 per cent of the African population under study. The estimates vary in quality from regional estimates with age distributions to aggregate estimates of the total population between the ages of 15 and 65. Most of the plans give estimates of the levels of employment and unemployment and of employment by sector. Some plans, especially those

of the African countries, include projections of the managerial needs for each sector. The actual estimates of the current working-age population have not been collected in this study. Many of the 15 countries that do not include current estimates do not have good demographic data.

Fifteen African countries include estimates of current working-age population in their plans (see Table 2). Algeria breaks down its working-age population only into agricultural and nonagricultural sectors. Togo notes that of its current working-age population of 921,000 (1970), 667,000 are gainfully employed.

In Asia 17 of the 20 countries include these estimates. India's plan includes estimates of both working-age population and participation rates by age, sex, sector, and residence. Indonesia notes that its working-age population is unequally distributed, with resulting high unemployment in some sections and labour shortages in others. Iran includes children from the age of 12 in its estimates. South Korea notes that although its population under 14 declined from 41.2 per cent of total population in 1966 to 39.4 per cent in 1970, the working-age population grew from 32.1 per cent to 33.3 per cent in the same period.

Thirteen of the 18 Latin American and Caribbean national plans include this information. Costa Rica notes that its working-age population grew from 47 per cent of the population in 1963 to 52 per cent in 1973. Guatemala, estimating its working-age population for 1970, notes that "in accordance with the experience of past mortality," only 70-75 per cent of those born in 1955 can be expected to survive to reach the age of 15 in 1970, or 110,000-120,000 young people. Of these, "not less than 45,000 young people exert pressure

on the work force per year." Since the level of educational attainment is not high, it would appear that Guatemala's large Indian population exerts little pressure on the work force. Venezuela's plan shows a steadily decreasing percentage of population between the ages of 15 and 59 from 1950 to 1969.

Projection of Future Working-Age Population. Sixty-seven per cent of the countries in this study, representing 85 per cent of the population under study, have published some form of future working-age population projection in their plans. The quality of the projections varies considerably; most of them do not present regional or single-year age estimates. In all, 19 countries present no estimates of future working-age populations -- all 15 of the countries that present no current estimates plus Swaziland, Senegal, Uruguay, and Venezuela.

Only 13 of the 22 African countries include projections of working-age population in their plans (see Table 2). Botswana's plan gives projections of both working-age population and wage employment, and expresses dismay at their implications. Even the most optimistic assumptions, it is noted, indicate a progressively decreasing percentage of the working-age population that can be absorbed into wage employment unless the population growth rate can be significantly reduced. Although Ivory Coast provides no figures on working-age population, either present or future, it anticipates that the demand for manual labour will outstrip the supply and therefore expects to absorb an increasing number of immigrants, who already were estimated to comprise about 25 per cent of the population in 1965.

In Asia, 17 of the 20 countries provide working-age projections

(see Table 3). India's plan notes that a decline in the population growth rate "affects the growth of the labour force only after a lag of about 15 years." By that time India's labour force is expected to grow by 65 million, which "alone is more than three and a half times the present level of employment in the entire organised sector, including both public and private sectors." In making these projections the planners omitted from their calculations those under the age of 15 who were shown as workers in the 1971 census, as "it has been assumed that child labour will be abolished." Malaysia notes that a rapidly increasing working-age population is already placing a heavy burden on the economy, and expects that the high rate of growth in this cohort will continue through the 1970s.

Eleven of the 18 Latin American and Caribbean countries provide projections of working-age populations in their plans (see Table 4). Barbados expresses concern that its increasing working-age population will not continue to be absorbed in agriculture, and deplors the lack of capital and skills that would "permit sufficient alternative employment in other sectors. The situation is made more difficult by the small size of the population base, which acts as a brake on industrial development." Thus Barbados sees its population as at once too large and too small. Peru gives a projection of the "economically active population," but it is unclear whether this represents the projected employed population only or whether it also includes those who participate in the market economy but are not formally employed, or whether the figures are based on the projection of working-age population.

## CHAPTER TWO

### POPULATION PROBLEMS RECOGNIZED BY DEVELOPMENT PLANNERS

Ten types of population problems are discussed in this study. The term is defined here as any current or future situation that is viewed by planners as a problem and whose causes are recognized in the plan as having some major demographic components. The objective, then, is to determine the perception of the development planners rather than to determine whether in fact the country has a population problem.

Several necessary qualifications arise from this definition. Some plans directly refer to a demographic situation as a problem or discuss the problematic implications of the situation. For example, a high dependency ratio or a rapidly increasing school-age population may be described as a strain on resources or a burden on the labour force or a hindrance to educational goals. Such a reference is considered an indication that the planners have recognized a

population problem. A demographic situation discussed objectively in a plan without any such reference is not classified as a problem unless the overall thrust of the plan's text implies recognition of a problem. Such judgments inevitably involve a subjective factor, but the need for them has arisen in only a few cases, and any errors could not have significantly overstated the level of problem perception. The possibility also exists, of course, that some planners have perceived certain situations as population problems but for some reason have intentionally or unintentionally not so described them in the plans.

Another qualification concerns the treatment of situations that have been recognized as problems but have not been clearly recognized as population problems. Obviously the problems dealt with by development planners are complex in causes and consequences. The causes themselves are complex and are perceived in various ways according to one's ideology, training, interests, and experience. What may seem to some to be unemployment caused by population growth is likely to be perceived by others as the surplus labour assumed to be inherent in a capitalist society or, more commonly, as a shortage of jobs rather than an excess of people. Thus in this study a situation is classified as a population problem only when the development plan itself makes a causal link between population growth or age structure and a social or economic problem, or if a population component is mentioned explicitly as one of several factors contributing directly to a social or economic problem.

#### Shortages Perspective

One of the most important advantages of medium- and long-range plans

over short-term plans is that they permit long-term trends to emerge more clearly, and a broader perspective on various problems may be gained. If it is estimated, for example, that x per cent of a country's population is presently without adequate housing, and that some very large number of housing units will have to be built within the next five years merely to keep that percentage from increasing, one may easily conclude that the problem does not reside wholly in a laggard construction industry. Yet many such social problems discussed in medium-range development plans are still perceived as the results of shortages -- shortages of jobs, schools, doctors, and so on. There are indeed shortages, but the reasons for them are often not fully examined or related to needs created by a growing population, even over the period covered by the plan. Why should this be, if, as has been said, medium-range plans provide perspective on emerging trends? The answer seems to lie primarily in population projections or the lack of them. When population projections are lacking or inadequate, it is all too easy to restrict one's view of a shortage of houses, say, to the obvious reasons -- lack of money to pay for them, lack of jobs that would provide that money, lack of investment that would provide those jobs, and so on. The role of rapid population growth is less immediately evident. Countries that make strong use of population projections, on the other hand, are less inclined to view social problems as the results of shortages and more likely to view them in a framework of multiple causes, in which emerging trends, including those of population, are taken into account.

### Severity and Breadth of Problems

The perceived severity of population problems cannot be directly measured by this classification system. It is partly for this reason that extensive excerpts from the plans are presented in Part Two of Population and Planning in Developing Nations, A Review of Sixty Development Plans for the 1970s. The plan excerpts are not included in the thesis because they were too lengthy. The Bangladesh plan, for example, not only recognizes a broad range of problems but also perceives them as critical obstacles to development and devotes much attention to them. A country's recognition of the severity of a particular problem cannot be reflected in this study's classification system. However, we can make inferences about the breadth of a country's problem recognition by examining the range of population problems the country specifically recognizes (see Tables 5-8).

### Omission of Problems

What can be inferred from a plan that omits any mention of specific or general population problems? It is not always easy to discover whether the omission is meaningful or not. This study's systematic content analysis of 10 types of problem, 8 demographic parameters, and 16 policy dimensions provides a framework for evaluating a particular omission. The breadth of problem recognition in a particular country may be compared with the breadth of its demographic data and population policies. Specific problems or omissions of problems can in some cases be compared with corresponding demographic parameters. For example, nonrecognition of a school-age population problem gains in significance if it is accompanied by estimates of current and future school-age population. But inferences are limited



when one is restricted to the contents of a plan.

Why might members of a planning commission omit mention of population problems from their national development plan?

1. They did not have a population problem.
2. They had a population problem but did not realize it.
3. The planning was not taken seriously -- it was carried out only for political or publicity reasons.
4. They realized there was a problem but either intentionally or unintentionally failed to mention it because:

(a) They were powerless to resolve it by either influencing the growth rate or accommodating to it.

(b) It would have been a political liability to do so.

(c) The situation was viewed as a social problem, and they were more interested in planning for the growth of the economic sectors.

(d) They were not reviewing problems, but outlining programmes and budgets.

#### Recognition of Population Problems

Of the 60 development plans studied, 38 recognize some type of population problem (as defined in this study). These countries represent 81 per cent of the combined population of the countries under study. The 12 African countries -- 55 per cent of those studied -- also represent 55 per cent of the African population under study. The 15 Asian countries -- 75 per cent -- represent 97 per cent of the Asian population under study. The 11 countries of Latin America and the Caribbean form only 26 per cent of the population of that area under study.

TABLE 5 Population problems recognized in national development plans of 1970s by (A) percent of countries under study and (B) percent of population of countries under study

	Percent of countries under study		Percent of total population of countries under study		Africa		Asia		Latin America and the Caribbean	
	(A) (N=60)	(B) (N=1,485M)	(A) (N=22)	(B) (N=218M)	Africa		Asia		Latin America and the Caribbean	
					(A) (N=22)	(B) (N=218M)	(A) (N=20)	(B) (N=1,062M)	(A) (N=18)	(B) (N=205M)
Recognition of any type of population problem	63	81	55	55	75	97	61	26		
Growth of working-age population viewed as population problem	43	72	45	47	50	87	33	20		
School-age increase viewed as population problem	38	65	32	17	40	83	44	22		
Economic growth reduced by population growth	38	72	32	45	55	88	28	16		
Population pressure on social services	37	60	27	16	45	76	39	22		
High dependency ratio	32	62	18	36	40	75	39	22		
Population pressure on health services	32	22	41	45	30	20	22	10		
Population pressure on housing	23	54	14	9	35	72	22	5		
Population pressure on individual or family welfare	18	21	18	28	20	22	17	13		
Population pressure on food or agricultural systems	17	49	14	10	25	67	11	3		
High population density viewed as problem	8	6	9	2	10	8	6	0.1		

M = Million.



TABLE 7 Population problems recognized in national development plans of 1970s, Asia

Countries	Recognition of any type of population problem	Growth of working-age population viewed as population problem	School-age increase viewed as population problem	Economic growth reduced by population growth	Population pressure on social services	High dependency ratio	Population pressure on health services	Population pressure on housing	Population pressure on individual or family welfare	Population pressure on food or agricultural systems	High population density viewed as problem
Afghanistan											
1967-1971											
Bangladesh	X	X	X	X	X	X	X	X		X	X
1973-1978											
India	X	X	X	X	X	X		X		X	
1974-1979											
Indonesia	X	X	X	X					X		
1969/70-1973/74											
Iran	X			X							
1968-1972											
Iraq	X			X							
1970-1974											
Israel											
1974-1978											
Korea, Republic of	X							X			
1972-1976											
Laos											
1969-1974											
Lebanon											
1972-1977											
Malaysia	X	X									
1971-1975											
Nepal	X	X	X	X	X	X	X	X		X	X
1970-1975											
Pakistan <sup>a</sup>	X	X	X	X	X	X	X		X	X	
1970-1975											
Philippines	X	X	X	X	X	X	X	X	X		
1972-1975											
Saudi Arabia											
1970											
Sri Lanka	X		X		X	X	X				
1972-1976											
Taiwan	X	X		X	X			X			
1969-1972											
Thailand	X	X	X	X	X	X	X	X	X	X	
1972-1976											
Turkey	X	X			X	X					
1973-1977											
Vietnam, Republic of <sup>b</sup>	X			X							
1972-1975											

<sup>a</sup>Before the independence of Bangladesh.

<sup>b</sup>Before unification with North Vietnam.

TABLE 8 Population problems recognized in national development plans of 1970s, Latin America and the Caribbean

Countries	Recognition of any type of population problem	Growth of working-age population viewed as population problem	School-age increase viewed as population problem	Economic growth reduced by population growth	Population pressure on social services	High dependency ratio	Population pressure on health services	Population pressure on housing	Population pressure on individual or family welfare	Population pressure on food or agricultural systems	High population density viewed as problem
Argentina 1974-1977	a										
Barbados 1969-1972	X	X			X	X					X
Brazil 1972-1974											
Chile 1971-1976											
Colombia 1970-1973	X	X	X	X	X	X			X		
Costa Rica 1974	X	X									
Dominican Republic 1968-1985	X		X		X		X	X			
El Salvador 1973-1977	X			X		X					
Guatemala 1971-1975	X	X	X	X	X	X	X	X	X	X	X
Guyana 1972-1976	X		X								
Haiti 1970-1971											
Panama 1970-1980	X		X	X	X	X	X	X			
Paraguay 1971-1975											
Peru 1971-1975											
Puerto Rico 1969-1972	X		X								
Trinidad and Tobago 1969-1973	X	X	X	X	X	X		X	X	X	
Uruguay 1973-1977											
Venezuela 1970-1974	X	X	X		X	X	X				

<sup>a</sup>Argentina described its population growth rate as too low.

The ten population problems, plus a recognition of "any type of population problem," are listed in Tables 5-8.

#### Growth of Working-Age Population Viewed as a Population Problem

Almost all of the countries studied recognize unemployment as a problem -- but how is the role of population growth perceived in relation to unemployment? An attempt has been made to assess this perception, to note whether or not the development plan drew a direct causal link between the growth of population and unemployment. Unemployment in this study is classified as a population problem only if a national plan assesses population growth as one of its component causes. If, for example, a plan merely discusses unemployment in relation to surplus labour or jobs that could be created, those planners do not appear to perceive a population problem.

Twenty-six countries, or 43 per cent of the countries studied, cite rapid population growth as a component of their unemployment problem: 45 per cent of the African countries (see Table 6), 50 per cent of the Asian countries (see Table 7), and 33 per cent of the countries of Latin America and the Caribbean (see Table 8).

In most of the countries under study the level of unemployment and underemployment is high and growing. Planning for full employment has not been undertaken, although some special projects for increasing it have been planned. The establishment of employment targets is seldom based on a projection of labour-force growth. The plans usually emphasize production rather than employment.

Ten African countries recognize working-age population growth as a population problem. Botswana states flatly, "The analysis of the labour force and the projected expansion in wage employment ...

indicates clearly that, even on the most optimistic assumptions concerning long-term economic growth, the percentage of the labour force in wage employment will continue to fall unless the rate of growth of population is curbed significantly." Togo links its estimates of the working-age population with unemployment, and although the population components of unemployment are not discussed further, the plan does state that they make visible one of "the most important problems in Togo."

Among the ten Asian countries that view working-age population growth as a population problem, Bangladesh and Pakistan list it as one of a number of problems that they propose to attack vigorously by an array of population strategies, while Indonesia compares the growth rate with the rate of economic expansion and is concerned about the unequal distribution of the working-age population, which it links with "the limited absorption capacity of the available cultivated land," which "causes a population increase in towns which cannot offer jobs so that the underemployment in rural areas extends to urban areas where it becomes full unemployment ...."

Colombia, one of six countries of Latin America and the Caribbean that recognize this problem, explores the impact of population growth on employment and the economy, which it views as increasingly serious. Since a decline in fertility can have no effect on the labour market for 15 years, Colombia proposes to implement its population policy with strategies to reduce urbanization as well as fertility. The impact of working-age population on employment is the only population problem recognized in Costa Rica's plan.

### School-Age Increase Viewed as a Population Problem

The changing age distribution of a population affects both the demand for education and the capacity of a society to supply the demand. The age composition of a population is usually predominantly determined by past fertility rather than past mortality. Most of the countries in this study have had high levels of fertility, which have resulted in extremely young age structures. In addition, infant mortality rates are declining in many of these countries, contributing further to young age structures. Under these conditions both the absolute size and the proportion of the population in the school-age groups are increasing dramatically. Even if a moderate decline in fertility is assumed, the number of school-age children in the Third World will nearly triple by the year 2000. Just to maintain the present unsatisfactory standards of education, the number of teachers and schools must be tripled.

At the same time, there is a declining proportion of the population in the working-age cohorts that must support the ever-increasing young population's educational needs. Thus societal capacity for even maintaining past per-student educational expenditure is reduced.

The increasing school-age population is recognized as a problem by only 23 of the 60 countries studied or 38 per cent. Thirty-two per cent of the African countries studied (see Table 6), 40 per cent of the Asian countries studied (see Table 7), and 44 per cent of the countries of Latin America and the Caribbean studied (see Table 8) recognize such a problem. Although there is not much difference in the percentage of countries in each region that recognize this problem, about four-fifths of the combined populations of the countries both of Africa and of Latin America and the Caribbean live in



nations that do not discuss the increasing school-age population in their plans.

Six of the seven African countries and five of the six countries of Latin America and the Caribbean that include projections of the school-age population in their plans recognize the increasing school-age population as a problem. Only 6 of the 14 Asian countries that use such projections, however, discuss the problem of increasing school-age populations.

Burundi, which has no policies or programmes designed to limit fertility, proposes to deal with "the rapid increase of the primary school-age population" by constructing 300 new classrooms. Mauritius, on the other hand, recognizes that "a high proportion of children in the population means that a high proportion of public expenditure needs to be devoted simply to maintaining the level of social services, in particular education ... instead of being available for an improvement in those services, not least for the benefit of the children themselves. A population policy for Mauritius must aim at reducing fertility rates ... in order to improve the age structure of the population .... To state the obvious, a population policy ... must be concerned with the dynamics of population growth and not with the absolute levels of population." It is obvious to Mauritius but it seems less clear to most of the other countries whose development plans are explored in this study.

Nepal computes the number of children at the primary, middle, and higher education levels in 1981 on the basis of its population projections and states that "if the estimated growth of population were to take place ... it would be more and more difficult to fulfill the increasing needs in the field of education." Thailand's plan

notes that "since the birth rate cannot be instantly slowed down, the number of students will greatly increase each year at every educational level, while the budget for educational development will not increase at the same rate. Under these circumstances, educational development, both in quantity and quality, might not be achieved as fast as planned."

The only population problem discussed in Puerto Rico's plan is the increase in the school-age population. Guatemala discusses its rapidly increasing school-age population in detail, and recognizes that "school-age" does not necessarily mean "school-attending." The sheer numbers of children under 15 "obligates the use of elevated proportions of family investment" for their care and "necessitates the employment of young children, restricting their necessary education, which is a decisive factor for social and economic progress on a large scale."

#### Economic Growth Reduced by Population Growth

Twenty-three countries, 38 per cent of those studied, present statements to the effect that their economic growth has been reduced by population growth. A few plans discuss intermediate variables to explain how economic growth is influenced by population growth, but most either simply observe that population growth reduces per capita income or do not comment further on the relationships.

In most of these plans, the relationship between population and the development process (excluding the demands upon governmental services) is not treated at all. But in several plans a capital-output ratio is introduced, and the investment needed to offset the population growth's "deterrence" on per capita income is calculated.

For example, if the country's total income is increasing at 6 per cent per year, its population is increasing at 2 per cent per year, and its marginal capital-output ratio is 3 to 1, then 6 per cent of the total income must be invested each year just to maintain the current level of per capita income. For every increase of 1 per cent in per capita income, 3 per cent of the total national income must be invested. This kind of analysis has serious deficiencies, of course. A few plans go further to look at the effects of the age structure on dependency and social overhead costs, and at ways in which these effects influence the potential for higher investment levels and more directly productive uses for that investment. Other plans mention the pressure of population on resources, especially in certain sectors such as agriculture.

Seven African countries discuss such problems in their plans (see Table 6). They represent 32 per cent of the African countries under study and 45 per cent of the population. Botswana's plan states that at the country's present stage of development, "economic growth is in no way assisted by the rising population." Morocco suggests a relationship between the need to reduce the population growth rate and "matters of production" but does not elaborate. Mauritius, as always, takes the large view. Stating flatly that the island "has become overpopulated," the plan goes on: "The population of Mauritius cannot be contained within the present structure of the economy. A population policy cannot in this situation be a substitute for the structural changes that are needed in the economy; it needs to be an integral part of a strategy for the economic and social development of the people of Mauritius."

The 11 Asian countries (see Table 7) total 55 per cent of the

Asian countries studied but represent 88 per cent of the population. Iran recognizes that its economic development has been adversely affected by population growth and considers the implementation of a family planning program "essential." The Philippine plan states that considerable resources that could otherwise be used for direct development projects must be diverted for educational and other services required by the country's large dependent population.

In Latin America and the Caribbean area only five countries, or 28 per cent of those studied in the region, mention the effects of population growth on economic growth (see Table 8). These countries represent only 16 per cent of the population of the area. Guatemala's plan states, "Development is a slow process, difficult and expensive, and the rapid increase in population constitutes one of the most serious obstacles."

Thus in most of these 23 plans, population growth is viewed as a hindrance but not as an overwhelming obstacle to development. Several plans, however -- Bangladesh, India, Pakistan, the Philippines, Thailand -- view population growth as the critical obstacle to development. Not a single plan explicitly states that economic growth is being reduced because population growth is too low. Argentina wants a larger population, but that is because it has "frontier" regions that it wants settled. Barbados, as we have seen, feels that its population is at the same time too small and too large -- that is, its high density does not permit continued absorption of the growing labour force in agriculture, but at the same time the smallness of its population is felt to act "as a brake on industrial development" by limiting large-scale production. No arguments are found in any other development plan in support of rapid population growth to pro-

mote economic development.

### Population Pressure on Social Services

The increasing population, as well as the increase in the number of children, is cited as a problem affecting the cost, adequacy, and nature of government social and welfare services in 22 countries, or 37 per cent of those studied (see Table 5). The population pressure from migration into urban areas, where such services are most often provided, is also discussed in many plans. Plans including only pressures from migration are not included in this classification, however.

In many respects this category encompasses the other classifications of health, education, and housing, but discussion of these factors in a plan is not sufficient to qualify the plan for inclusion here. A discussion of either other welfare programmes or social services in general has been required for inclusion in this category.

The six African countries that mention population pressures on social services in their development plans (see Table 6) represent 27 per cent of the African countries under study and 16 per cent of the African population under study. Uganda's plan claims that if the population growth rate were reduced (it does not say how much), the government would be able to "increase, by about one-third, per capita expenditure on the social services." Zambia says that the projected high rate of population growth accentuates "the need for accelerated social services development."

The nine Asian countries (see Table 7) account for 45 per cent of the Asian countries under study and 76 per cent of the Asian population under study. Nepal, concerned about the density of population

in the Katmandu Valley, says that "it will be more and more difficult to arrange necessary social and economical infrastructure (such as education, health, housing, culture and recreation) because of the increase in population." Turkey states that its population growth rate of 2.7 per cent "leads to a great amount of expenditure in ... various social services."

The seven countries of Latin America and the Caribbean that express concern about population pressure on social services represent 39 per cent of the area's countries under study but only 22 per cent of their population. Colombia regards the expansion of social services in rural areas as essential as a means of drawing people from the overcrowded cities and encouraging the present inhabitants to remain. Trinidad and Tobago assert that population pressure on social services is placing a "tremendous burden on Government recurrent expenditure."

#### High Dependency Ratio

The dependency ratio is the ratio of the population considered ineligible for productive activity to the population that is considered to be in the prime working ages. The productive years are commonly considered to be 15-65. Countries with the highest levels of fertility generally have the highest dependency ratios. The higher the dependency ratio, the greater the burden on society, although one of the positive effects of a high dependency ratio may be a younger, healthier, and more productive labour force.

Nineteen countries, or 32 per cent of those studied, recognize high dependency ratios as problems in their development plans; these countries account for 62 per cent of the combined population of the

countries under study.

The four African countries (see Table 6) account for 18 per cent of the African countries under study but 36 per cent of the population. While Nigeria recognizes that the "high youth-dependency ratio is, of course, serious from the viewpoint of mobilizing domestic saving and of growth-inducing capital formation," at the same time it considers that it "offers an opportunity for innovations in social organization, designed to harness the energies of the youth more purposefully for the development process." Tanzania considers it "very good to increase our population, because our country is large and there is plenty of unused land. But it is necessary to remember that the increasing numbers of children born every year will be babies in arms, not workers .... It is obvious that just as the number of our children is increasing, so the burden on the adults -- the workers -- is increasing."

The eight Asian countries concerned about high dependency ratios (see Table 7) account for 40 per cent of the Asian countries under study but 75 per cent of the population. Bangladesh states that if its high rate of population growth continues, "the percentage of dependent population will further increase, aggravating the already unfavourable population structure." Such a high dependency ratio is not conducive to the growth of the economy, as it will neutralize many of the gains obtained by the country's development efforts. Thailand points out that "for every 100 Thais of working age the number of dependents 15 years or under is as much as 89. This represents a heavy burden and limits the improvement of living standards for many large families."

The seven countries of Latin America and the Caribbean (see Table

8) comprise 39 per cent of the area's nations under study but only 22 per cent of their population. Venezuela notes that its population under 15 rose from 42 per cent in 1950 to 47 per cent in 1969, while the 15-59 age group fell from 54 per cent to 49 per cent.

"The proportion of adults will continue to decline, with a corresponding elevation in the coefficient of dependency and a decline of the level of participation, which has diverse repercussions, social and economic ...." Guatemala states that "the population under 15 years of age constitutes a serious problem in the short term, independent of future changes in fertility pattern, for now those already born require education at all levels and assistance in the area of health, including nutrition, for the next 15 years."

#### Population Pressure on Health Services

Many of the same factors that put pressure on education and social services are mentioned in the plans as affecting health services. It is often felt that rapid population growth, increased aspirations for medical services, and urbanization ensure the failure of current medical facilities to meet the demand for them. Some countries recognize that their health services need to be greatly expanded just to maintain the current inadequate ratios of the services to population. They also recognize that high-fertility populations with a large proportion of infants require increased medical facilities. Public health measures implemented on a large scale are, of course, credited for dramatic declines in mortality. Personal health services are viewed as inadequate and necessary, though costly.

Nineteen countries, or 32 per cent of those studied, mention population pressures on health services in their development plans;



they represented only 22 per cent of the combined population under study. The nine African countries (see Table 6) account for 41 per cent of the African countries under study and represent 45 per cent of the African population under study. Mauritius notes that free or low-cost services provided by the government, in particular the health agencies, "are an important part of the consumption of the lower income groups, which in Mauritius include the great mass of the population." A great increase in expenditures for these services "has resulted in the level of these services being barely maintained." Swaziland calculates that "if current fertility rates remain unchanged, an average of 60 new beds in general hospitals will have to be provided each year until the year 2000 to ensure that the bed:population ratio has not deteriorated by then .... Such demands would require additional physical facilities and personnel which are well beyond the reach of Swaziland's limited resources."

The six Asian countries that express concern about population pressure on health services (see Table 7) account for 30 per cent of the Asian countries under study but only 20 per cent of the population. Sri Lanka states that any further increase in the birth rate would place "inordinate strains" on hospitals and other services, "and in such a situation, it is only by a shift of investment from productive activities that it would be possible to maintain these services even at present levels." Pakistan, which in 1970 had only one doctor for 6,000 persons, one hospital bed for about 3,000, and one nurse for 1,500, says that it is committed to providing its people with adequate health care, but that every gain it manages to make in this area is "swallowed by the rapidly growing population."

The four countries of Latin America and the Caribbean that mention population pressure on health services (see Table 8) represent 22 per cent of the area's countries under study but only 10 per cent of the population. The Dominican Republic says that unless family size is reduced in the poorest, neediest sectors, expenditures for health services must increase, "reducing the amount available for the economic development that these same families need."

#### Population Pressure on Housing

Although acute housing shortages are recognized in a number of plans, housing data from precise studies are usually not available. A number of plans discuss housing problems, but only 14 countries (23 per cent of those studied) assert in their plans that housing construction cannot keep up with the increase in population or the rate of new family formations. Plans that discuss housing shortages only in terms of migration and urbanization are not included in this classification.

The three African countries (see Table 6) that recognize population pressure on housing as a problem represent 14 per cent of the African countries under study and 9 per cent of the population. Tunisia estimates that even if "old and unhealthy real estate" is renovated, roughly 59,000 new housing units will still be required each year to accommodate the population increase. Zambia declares, "The overcrowding in urban areas in general and in the squatter areas in particular is intensified by ... the high rate of demographic growth."

The seven Asian countries that are concerned about population pressure on housing (see Table 7) represent 35 per cent of the Asian

countries under study but 72 per cent of the population. South Korea's plan states that although there were 50,000 more housing units in the country in 1970 than in 1966, there was still an unmet demand in 1970 for 1.2 million residences. This meant that 22 per cent of total housing demands were not being met. Korea's planners blame the housing shortage on population growth, the dissolution of the extended family system, urbanization, and the rising costs of land and construction materials, in that order.

The four countries of Latin America and the Caribbean that acknowledge population pressure on housing (see Table 8) represent 22 per cent of the area's countries under study but only 5 per cent of the population. Guatemala estimates that during the decade of the 1970s its population growth will require a minimum of 320,000 new houses and as many as 403,000 if the growth rate is not reduced. Trinidad and Tobago declare that housing construction cannot keep up with population growth and the formation of new families.

#### Population Pressure on Individual or Family Welfare

Eleven plans (18 per cent) mention the effects of population growth on either individual or family welfare; for example, health of mothers and children and distribution of scarce resources among members of large families. Often these pressures are discussed in conjunction with a rationale for family planning service. A number of other countries indirectly imply population pressure on individual and family standards of living in their discussions of other population problems.

Four African countries (18 per cent of those under study) recognize population pressure on individual and family welfare (see

Table 6). Swaziland's planners, after discussing the ill effects of population growth on employment and health services, state, "Perhaps even more significant, however, as far as the individual is concerned, are the effects of such rapid rates of population growth on the welfare of the family .... If current fertility rates are not reduced, the number of children in the 0-14 age group will almost treble by the end of the century. This situation can only have serious detrimental effects on the health of mothers and children. Maternal death rates are known to increase sharply as the number of pregnancies goes beyond three, while the inadequate spacing of births, itself a direct cause of nutritional deficiency in mothers, also exposes their children to inadequate nutrition and care which may permanently stunt their growth and development."

Four Asian countries (20 per cent of those studied) express concern about population pressure on individual and family welfare (see Table 7). Indonesia's plan notes that the health and welfare of families and their individual members have not yet reached "proper" levels, largely because families are too large to give their members adequate clothing, health care, education, and living conditions in general. Thailand states that its high birth rate has a harmful effect on living conditions and on the quality of the labour force.

Three countries of Latin America and the Caribbean (17 per cent) are equally concerned about this problem (see Table 8). Typical in this regard is the plan of Trinidad and Tobago, which says that "it has been found necessary to reduce considerably our rapid rate of population growth" in keeping with the government's policy of raising the standard of living of the entire population.

### Population Pressure on Food or Agricultural Systems

One of the great shortcomings of development plans is the scanty attention often paid to food and agricultural development. This seems surprising in view of the near-famine conditions in some countries. It is also unfortunate because the great majority of people in the Third World live in rural areas, and agricultural productivity may well be the key to development in most nations. Too often development planners emphasize the modern sectors and high-prestige, capital-intensive manufacturing projects at the expense of agriculture. Still less has been done on the complex relations between agriculture and population.

Only ten countries, or 17 per cent of those studied, recognize population pressures on food supplies or on agricultural systems in their development plans. They do, however, represent almost half (49 per cent) of the combined population under study. The three African countries represent 14 per cent of the African countries under study but only 10 per cent of the population. Burundi notes that "the need of a growing population for space decreases the available land for cultivation." Togo notes that "the rate of increase of the production of cereals has been particularly slow and sometimes below the rate of demographic growth." Tunisia also voices concern about the pressure exerted by a growing population on food production.

Five Asian countries (25 per cent) mention this problem. Bangladesh states that as population grows, more land is needed to grow more food, and the country simply does not have enough land to satisfy the competing demands being made on it by a rapidly increasing population. Thailand feels that rapid population growth tends to reduce the average size of farms and thus slows the agri-

cultural development required to feed the additional mouths.

Only two of the countries of Latin America and the Caribbean under study voice concern about this problem. Guatemala, which recognizes nine of the ten population problems dealt with here -- only three other countries, all of them in Asia, recognize as many -- mentions this one too. Trinidad and Tobago also discuss "the need for a high rate of increase in the production of food" to feed their expanding population.

#### High Population Density Viewed as a Population Problem

This investigation has aimed to determine which plans perceive the population density to the entire country as a problem. A number of countries mention problems with urban or regional population densities, but these were excluded from the study. So, of course, was the one plan (Argentina's) that expressed the view that the density was too low.

The plans of only five countries, representing 8 per cent of those studied and 6 per cent of the combined population under study, recognize high population density as a problem. The two African countries, Burundi and Mauritius, represent 9 per cent of the African countries under study but only 2 per cent of the population. The Burundi plan calls its population density "exceptional for Africa." Mauritius, a small island, discusses its high density in relation to its size and to the fact that its agricultural technology, already at a high level, cannot employ an ever-increasing labour force.

The two Asian countries, Bangladesh and Nepal, represent 10 per cent of the Asian countries under study and 8 per cent of the population. The language of the Bangladesh plan leaves no doubt about

the seriousness with which population density is viewed there:

"The present 3 per cent growth rate of its population will double it in 23 years and treble it by the beginning of the next century. Even a doubling of population on the limited land space of Bangladesh is a disturbing prospect. A trebling of the population is simply frightful to visualise." Nepal states that its overall population density is 173.2 persons per square mile: In view of the country's mountainous terrain, the amount of habitable land, and the amount of land under cultivation, "the density of population seems to be quite high," and the population density of the Katmandu Valley is much higher. "It seems desirable," Nepal's planners say, "to launch a programme resettling some people from the highly densely populated region to the less densely populated regions ...."

In Latin America and the Caribbean, only Barbados clearly recognizes a density problem. Its high population density on such a small amount of land, its planners say, will not permit the continued absorption of the labour force in agriculture, and a lack of capital and skills prevents its absorption elsewhere.

### CHAPTER THREE

#### POPULATION POLICIES PROPOSED IN DEVELOPMENT PLANS

The population policies treated in this study are rather select: They are limited to specific policies or programmes that are designed to reduce fertility and have at least partially a demographic rationale. The study does not deal with policies involving migration (internal or international) or with policies influencing mortality. Policies that may have an unintended consequence upon fertility are also excluded, but policies that may have indirect effects on fertility are included if they have been proposed or discussed in the context of fertility reduction. A search was made for pronatalist policies in development plans but only one was found, in the Argentine plan.

Policies designed to accommodate to population growth have been excluded from the study. Although they might rightfully be regarded as population policies, they are too broad and too implicit



in other policies to be studied in this context. Accommodation policies are in some ways reflected in the sections analyzing the use of demographic data and the recognition of population problems.

This study is concerned only with population policies that have been proposed in the national development plans; it does not attempt to evaluate fully their actual implementation or demographic effectiveness. In order to assess a country's population policy fully, one must study various other dimensions, many of which are outside the planning process and the development plan. Many of the population policy programmes outlined in plans are never implemented; on the other hand, some countries implement programmes not mentioned in their development plans. Planning is an ongoing process and plans are quickly outdated, especially in regard to population, since so many countries have only recently adopted population policies. Plans are also made obsolete when governments change; this has happened to several of the plans considered in this study.

While a development plan may contain some hollow policy statements, it may also neglect to mention policies that a country in fact pursues. A policy may be unstated because it is an obvious and commonly accepted objective, such as lowering mortality; or the policy may be intentionally unstated because it is politically divisive. Government officials may have every intention of extending family planning programmes, for example, but may consider it wiser to talk only of expanding maternal and child health services. As discussed in the introduction, the reality of planning is often not very concrete; yet, if the contents of national development plans are interpreted very cautiously, they can yield important information about population policy.

TABLE 9 Population policies in national development plans of 1970s by (A) percent of countries under study and (B) percent of population of countries under study

Population policies	Percent of countries under study (N=60)		Percent of total population of countries under study (N=1,485M)		Africa (N=218M)		Asia (N=1,062M)		Latin America and the Caribbean (N=205M)	
	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Support of family planning for demographic reasons	42	74	36	44	60	91	28	14		
Integration of family planning with health services	28	67	23	30	55	88	6	0.5		
Population growth targets	25	55	23	14	40	74	11	0.5		
Extension of family planning services	23	59	18	10	40	80	11	0.5		
Socioeconomic development and fertility decline	15	49	9	12	25	66	11	1		
Family planning acceptor targets	15	59	5	2	35	82	6	0.5		
Family planning education	17	49	18	14	15	63	17	11		
Population education	12	49	5	0	25	67	6	10		
Delay of marriage to reduce fertility	7	46	0	0	15	62	6	10		
Use of mass media for family planning information	7	42	0	0	10	59	11	0.5		
Motivation schemes for smaller families	5	6	5	2	10	8	0	0		
Policies on abortion	5	43	5	2	10	59	0	0		
Family planning incentive schemes	5	45	0	0	15	62	0	0		
Improved status of women and fertility decline	3	2	0	0	0	0	11	13		
Comprehensive population strategy	3	42	0	0	10	59	0	0		
Pronatalist policies	2	2	0	0	0	0	6	12		

M = Million.



TABLE 11 Population policies in national development plans of 1970s, Asia

Countries	Support of family planning for demographic reasons	Integration of family planning with health services	Population growth targets	Extension of family planning services	Socioeconomic development and fertility decline	Family planning acceptor targets	Family planning education	Population education	Delay of marriage to reduce fertility	Use of mass media for family planning information	Motivation schemes for smaller families	Policies on abortion	Family planning incentive schemes	Improved status of women and fertility decline	Comprehensive population strategy	Pronatalist policies
Afghanistan																
1967-1971																
Bangladesh	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1973-1978																
India	X	X	X	X	X	X	X	X	X	X		X	X		X	
1974-1979																
Indonesia	X	X		X		X										
1969/70-1973/74																
Iran	X	X							X							
1968-1972																
Iraq																
1970-1974																
Israel																
1974-1978																
Korea, Republic of	X		X		X											
1972-1976																
Laos																
1969-1974																
Lebanon																
1972-1977																
Malaysia	X	X	X	X		X	X				X					
1971-1975																
Nepal	X	X	X	X	X	?										
1970-1975																
Pakistan <sup>a</sup>	X	X	X	X		X							X			
1970-1975																
Philippines	X		X			X	X	X								
1972-1975																
Saudi Arabia																
1970																
Sri Lanka	X	X		X												
1972-1976																
Taiwan <sup>b</sup>																
1969-1972																
Thailand	X	X	X	X		X	X									
1972-1976																
Turkey	?	X			X											
1973-1977																
Vietnam, Republic of <sup>c</sup>	X	X														
1972-1975																

<sup>a</sup>Before the independence of Bangladesh.

<sup>b</sup>Taiwan's family planning program and population policies are not presented in its five-year economic development plan, but they are outlined in its ten-year health plan (1966-1975).

<sup>c</sup>Before unification with North Vietnam.

? = Policy as stated in plan does not fit category precisely.



This study looks at 16 dimensions of policy found in national development plans (see Tables 9-12) and discusses them in order of their frequency. The policy classifications provide a framework for a systematic review of the plans' contents. They are not meant to imply approval or advocacy of any particular policy in all cases.

#### Support of Family Planning for Demographic Reasons

Of the countries that propose or support family planning programmes in their national development plans, nearly all do so with the expressed intention of reducing the rate of population growth. This demographic rationale is often listed among such other goals as family well-being and maternal and child health, but every country studied supports such a policy at least partly from a demographic point of view. In all, the development plans of 25 of the 60 countries, or 42 per cent, support family planning for demographic reasons. These countries represent 74 per cent of the combined population under study; but, of course, only a fraction of this population is actually covered by such programmes.

In Africa, 8 of the 22 countries, or 36 per cent, support family planning programmes for demographic reasons (see Table 10); they represent 44 per cent of the combined African population under study. The Botswana plan expresses the hope that, partly with the help of the International Planned Parenthood Federation, a network of maternal and child welfare clinics can be established at which family planning advice will be available. The plan states that the country "can ill afford to allow a population explosion to outstrip the economic expansion." Kenya supports a family planning programme partly for demographic reasons and partly in the context of rising unemployment;

plans of its programme expansion are outlined. Mauritius reports "a dramatic decline in fertility" and supports expansion of its family planning programme to reduce the island's fertility further. The plan contains a full chapter on the country's demographic situation, including details of programmatic implementation and population growth targets. Morocco continues to support its family planning programme for demographic reasons and presents a new population growth target. The plan also discusses "the weaknesses of past efforts." Nigeria proposes the integration of its family planning programme with the health ministry as a part of its overall population policy. It also announces that the government will establish a national population council to oversee the country's family planning and population activities and to coordinate external aid support for them. Swaziland discusses at some length the problems caused by rapid population growth and concludes that a family planning programme would be highly beneficial; however, no details of implementation are presented. The Tunisian plan outlines in detail the population growth targets of Tunisia's family planning programme, including the number of births to be averted by various future dates. Uganda supports family planning services because of the social, economic, and health problems arising from high birth rates. In addition, a population growth target is given for the programme.

In Asia, 12 of the 20 countries, or 60 per cent, support family planning programmes for demographic reasons in their plans (see Table 11); they represent 91 per cent of the combined Asian population under study. The Bangladesh plan states in detail the country's plans for implementing its family **planning programme**. Sri Lanka urges continued support for family planning but stresses that not nearly enough is

being done to come to grips with its severe population problems. The Thai planners outline in some detail their government's strengthened support of its family planning programme, and hope that it will substantially reduce the rate of population growth over the plan's duration. The South Vietnam plan, written before the end of the Vietnam war, mentions only a proposal to establish a family planning unit in every hospital, with the goal of limiting the rate of population growth to 3 per cent.

In Latin America and the Caribbean 5 of the 18 countries, or 28 per cent, support family planning programmes for demographic reasons in their plans (see Table 12); they represent 14 per cent of the combined population of the 18 countries under study. The Barbados plan gives continued support to family planning in the hope that the birth rate will be reduced and the rate of population growth will be no greater than 1 per cent. In the Colombian plan there is some ambiguity about direct support of family planning. Although Colombia does have a policy of reducing fertility for demographic reasons and does urge that information and medical services be made available in this connection, it does not outline programmatic details or use the words "family planning." It does, however, outline a number of family planning and "beyond family planning" measures to be taken. The Guatemala plan discusses several of its population problems and then identifies as its best alternative a family planning programme formulated in light of traditional attitudes and with respect for human life. No details of implementation are discussed. The Panama plan recommends that family planning be included as a part of its overall development strategy so that, over the long run, more funds will be available for direct economic development in place of expendi-



tures on health and education for a larger population. The Trinidad and Tobago plan presents programmatic details for family planning services that it is hoped will considerably reduce the rate of population growth and halve the birth rate in a decade.

#### Integration of Family Planning With Health Services

A number of countries seeking to extend their provision of family planning have emphasized its integration with the national health system. This may or may not result in more effective or more utilized service; but if such integration is emphasized in the plan, it has been done at least partially with this end in mind. Since several of the countries under study have already fully integrated their family planning programmes with their health services, and some countries that do not officially sponsor family planning programmes nevertheless make family planning services available as a health measure in government health facilities,

conclusions about the residual countries cannot be based only on the information given here. In all, 17 of the 60 countries, or 28 per cent, mention in their national plans the integration of family planning with their health services; they represent 67 per cent of the combined population under study.

Five of the 22 African countries, or 23 per cent, mention in their plans the integration of family planning with health services in some form (see Table 10); they represent 30 per cent of the African population under study. Botswana urges the establishment of a network of maternal and child health (MCH) clinics at which family planning advice would be available. Mauritius proposes that family planning services be made available in 50 health clinics, 30 of which

are to be built during the plan period. Nigeria advocates the integration of various voluntary family planning schemes with the health and social welfare ministry. Swaziland stresses that family planning services could be implemented most effectively by being integrated with the public health service, and especially with the regular MCH clinics. Uganda advocates the gradual administrative take-over of the family planning programme by the Ministry of Health and the training and equipping of the health staff for this service.

Eleven of the 20 Asian countries, or 55 per cent, support this integration in their plans (see Table 11), and they represent 88 per cent of the Asian population under study. The Bangladesh plan emphasizes that the Ministry of Health and Family Planning will supply contraceptive materials and services through its multipurpose field-workers. India aims at increasing the integration of family planning services with those for general health, MCH, and nutrition. Indonesia endorses government support for family planning activities by the MCH clinics, but the integration of nongovernment programmes with the health ministry is not mentioned in the plan. Iran proposes that 250 counseling and MCH centers be converted into family welfare centers, where family planning services would be provided along with other health services. Malaysia proposes the integration of the family planning service with the rural health service system. Nepal says its family planning efforts have been intensively operated within the family planning and MCH project and that special family planning training has been given to its regular health personnel. Pakistan urges that wherever multipurpose rural health centers are available, family planning workers will be induced to integrate the services. The Sri Lanka plan states that family planning services are provided

in 40 per cent of the MCH clinics on the island but still in isolation from most of their antenatal and postnatal activities. The plan asserts that provision is being made for family planning services to be well integrated with MCH activities throughout the island. The Thai plan proposes the integration of family planning services with 100 hospitals and 4,000 health clinics. Turkey supports family planning in provincial health units as part of an integrated system of health care. The South Vietnam plan, written before the end of the war in Vietnam, proposes a family planning bureau at every hospital.

Of the 18 Latin American and Caribbean countries studied, only one, Trinidad and Tobago, mentions this integration in its development plan. It proposes to establish a family planning unit within the Ministry of Health. In addition to administering such activities, the unit would create a climate within the health services conducive to the provision of family planning services as an integral part of the country's health care.

#### Population Growth Targets

It is important for development objectives to be quantified lest they become completely meaningless and impossible to evaluate; yet many of the early attempts to quantify population growth targets proved to be overly optimistic and highly impractical. Part of the problem arose because the planners often set targets without examining the assumptions (demographic as well as programmatic) that were necessary for their achievement.

Fifteen of the countries studied here, or 25 per cent, present some form of population growth target; they represent 55 per cent of

the combined population, but only because Asia so outweighs the other regions. Although the targets are expressed in various parameters -- birth rates, rates of growth, gross reproduction rates, birth averted, and so on -- and over a range of time periods, all of them represent reductions in growth rates. Argentina, the only country trying to increase its growth rate, sets no specific target.

The plans of five African countries mention population growth targets (see Table 10). They represent 23 per cent of the African countries under study but only 14 per cent of the population. Botswana has a goal of reducing its 3.0 per cent rate of growth to 2.5 per cent per year averaged throughout the decade of the 1970s. It is hoped that this can be accomplished through the establishment of a network of MCH clinics that will provide family planning services and also through a programme of family planning and population education. The Mauritius plan establishes the goal of reducing the gross reproduction rate from 1.9 in 1969 to 1.2 in 1980-1985. Morocco hopes that its birth rate can be decreased from 49 per 1,000 in 1972 to 43 in 1977. Tunisia hopes for a reduction in its general fertility rate from 162 in 1971 to 138 in 1981. The Ugandan plan presents the goal of reducing the rate of growth to 3 per cent in 1979. The plan suggest that a 10 per cent fertility decline would reduce the crude birth rate to 45 per 1,000; with a crude death rate of 15 per 1,000, the 3 per cent goal would be achieved.

In Asia, eight countries, or 40 per cent, have population growth targets (see Table 11), and they represent 74 per cent of the population. Bangladesh sets the goal of a reduction in its rate of increase from 3.0 per cent to 2.8 per cent during the plan period, 1973-1978. The projected goal is a decline in the crude birth rate from 47 to 43

per 1,000 along with a decline in the crude death rate from 17 to 15 per 1,000 by the end of the plan period. The Fifth India Draft Plan discusses an earlier plan's goal of reducing the birth rate from 39 to 32 by the end of the Fourth Plan period and then to 25 in another five to seven years. The planners expected that by the beginning of the Fifth Plan period (1974) the birth rate would be around 35, but that a drop to 25 by 1980-1981 was not feasible. The new target is to lower the rate to 30 by the end of the Fifth Plan period (1979) and then to 25 by 1983-1984. Contraceptive acceptor targets are proposed in order to link programme efforts with these goals. South Korea proposes to reduce its population growth rate from 1.8 per cent in 1970 to 1.5 per cent in 1976. Malaysia proposes to reduce the rate of population growth from 3 per cent to 2 per cent by 1985. The specific goal during the five-year plan period is a reduction in the birth rate from 35 per 1,000 to 32 by 1975. Malaysia also links its contraceptive acceptor targets to this goal. Nepal aims to reduce its birth rate from around 40 births per 1,000 by bringing about social and economic changes, and through providing family planning to at least 15 per cent of married couples. Pakistan aims to reduce the crude birth rate from 45 to 40 during the plan period (the plan was drawn up before the independence of Bangladesh). The Philippine planners set a goal of 50,000 contraceptive acceptors per month; if this goal is attained, they are reasonably confident that it will reduce the rate of population growth from 3.1 to 2.0 per cent per year. The objective of Thailand is to bring the growth rate down from 3.0 to 2.5 per cent by the end of the plan period (1976).

Only two countries of Latin America and the Caribbean, or 11 per cent, have population growth targets (see Table 12); they represent

less than 1 per cent of the population. The objectives of the Barbados plan are to bring the birth rate down from 22 in 1967 to no more than 20, and the rate of increase down to no more than 1 per cent per year. Trinidad and Tobago aims to reduce the birth rate by 50 per cent over a period of ten years. Contraceptive acceptor targets are also presented in the plan.

#### Extension of Family Planning Services

Among the national plans that express support of family planning for demographic reasons, a few place special emphasis on its extension to a greater proportion of the public, to the population in the rural areas, or to low-income groups.

In Africa, Botswana proposes to establish a network of MCH clinics with family planning services. Kenya proposes to double the existing 130 family planning clinics (outside of Nairobi) and to more than double to 700 the number of part-time family planning workers. The plan's proposed intent is to serve "most of the adult population." Mauritius proposes family planning services for 50 health clinics; 30 of the clinics are to be built during the plan period, with 20 located in the towns and 30 in the rural areas. Tunisia proposes to advertise its family planning programme more intensively but does not indicate whether its family planning services will have to be expanded if its campaign is successful in attracting acceptors. Uganda proposes the use of mobile units to enable the programme to reach "all areas of the country."

In Asia, Bangladesh proposes a broad extension of services and also aims to reach women under the age of 30 as well as older women. India also proposes a broad extension of services with emphasis on

younger as well as older women, taking into account the preferences for different methods by women of different ages. A special effort is to be made in the poorest urban areas and tribal areas through the disadvantaged-area scheme. Indonesia proposes an emphasis in the urban areas because facilities and personnel are available there and because the motivation to accept the services is highest there. The programme would first be instituted in the large cities and provincial capitals, then in the district capitals, and finally, in the last few years of the plan, in the rural villages. Malaysia discusses its recent integration of family planning with the rural health service in selected areas; the planners hope that effective programmatic approaches will be developed in these selected areas and then be used in the remaining rural areas. Another objective is an increase in the number of acceptors in the urban areas. The possibility of government support for a programme in Sabah and Sarawak is also mentioned. Nepal proposes the establishment of 260 family planning and MCH clinics; 60 such clinics were reportedly opened during the previous plan period. It is hoped that these clinics will provide services to 15 per cent of the married couples in the country. The Sri Lanka plan states that the family planning activities have been "insignificant in relation to the magnitude of the problem," and that only 40 per cent of the MCH clinics provide family planning services. The plan proposes a special emphasis on the population in the lowest income groups. Thailand proposes to aim its family planning programmes at the low-income groups and to extend them to the rural areas through the health stations.

In the Caribbean, Barbados plans to concentrate its efforts on the lowest income groups and to attempt islandwide coverage through

four full-time and seven part-time clinics. Trinidad and Tobago also has a goal of islandwide availability of family planning services.

#### Socioeconomic Development and Fertility Decline

It has been argued that, in the long run, development is the most important way of reducing fertility. The aims of this section are to determine which governments discuss socioeconomic development in its relationship to a decline in fertility and to what extent it is assumed that development will itself result in fertility decline. Are countries without explicit population policies assuming that development will reduce their fertility? Perhaps they are; over the long run it is certainly not an unreasonable assumption. But out of 60 countries studied, 34 have no explicit policy to reduce fertility in their plans, and of those, 22 recognize no population problems in their plans (see Figure 5). Presumably these 22 countries are not waiting exclusively for development to reduce their fertility; it is possible, though, that they do not recognize any problems because they anticipate that development will reduce their fertility or at least enable them to accommodate to it.

Of the remaining 12 countries that did recognize a population problem but had no policy in their plans, 4 have officially adopted population policies and programmes outside the plan, thus not waiting exclusively for development, and 4 others actually support family planning programmes for nondemographic reasons. Thus only 4 remaining countries (Burundi, Togo, Zambia, and Guyana) recognize a population problem in their plans but have no specific policy to reduce it or give support to an official family planning programme. None



of the 34 countries explicitly states that development would result in a decline in fertility or a slower rate of population growth, although they may tacitly assume that is would.

Of the 26 countries that do have a policy to reduce the rate of population growth in their plans, only 9 explicitly state that development will result in a decline in fertility, though again some of the others may tacitly assume so. Surprisingly, perhaps, only one plan with a policy to reduce fertility explicitly argues that fertility will decline sufficiently by itself as long as development progresses. Every plan that explicitly assumes that its development will result in declining fertility also gives support to a family planning programme, although only 8 countries do so for demographic reasons. Thus, with the possible exception of Turkey, none of these countries explicitly rejects all other population policies and then proposes only development as an exclusive approach to reducing its rate of population growth.

It is argued by some that a key to sustained fertility decline is not merely economic growth but broad development that improves the income equity of the poorest and often the most fertile populations. In some plans governments do design development strategies with a real emphasis on improving the distributional aspects of government programmes and improving the welfare of the rural poor. But this is done, at least ostensibly, for its own sake, and any presumed consequence of reduced fertility is not explicitly mentioned.

Kenya feels that the rising standard of living as well as its population policies will, over the long run, result in some decline in the rate of population growth. Morocco hopes its population policies will accelerate what it calls a "normal decline" in fertility

due to "cultural progress," social changes, and attitudinal changes.

In Asia, Bangladesh discusses the linked roles of development and fertility and proposes that a population study centre be established for the study of development efforts in relation to population growth. The India draft plan suggests that, in addition to India's population policies, urbanization and "socio-economic constraints" may be contributing to the reported decline in fertility. South Korea attributes its fall in fertility to a rise in income, to rapid urbanization, to education, and "particularly to the family planning programme." The Nepal plan emphasizes that the prerequisites for reducing fertility are changes in the socioeconomic conditions, "cultural patterns, and aspirations of the common man." Another need is a family planning programme that will consolidate the changes in motivation brought about by earlier development. The Turkish plan supports family planning as a health service but not ostensibly for demographic reasons. It does explicitly state the expectation that a decline in fertility will occur as a consequence of changes in socioeconomic conditions.

In a discussion of its population policy the Barbados plan mentions that need for general development, rising standards of living, and increased education to reduce fertility; however, it calls these measures slow, expensive, and difficult because "habits and traditions of the people die hard." The solution, it argues, must be found in the whole strategy of economic and social development that improves the standard of living, increases industrialization, expands educational facilities, and improves the understanding of sociological development. It further argues that family planning programmes should be included in this strategy.

### Family Planning Acceptor Targets

This study attempts to identify countries that have proposed some sort of family planning acceptor target; such a policy is important because it ties in population growth targets with programme efforts. Quantification of this sort allows one to examine the feasibility and assumptions of a plan's population targets, and later to evaluate the implementation of the programme. There is considerable debate, however, about the validity of assessing the programme's demographic effects and births averted merely by the analysis of acceptor rates from service statistics.

In Africa, only Tunisia presents a contraceptive acceptor target. The programme began in 1971 with 50,000 women, and a target of 160,000 women is set for 1981. Tunisia hopes that by that time some 300,000 births will have been averted.

Seven Asian countries (35 per cent) discuss acceptor targets in their plans. In Bangladesh, which hopes to lower its birth rate from 47 to 43 by 1978, the target population consists of women under 30, who contribute 82 per cent of all births. The draft of India's Fifth Plan states that 15 million couples had been protected under the family planning programme at the time the Fifth Plan was drawn up, and expresses the hope that the number will be raised to 19 million by the end of the "current" (Fourth?) plan period. The Fifth Plan (1974-1979) has targeted 18.0 million sterilizations, 5.9 million IUD insertions, and 8.8 million conventional contraceptive users. Indonesia expresses the hope that its policies will help prevent 600,000-700,000 births by reaching a target of 3 million contraceptive acceptors. Malaysia plans to reduce its birth rate from 35 to 32 by 1975; the family planning programme has been

given a five-year target of 600,000 new contraceptive acceptors. The Pakistan plan outlines in detail the government's present and past goals for contraceptive acceptors and births averted; the target for the Fourth Plan (1970-1975) was 9.6 million births averted. It is indicated that the Third Plan (1965-1970) proposed 5 million births averted, but that only 3.3 million were reportedly averted, almost entirely by IUDs. The Philippine plan proposes a target of 50,000 contraceptive acceptors per month; it is hoped that this will result in a drop in the population growth rate from 3.1 to 2.0 per cent per year. Thailand anticipated that some 2.5 million family planning acceptors could be reached during the plan period, 1972-1976, and hoped that this would reduce the rate of growth from 3.0 to 2.5.

In Latin America and the Caribbean, only Trinidad and Tobago sets a contraceptive acceptor target. In order to reduce the birth rate by half in ten years, the island nation aims to provide free contraceptives to more than 100,000 women per year.

#### Family Planning Education

Family planning education programmes are mentioned in the development plans of only ten of the countries under study. In most of these plans the coverage is limited to one or two sentences and includes no detailed plans for implementation.

In Africa, Botswana stresses that, without efforts to improve knowledge of family planning while medical services are improved, its rate of population growth may rise above 3 per cent. Morocco supports the establishment of a family planning information campaign. In Uganda, information on family planning is reported to be dissem-

inated by government publicity agencies and through ministry offices in contact with the people in the rural areas. Tunisia recommends that information about its family planning programme be more widely disseminated among mothers during the postpartum period.

In Asia, the Bangladesh plan proposes that the Ministry of Information and Broadcasting disseminate family planning information. It also suggests that such information be included in the nutrition-agricultural extension education programmes of the Ministries of Agriculture and Rural Development and in the social work programmes of the Ministries of Labour and Social Welfare. India's draft plan proposes a number of family planning educational approaches through individual and group contacts and audiovisual media.

In Latin America and the Caribbean, the Barbados plan mentions a recent six-week family planning publicity and education drive, and proposes to supply funds to its Family Planning Association for a yearly education drive. Colombia proposes to make information on family planning available and to raise the general educational level "with the aim of developing greater parental responsibility." The Trinidad and Tobago plan expresses the hope that the family planning education programme will "orient the thinking of the population towards a more enlightened acceptance of our Family Planning policies ...."

#### Population Education

Education about population issues, distinguished here from family planning education, forms a part of the population policies of seven development plan.

In Africa, the Botswana plan urges the education of the whole nation

about the "issues involved," presumably both population issues and family planning methods.

Bangladesh devotes more attention to population education than any other Asian country. It urges a major educational campaign to draw attention to the seriousness of population growth and proposes to set up group discussions in villages, factories, schools, and colleges. The plan urges political leaders, teachers, social workers, and intellectuals to voice their concern about the high rate of growth. It proposes that the Ministry of Education introduce population education into the curriculum at all levels. The Ministry of Information and Broadcasting is to use radio, television, newspapers, posters, and pamphlets to transmit information on both population problems and methods of family planning. The Ministry of Labour and Social Welfare is to stress population and family planning through relevant social work programmes. The plan expresses the hope that these measures will at least bring about a climate that will permit the "possibility of more drastic measures, such as compulsory sterilization of either husband or wife after the second child, legalization of abortion and the establishment of abortion clinics for performing abortion free of cost, social measures to bring about women's emancipation, etc....."

The Indian draft plan only remarks that the population education will be given greater emphasis in radio and other mass media. The Malaysian plan mentions the recent government decision to introduce population-related subject matter into the curricula of the public schools. The Philippines proposes to integrate information on population and family planning with school curricula and to promote understanding of the consequences of differing rates of population

growth upon family and national well-being. The national development plan of Thailand urges programmes to promote understanding of the country's population problems, especially among the young. It is suggested that these programmes be brought into being by curriculum changes in the areas of adult education, nursing, and midwifery, in teacher training programmes, and in some areas of higher education.

Barbados considers the solution of its population problems to lie in, among other things, "expanded educational facilities and a deeper understanding of our sociological development."

#### Delay of Marriage To Reduce Fertility

Delayed marriage and reduction in the proportion of the population that does marry will obviously reduce overall fertility rates.

Policies designed to encourage changes in marriage patterns for demographic reasons are discussed in only a very few national plans.

Tunisia considered raising the minimum legal age of marriage for women from 17 years to 18 years in order to reduce fertility, but the proposal was rejected, largely on the grounds that it would create other social problems and hardships for the 30 per cent of women who now marry as soon as they reach 17 and for the thousand or so who marry below the current legal age (with special authorization) each year. A further stated reason for the rejection of the proposal was that it had been estimated that such a change in policy would avert only 2,000 births a year (no method of estimation is discussed).

In a single sentence the Bangladesh plan mentions that measures to promulgate a law raising the legal age of marriage will be undertaken by the relevant ministries during the plan period. The policy is raised in the context of reducing the rate of population growth,

but no details of implementation are given.

The Iranian planners deem as "essential ... the establishment of relative equilibrium of the lower age groups in the population during the Fourth Plan period by means of the strict enforcement of Article 1041 of the Civil Law concerning the prohibition of marriage for women under 16 years of age."

The Colombian plan suggests that such measures as longer retention in the educational system, youth movements, and voluntary or obligatory social services for women should be taken to encourage later marriages.

#### Use of Mass Media for Family Planning Information

Of the countries that propose family planning education, only four discuss the use of mass media. The subject is often limited to one or two sentences and is presented without detailed plans for implementation. There is some ambiguity about whether an information campaign (discussed under family planning education) may also imply use of the mass media, but only countries that actually mention public or mass media are included in this category. The distinction has been made for the purpose of making visible what may be a qualitative difference in the overall impact of family planning education.

No African plans specify the use of the mass or public media for family planning education, although it may have been implied in the information campaigns proposed in Botswana, Morocco, Tunisia, and Uganda.

In Asia, Bangladesh proposes the use of radio, television, newspapers, posters, and pamphlets in addition to the proposed educational schemes of various ministries. The Indian draft plan proposes the



use of radio and television as part of the overall information campaign.

In Latin America and the Caribbean only the Barbados plan and the Trinidad and Tobago plan mention the use of radio broadcasts to support family planning information campaigns.

#### Motivation Schemes for Smaller Families

While a number of countries have discussed publicity campaigns and even monetary incentives to induce people to accept contraceptives or sterilization only three discuss policies designed either to motivate people to desire smaller families or to penalize those who have large families.

The Tunisian plan proposes an investigation into the impact that could be achieved by a change in the family allowance system that would discourage couples from having more than three children by providing greater payments to small families and to single persons. The planners acknowledge that this scheme would not have a significant demographic impact, but they feel that it would at least bring consistency to family planning policies.

The Bangladesh plan urges the consideration of "progressively increasing punitive measures against additional children after the second child on all couples." The possibility of restricting ration cards to a maximum of two children per family is raised, as well as the idea of prohibiting couples with more than two children from using the fair-price shops. These measures are discussed more as long-range possibilities than as immediate policy proposals. The Malaysian plan proposes that maternity benefits for government workers be allowed for the first three children only.

There are many other intervention policies that a country might propose, especially within the context of its national development plan, but these issues have not been discussed in the development plans under study here.

#### Policies On Abortion

Only three national plans discuss abortion.

Tunisia's plan states that if the country is to reach its "demographic objective," it must avert more births each year than can be averted by its family planning effort. The "supplementary 'saving' of births ... should reach 15,000 in 1981." To reach this "supplementary" target, about 30,000 pregnancies must be interrupted by 1981. At the time the plan was written, Tunisia's laws authorized "social" (nontherapeutic) abortions only for women who already had at least five living children. The plan announced that this legislation would be revised to permit realization of Tunisia's demographic objective.

The Bangladesh plan asserts that the legalization of abortion is probably one of the best and most effective strategies for controlling population growth, and it declares that, "while keeping in mind the question of social acceptability, all efforts must be made to allow this method to play its proper role in controlling the growth of population in Bangladesh."

The India draft plan mentions in only a single sentence India's increased facilities for "medical termination of pregnancy"; the plan asserts that abortion may have some demographic impact on the national birth rate.

### Family Planning Incentive Schemes

Various monetary incentive schemes for encouraging people to use birth control have been proposed in the Third World, and a considerable debate has developed over their ethical and practical implications. Only Bangladesh, India, and Pakistan, however, give any attention to such incentives in their development plans. Bangladesh stresses that its incentive scheme led to corruption and inflated acceptance reporting, which distorted the perspective of the programme and actually reduced its effectiveness by overburdening administrators with disbursement duties. The plan proposes a new system of incentives for vasectomies, tubal ligations, and abortions, with demographic impact forming its basis rather than acceptance of contraceptives. The India draft plan supports the continuation of "compensation" payments for sterilizations and IUD insertions. Details of the incentive scheme outlined in Pakistan's plan need not be reviewed here because it is significantly outdated, having been written before the independence of Bangladesh.

In addition to family planning incentive schemes designed for the individual, Bangladesh and India propose schemes for incentives on the community level. Bangladesh proposes a zonal award through priority in funding for community facilities. India proposes a "package of community incentives and awards." No elaboration is given in either plan about implementation of such programmes.

Bangladesh apparently proposes to end incentive payments to family planning workers (based on the number of recruits) because they lead to corruption and programmatic ineffectiveness. India proposes to discontinue incentive payments to doctors and family planning workers gradually and to institute instead a community

awards system.

#### Improved Status of Women and Fertility Decline

Measures to improve the roles and status of women, for their own sake or in connection with a presumed negative effect on fertility or for their inputs to development, are all but absent from the national development plans reviewed in this study. Only the plans of Colombia and Guatemala make any mention of women's roles in connection with reducing population growth.

The Colombian plan urges that its population policies be accompanied by the creation of equal opportunities for women in all aspects of life, including jobs traditionally reserved for men, equal salaries, and increased social mobility. It also proposes that women be involved in social services on either an obligatory or a voluntary basis. No details of implementation are given, however.

The Guatemalan plan, in one phrase of a single sentence, urges that a policy of full employment include increased participation of women. This statement is made at least partly in the context of advocacy of some general type of population policy, but again no details of implementation are given.

Bangladesh expresses the hope that its population education campaign will create a climate in which a number of "drastic" measures may someday be considered, among them compulsory sterilization, legalized abortion, and "social measures to bring about women's emancipation."

#### Comprehensive Population Strategy

The plans of only two countries, Bangladesh and India, substantially

integrate their proposed population policies into a comprehensive population strategy. Both countries attempt, in their plans, to use other concurrent and reinforcing programmes, to use a broad range of population policies, to work through a number of ministries and departments, and to strive toward some consistency in related policies. These sections of the plans offer only proposals for policy strategies; actual implementation is perhaps quite another story.

Most of the countries have made little effort to integrate comprehensive population strategies with the various economic and social sectors of their plans. Appendix D lists the countries according to the number of policies proposed in their plans, to give some indication of the breadth and comprehensiveness of their population strategies.

#### Pronatalist Policies

Only one country of the 60 studied advocates a pronatalist policy in its national development plan: Argentina. This pronatalist and proimmigration policy stems from Argentina's desire to populate its frontier regions. Argentina feels that the population is in "regional disequilibrium," and that the situation is made worse by migration from the frontier regions to the urban areas. The plan's goal is simply stated: "to increase births." No explanation of ways in which more births may be encouraged is given. The plan also aims at reducing mortality, increasing international immigration, decreasing emigration, and promoting internal migration to the southern, northeastern, and central provinces.

Brazil, a country that has expressed some pronatalist arguments elsewhere, presents none in its national development plan. An early

plan of Ethiopia (1963-1967) described its rapid population growth as "encouraging," but the more recent plan (1968-1973) does not discuss any population problems or policies.

## CHAPTER FOUR

### AN ASSESSMENT OF THE POPULATION POLICIES AND PROGRAMMES OF PAKISTAN AND BANGLADESH

The previous chapters have analyzed the population content and policies in development plans alone. The following three chapters examine population concerns and development planning for Pakistan and Bangladesh in broader contexts. Chapter Four examines the population policies proposed in the plans, and the extent to which they were implemented and effective. The administrative, political, social, and economic realities affecting the population programmes are briefly assessed.

#### The First Five Year Plan (1955-1960)

The First Five Year Plan (1955-1960) had all sorts of diffi-

culties;<sup>1</sup> it was not commissioned until 1955, some eight years after independence; it was not published until December 1957 — midway through the plan period; and not authenticated by the government until 1958. It was moralistic and libertarian in tone and deliberately published many false estimates to make the development setting look more optimistic. The Plan itself never became operational;<sup>2</sup> and the rest of the government's development efforts during that period are generally regarded as a complete failure, and the country's poor agricultural performance ensured that development targets would not be met.

Of course, the political setting for the First Plan could hardly have been worse. Prior to independence, the Muslim League was so involved in its fight for partition and against Hindu dominance

<sup>1</sup>In April of 1958 Pakistan's prime minister stated: "I was staggered to learn that until a few days ago the Five-Year Plan had not even been authenticated by the Government for publication. With hardly two more years to go, the Plan continues to be regarded as routine departmental file, meant only for recording of prolific notes and cross-notes. Even a properly coordinated machinery for the implementation of the Plan has not yet been evolved." (Quoted in Mushtaq Ahmad, Government and Politics in Pakistan, Pakistan Publishing House, Karachi, 1959, p. 68.)

<sup>2</sup>"The first five-year plan was commissioned in 1955, full eight years after independence. It did not receive formal approval of the government till 1957. During these years there was a total neglect of the primary sector of our economy — agriculture; we squandered the windfall surpluses of the Korean war boom in buying, on open General Licenses, European cosmetics and radios. It is not only that we failed to develop basic heavy industries. We did not even make any provisions for their future establishment; not even to the extent of starting to get our men trained in basic technologies. And, lastly, we completely neglected the exploitation of our minerals. Not even a survey was undertaken." (An address by Professor Abdus Salam, President, XIII Annual All Pakistan Science Conference, Dacca, 11 January 1961.)



that no social or political programmes were articulated (unlike the Indian Congress), Islam was the answer. It was clearly in the class interest of the Muslim League and those who came to power not to make social change the issue. Following the death of Jinnah in 1948, the break-up of the League, and the assassination of Ali Khan in 1951, various groups competed not for principles and programmes but openly for the spoils of corruption. Unabashed corruption continued and became so pervasive that by the time the First Plan was published, just prior to Ayub Khan's take-over, Pakistan's Chief Minister admitted that "from top to bottom, there was hardly a person who was not corrupt."<sup>1</sup>

The Pakistan Civil Service, maintaining some colonial traditions, did manage to restore law and order from the near anarchy conditions of independence.<sup>2</sup> But more than law and order was needed for development and such a law and order mentality was inimical to social change and land reform. The Pakistan Civil Service was neither willing nor able to undertake serious social reforms or

<sup>1</sup>Pakistan Times, August 26, 1958.

<sup>2</sup>"So far as law and order, administration of justice and collection of revenues...are concerned, the system continues to serve the country reasonably well. The efficiency of the system within this essential field invests it with a factitious appearance of adequacy for all purposes, including the new and supremely important task of planned development. This, on the one hand, creates a psychological atmosphere of complacency unfavourable to reform, and, on the other, increases the inertia of the system, its power of resisting change." Pakistan, National Planning Board, The First Five Year Plan, 1955-60, Karachi, December, 1957, Vol. I, p. 99.

properly plan for development.<sup>1</sup> This arrangement of stability without land and other egalitarian reforms was clearly in the interests of the wealthy classes whose ranks were now being swelled by the corrupt civil service.

The First Plan gave substantial attention -- an entire chapter -- to the growth of the population and the labour force. Although the demographic estimates were not adequate, the Plan did deliberately underestimate the rate of population growth so that it would convey a more optimistic tone.<sup>2</sup> Serious population problems were recognized however ("Pakistan, with other countries in Southern Asia, confronts a serious population problem"...[there are]"...dangers of population growth outpacing growth in national income.") A half million rupees were appropriated in the 1957-58 central budget to support private family planning programmes ("mainly by private agencies, for carrying out family planning work in a few big cities."). This policy was supported both for demogra-

<sup>1</sup> According to the National Planning Board's Chief Economist in 1955: "It is...probable that the per capita income after 1954-55 would be less than what it was about seven years ago. Inequalities in income have increased. A smaller national income, relative to the size of the population, more unequally distributed than before, implies that the living standards of the masses of the people which were already very low, have deteriorated still further." (M. L. Qureshi, Conference of the Pakistan Economic Association, Peshawar, 1955, p. 11.)

<sup>2</sup> "When the Five-Year Plan was being framed I urged, and successfully too, that the rate of growth should not be shown as higher than 1.4%. This was to keep despair away. We are, however, all convinced that population is growing faster than that. But as has been said, 'Hope builds sooner than knowledge destroys'". Said Husan, Chairman of the Executive Committee of the Institute of Development Economics, quoted by M. L. Qureshi, ed., in Population Growth and Economic Development, Summary Report of a Seminar, 8-13 September 1959, Karachi, p. vii.

phic reasons as well as "better health for the mother and better care and upbringing for the children." The Plan also stated:

We realize that a visible effort of such measures can be felt only after some years. It is also realized that negligible results would be achieved until the family planning programme reaches a large proportion of the population. Nevertheless measures to this effect should be initiated now so that evils of under-feeding and over-crowding may not undo the efforts for the provision of a better life to the nation. The country must appreciate that population growth is a rock on which all hopes of improved conditions of living may founder. It admits of no approach except that the rates of growth must be low. (Pakistan, The First Five Year Plan, 1955-60, p. 192)

But the Plan was still very cautious in its approach and reflected the general government position taken in 1952 by the Report of the Economic Appraisal Committee: "...the suggestion of family planning is neither easy nor generally acceptable, and in any case it will take years to show effects. The problem, however, requires careful consideration."<sup>1</sup> Ayub's takeover in 1958 greatly changed the official approach to population.<sup>2</sup> He mentioned population growth and family

<sup>1</sup>Pakistan, The Ministry of Economic Affairs, The Report of the Economic Appraisal Committee, 1952, p. 77.

<sup>2</sup>In 1959 the Ayub Government issued a pamphlet outlining its new policies. "The watchword of the New Regime is 'face your problems.' They are not hampered by the timidity of the politicians who shelved all reforms for fear of unpopularity. Parts of Pakistan are heavily overpopulated, and whatever the improvements may be in the means of production, they cannot keep pace with the rapid increase in the numbers to be fed. The politician knew this full well, but was afraid to tackle the problem, as this would have made him unpopular with the conservative section of the public. The new Government, however, squarely faced the problem and has encouraged and actively helped the Family Planning Association of Pakistan to undertake rigorous measures in the interest of the well-being of the nation, to educate the masses on the need for family planning and population control. An appeal has also been made to the religious leaders to cooperate with the population control movement." (Pakistan, Government of, Pakistan under the new Regime, a Period of Reconstruction, Karachi, 1959, p. 19.)

planning in nearly all major speeches and the subject was given a much higher priority in government programmes. In a speech reported in March 1959 Ayub stated that he had "...impressed upon the Minister of Finance the need for allocating more and more funds for the movement of family planning." As for religious objections to birth control he said he "...could not visualize that any good religion could advocate human misery. Religion was for the betterment of mankind, and no good religion could stand in the way of human progress and happiness."<sup>1</sup>

#### The Second Five Year Plan (1960-1965)

The new military junta substantially upgraded the Planning Commission, which critically evaluated the First Plan and then devised the Second Plan 1960-65. The new Plan gave prime attention to agriculture and education and aimed to increase the national income by some 20 per cent by 1966. The setting for the new Plan was much improved as corruption was actually reduced for a time; and more importantly, the harvests were good and were supplemented with major food imports from the United States.

In fact, nearly all the agriculture and economic targets of the Second Plan were achieved or surpassed including the 24 per cent increase in the national income over the period. But this was still growth without development. The new land reform laws were not really implemented and perhaps only 2 per cent of cultivated land was actually redistributed.<sup>2</sup> Even the Governor of the State

<sup>1</sup>Population News (London), March 1959.

<sup>2</sup>The Economist, London, December 2, 1961, p. 935.

Bank reported in 1964 a "wide spread feeling that disparities in income and wealth in Pakistan have tended to increase."<sup>1</sup>

The Second Plan devoted considerably more attention to population problems stating that population growth threatened "to wipe out the gains of development..."

Since population growth can threaten to wipe out the gains of development, the Plan clearly recognizes the paramount need for a conscious population policy and its implementation. A population policy, however, must take into account many implications of population growth for other aspects of planning. The existing pressure of population leads to an intense struggle for the means of life at subsistence levels. Inadequate diet results in a prevalent malnutrition that cannot be cured by public health measures alone. Apathy is the companion of malnutrition and ignorance. Under these conditions people have meagre reserves of energy to strive for wider understanding and improvement. (The Second Five Year Plan (1960-1965), p. 335)

The Second Plan represented a considerable change of emphasis in its population policy over the earlier First Plan. It lamented the meagre efforts of the First Plan stating "practically nothing was done." The Second Plan expanded its population programme proposing Rs. 30 million for family planning services to be established at hospitals and other medical dispensaries. Family planning workers were to be trained; research was to be undertaken; and publicity, education, and motivational efforts for smaller families were proposed. The Plan suggested that if "any measure of prosperity is to be gained from the developmental effort, it is essential that family planning receive high priority." The Plan continued:

<sup>1</sup>The Times (London), September 4, 1964.

The First Plan contained a small provision for family planning but practically nothing was done except some pilot work by the family planning associations. Since a declining trend in fertility must be sought over a long period, the Second Plan health programme is primarily designed to influence social attitudes and practices in favour of family planning. It also seeks to provide the necessary medical and other facilities. Clinics will be established in all general hospitals, dispensaries and maternity centres. Provision is also made for educational and other materials, training programmes and research. Publicity and education programmes will be organized through all available media, with the assistance of voluntary organizations, Village AID and community development units. Arrangements will be made for the training of doctors, nurses, health visitors, midwives and medical administrators in family planning methods. Research will be initiated on reproductive behaviour, on factors which motivate parents to have large or small families, and on the acceptability and effectiveness of different methods of birth limitation. The Plan provides Rs. 30 million for family planning. (The Second Five Year Plan (1960-1965), p. 360)

The programme was to be developed within the existing Health Services with a new National Family Planning Directorate and Directorates within each province. In West Pakistan the National Research Institute of Family Planning (NRIFFP) was established in Karachi and the Training-cum-Research Institutes (TCRI) were established at Hyderabad and Lahore. The Second Plan allocated some Rs. 30.5 million for the family planning programme but the amount of money actually spent on family planning was only half that budgeted in the Plan. Nevertheless, the programme at least appeared to be reasonably well planned and fairly comprehensive, and optimism about its success continued through the First Mid-Plan Review of the Second Plan in 1963 which stated:

The family planning programmes received an increasing measure of attention. 1,573 centres were established in both wings of the country; of these 553 centres were established in East Pakistan and 1,020 centres in West Pakistan. 605 doctors, 446 health visitors/nurses and 4,800 V-AID workers and Ansars were

trained. Two medical social research projects were set up at Lahore and Dacca with the assistance of the Population Council of New York. Four films were produced on family planning. Seven persons were sent to the USA for higher training in demography, statistics and maternal and child health education. In East Pakistan, construction of 3 child welfare centres was completed. (Mid-Plan Review of Progress in 1960-61---1969-62 under Second Five Year Plan, p. 42)

But before the Second Plan period was completed in 1965 it was obvious that the programme was an administrative failure and was not having a demographic impact. Administratively, the scheme had many shortcomings: only half the funds were allocated and there were many shortages of supplies and personnel. The programme was carried out within the existing health services which only reached a pitifully small proportion of the population and ignored most of the rural areas. In addition, the health personnel largely ignored family planning because they were faced with much more serious and compelling clinical cases.

The question then arises, could the programme have been demographically effective if it had been fully and adequately administered? Probably not. Besides the overwhelming administrative difficulties a more fundamental problem was the lack of motivation to use contraception, which will be discussed later in detail.

By 1965 the Third Plan (1965-1970) had been formulated and it was obvious that the earlier programme had failed:

The achievements of this programme have on the whole fallen below expectations. The allocation was too small to permit adequate supplies and proper distribution and the motivational barriers outlined earlier were not consciously tackled. Besides the programme was administered as a normal function of the existing personnel running these services who were over-burdened with clinical work and could not give adequate attention to family planning. (The Third Five Year Plan (1965-1970), p. 267)

The failure of the Second Plan's programme was also assessed in an international conference earlier in May 1964 which found:

(i) Lack of motivation in the general masses (ii) unsatisfactory arrangements for the distribution of contraceptives (iii) inadequate education and information of the masses in family planning (iv) shortage of administrative personnel; the programme was administered as a normal function of the existing health services with the result that doctors and other health personnel running those services were over-burdened with clinical work and could not give adequate attention to family planning. (Pakistan, Consultative Committee of Colombo Plan, 1965)

### The Third Five Year Plan (1965-1970)

By the time of the Third Plan (1965-1970) rapid population growth and policies to reduce that growth were receiving substantial attention from the highest political levels.<sup>1</sup> The importance of reducing population growth was certainly recognized by the planners, for example :

<sup>1</sup> Ayub Khan while inaugurating the Family Planning Association's National Seminar in Lahore on 10 March 1964 stated: "If the birth rate goes on as before, which is happening now-a-days, the population is bound to grow by leaps and bounds. This is happening in actual fact all over the world and particularly in our country. This rapid growth of population creates frightening prospects for those looking into the future. If our numbers go on multiplying at this rate, I have grave doubts whether all our efforts for the development of our country and the amelioration of the lot of our people, would have any meaning whatsoever. Our planning, our sacrifices and our hard work for the progress of the country would be neutralized by the rapid growth of population. If nothing is done to check the rate of growth, I shudder to think of what will happen after a few decades. My only consolation is that I shall not be there to face that situation. But my country and my people would be faced with it. And the coming generations would not forgive us for landing them in such a bad mess." (Cited in Pakistan, Ministry of Health, Labour and Social Welfare, Family Planning Scheme for Pakistan, During the Third Five Year Plan Period, 1965-1970. (Rawalpindi, n.d.) the foreword)



The size of population, estimated at 112 million for 1965, is expected to grow at an annual compound rate of about 2.6 per cent during the Perspective Plan (1965-1985). With the planned improvement in health facilities and nutritional standards, the mortality rate is likely to decline fairly rapidly. Unless it is checked by a fall in the fertility rate, the population growth rate could easily be pushed beyond 3 per cent per annum. If this happens, population will double itself by 1985. Such an increase would defeat any attempts to raise per capita incomes by a significant amount. One of the basic assumptions of the present projections is that the rate of growth of population will decline after 1975 owing to a decrease in the fertility rate. In other words, it is assumed that declining fertility will more than offset declining mortality. The population in 1985 is thus projected at 187 million. A vigorous and broadly based programme of family planning is, therefore, an integral part of the strategy for the Perspective Plan. (The Third Five Year Plan (1965-1970), p. 24)

Moreover, the present 2.6 per cent growth rate of population may well increase in future. Pakistan is in a phase of demographic transition; of declining mortality rate unaccompanied by a corresponding decline in fertility. The mortality rate is projected to decline from 29 to 15 over the period of the Perspective Plan. To prevent a population explosion which may imperil most of the targets of the Perspective Plan, from tripling per capita income to universal literacy, the Plan assumes that birth rates will decline from 55 to 35. Thus, the growth rate in 1985 is expected to decline to 2 per cent and the overall growth rate during the period is estimated at 2.6 per cent.

Clearly, if the increases of per capita income postulated in the Perspective Plan are to be achieved, a decline in fertility is a necessary condition. The availability of modern medicines and related health facilities has been and continues to be the main determinant of the dramatic decline in mortality rates. The supply of contraceptive devices and extension of family planning facilities is similarly called for if fertility rates are to be contained. (The Third Five Year Plan (1965-1970), p. 265)

There was great enthusiasm by some because the Third Plan appeared on the surface to face up to the problems of population growth by presenting in detail an ambitious family planning scheme to cover the entire country. This programme seemed to contain much more than pious statements and unrealistic goals. It had real details for implementation - nearly 200 pages of instructions were published

in conjunction with the Plan by the Ministry of Health, Labour and Social Welfare: Family Planning Scheme for Pakistan, During the Third Five Year Plan Period, 1965-1970. The cost of this total scheme was to be some 280 million rupees though the Third Plan allocated some 166 million rupees.

The family planning scheme for the Third Plan was ambitious, in fact, excessively ambitious. The Plan aimed to reduce the crude birth rate by some 20 percent in five years from 55 per thousand to 45. The Plan estimated that nearly all of the women in the reproductive ages, some 20 million couples by 1970, would be involved in the scheme which would over the five year duration of the Plan cover all of East and West Pakistan.

The principal objective of the new programme is to bring down the birth rate from 55 per thousand to 45 per thousand. To achieve this target, 20 million couples, who represent almost all the women in the reproductive ages in 1970, will be induced to practice family planning in one form or another. The scheme is to be launched in 36 districts of West Pakistan and 16 districts of East Pakistan during the Third Plan period. Two-thirds of the districts will be covered in the first two years and the remaining one-third in subsequent years. (The Third Five Year Plan (1965-1970), p. 267).

One of the crucial aspects of the scheme was thought to be its introduction of a monetary incentives programme for IUD insertions, vasectomies, and tubectomies. More than 26 million rupees were budgeted for payment to both the recipient and to the programme staff as well as to the many part-time and volunteer personnel on whom the scheme heavily depended.

For each vasectomy both doctor/lady health visitor/dai and the client will be paid Rs. 25. Insertions of IUDs will be free for the client. For each insertion doctors will be paid Rs. 8 and

trained nurses/midwives/dais Rs. 4. Besides, dais will be paid Rs. 2.50 and other Rs. 2 for referring cases leading to an insertion. A 50 per cent rebate on the cost of contraceptives will go as commission to the sellers. (The Third Five Year Plan (1965-1970), p. 268)

The elaborately planned administrative detail was nearly overwhelming. An entire chain of command was outlined from the Central Family Planning Council, to the Provincial Family Planning Boards, to the District Family Planning Boards to the Thana and Union Councils and so on to the village dais. The scheme was to be widespread - thirty-seven full-time clinics were proposed in the urban areas and 718 part-time clinics (318 in the West and 400 in the East). The local village dais were to have a major role and less emphasis was paid to the established health centres and clinics.

There will be a Family Planning Council at the Centre and Family Planning Boards at the Provincial and District levels. All the Union Councils in East Pakistan and Thana Councils in East Pakistan will be associated with the programme. The family planning work at these levels will be looked after by a Family Planning Supervisor (one for 3 Union Councils) in West Pakistan and Thana Family Planning Officer (one for 3 Union Councils) in West Pakistan and Thana Family Planning Officer (one for each Thana) in East Pakistan. At the bottom of the hierarchy will be the village dai. She will perform such functions as motivating the people and distributing contraceptives. At the national level the programme will be supervised by the Family Planning Commissioner who heads a new Division in the Ministry of Health, Labour and Social Welfare to be called the Family Planning Division. (The Third Five Year Plan (1965-1970), pp. 268-269)

The Administrative set-up at the Central, Provincial and District levels has been considerably strengthened. The Scheme provides for 1,000 Family Planning Supervisors in West Pakistan who will work with the Union Council Secretaries. In East Pakistan 400 Thana Family Planning Officers have been provided. One general assistant, one female assistant and one male assistant will be attached to each Thana Family Planning Officer. A total of 50,000 village dais will be employed. 30,000 in East Pakistan and 20,000 in West Pakistan at the rate of one dai for two villages or 1600 population in East Pakistan and one dai for two villages in West Pakistan. About 2,400 part-

time family planning doctors at the rate of 6 for each Tehsil in West Pakistan and 3 for each Thana in East Pakistan will be registered and appointed for the purpose of IUD insertions and clinical sterilization. (The Third Five Year Plan (1965-1970), pp. 268-269)

Within municipal, town committee and cantonment limits in West Pakistan the functions assigned to the Family Planning Supervisors and Union Council Secretaries will be performed by the District Family Planning Board through its whole-time staff and other personnel available already to Deputy Commissioners, Union Committees and the Civil Surgeon/Medical Superintendent.... In 16 cities of West Pakistan 21 urban clinics will have sufficient staff to cover the urban areas of those districts. Furthermore, the West Pakistan Family Planning Board may by reappropriation allocate up to 10% of the provision made for Family Planning Supervisors to rural areas to provide them for urban areas at the rate of one per 100,000 population and at least one for every district headquarters.... So far as East Pakistan is concerned, the entire area (inclusive of Municipal, Town Committee and Cantonment Areas) will be covered by the whole-time Thana Family Planning Officers and the male and female assistants appointed there. (Family Planning Scheme for Pakistan during the Third Five Year Plan 1965-1970, p. 8)

In 1966, following the publication of the Plan and the Family Planning Scheme, Warren Robinson in a perceptive analysis of the new strategy pointed out many areas of potential difficulty.<sup>1</sup> The geographic scope of the scheme was impossibly vast. Rather than consolidating gains and building a durable organization in areas where motivation to accept contraception was high - urban areas, for example - and then gradually expanding a successful operation with proven 'demonstration' effects; the Plan chose to cover virtually the entire country in five years. Even the sheer logistics of getting contraceptives supplied throughout the entire countryside every month is an overwhelming problem which was not carefully

<sup>1</sup>Warren C. Robinson, 'Family Planning in Pakistan's Third Five Year Plan', The Pakistan Development Review, Vol. 6, No. 2, Summer 1966, pp. 285, 281.

planned for in the Plan or the Scheme Plan.

The scheme did attempt to rely on existing political and administrative structures--union council secretaries, deputy district commissioners and thana development officers. While this strategy avoided the Second Plan's problem of reliance on the over-worked Health Ministry, it did impose itself on political administrators who had only a secondary interest in it at best. Nearly all the staff in the Scheme were to work for free, or for small fees, or for some part-time wage, only a very few actually were employed full-time on family planning.

The local dais were in many ways crucial to the success of the programme, even though little was known about how they would undertake a 180 degree change in their maternity role. In relying on the dais, the entire approach of the Scheme was thus female-oriented, which of course it must be to some extent because of Purdah. But in this traditional rural Muslim society the sole reliance on the female-orientation may not be effective, since contraceptives will probably only be used if the husband also favours their use.

Robinson<sup>1</sup> also argued that the scheme placed too much emphasis on "non-clinical" methods of contraception and that more attention should have been given to clinical methods, especially the IUD.

Despite the great attention in the plans to evaluation, Robinson points out that the type of evaluation was unrealistic to the goals of the programme. The evaluation of service statistics for the number of contraceptives distributed or the number of training

<sup>1</sup>Warren C. Robinson, op. cit.

seminars held may be useful in measuring administrative discipline; but it will not measure the programme's real aim--a demographic impact.

It was also argued that publicity for the programme was insufficient, partly because this was to be undertaken at the district level which would overemphasize printed material and posters while underutilizing the more important mass media of radio, newspapers, and cinemas.

Despite these notes of caution, the ambitious Scheme was begun in mid-1965 (after a short delay because of the Indian conflict); and as the Third Plan period progressed, glowingly optimistic service statistics were reported. By 1968 some observers (Bean and Bhatti, 1969) reported an apparent striking success while the official reports<sup>1</sup> claimed that the rate of growth was slowing and that the various targets might be surpassed.

In three years of activities the programme appears to be strikingly successful: about four-fifths of the population have been covered by the programme in which over 90,000 persons are engaged in family planning activities in some direct fashion as full-time, part-time, cut-piece workers or programme agents; more than 1.6 million IUDs have been reported as inserted; over 296 million conventional contraceptives are reported as distributed; and over 320,000 vasectomies or tubal ligations have been performed. The programme has proved to be both

<sup>1</sup>Pakistan, Family Planning Division, Ministry of Health, Year Book for 1967/68. (Karachi: Family Planning Division, Ministry of Health, Government of Pakistan, 1968); and Pakistan, Planning Commission, Mid-Plan Review of the Third Five-Year Plan. (Rawalpindi: Government of Pakistan Press, April, 1968).

flexible and imaginative. For example, clinical methods have proved to be acceptable and as a result receive far more attention than originally anticipated. Where medical personnel have been in short supply, the programme has successfully trained paramedical personnel to insert IUDs.<sup>1</sup>

Service statistics based on reports from the Pakistan Family Planning Council were analyzed by Bean and Bhatti (1969) and they reported the successful spread of the programme geographically to "at least 79 percent of the population" by mid-1968. They also found few difficulties in staffing the nonmedical positions of the scheme (though much of their actual performance was minimal)<sup>2</sup> but serious shortages of medical personnel especially in the then East Pakistan were found.

Assuming the validity of the service statistics, and making

<sup>1</sup>Bean, L.L., and A.D. Bhatti, 'Three Years of Pakistan's New National Family Planning Programme,' The Pakistan Development Review, Spring, 1969, pp. 34-35.

<sup>2</sup>Even if the service statistics are assumed to be correct, there were serious problems of inefficiency in particular with the dais in their new role as preventers of births. Bean and Bhatti report: "...if one assumes that agents and dais sell an equal number of contraceptives and are responsible for all sales, their performance is minimal. Assuming the employment and distribution figures to be accurate, the agent or dais would on the average, during the last six months of the period, sell or distribute only 10 dozen conventional contraceptive units during a month and as units are presently computed in the programme this might mean the sale, for example, of only three to four bottles of foaming liquids. If one assumes that the dais are responsible for motivating women to accept an IUD insertion, the staff performance record is even more depressing; on the average, other things being equal, a dai is able to motivate only two women per month to accept an IUD." Bean and Bhatti, 1969, p. 51.

some other heroic assumptions,<sup>1</sup> Bean and Bhatti estimated that as of mid-1968, "as much as 11 per cent of the eligible population in Pakistan may now be practising family planning."

The performance of the dais proved to be very unsatisfactory.<sup>2</sup> These illiterate women were obviously incapable or unwilling to change the fertility practices of others; their monetary incentives were ineffective or insufficient; and they were largely unable to convince husbands of the benefits of contraceptives.

Another major programmatic setback was the disrepute of the IUD which was the major contraceptive method in the programme. Following unhygienic or faulty insertions, there were many reports of bleeding and rumours quickly spread making the IUD a largely unacceptable method. There were few follow-up services and the drop-out rate was extremely high.

<sup>1</sup>The..."as much as 11 per cent..." estimate is apparently a reduced figure from the sum of 7.5% for conventionals, 4.5% for IUDs, and 1.5% vasectomies and tubal ligations. "Assume that ten units monthly are employed by the average couple using conventionals on a regular basis and that roughly one-third of all units distributed are defective, accepted by non-regular, inefficient users, or simply wasted. Under these assumptions the distribution figures suggest a million regular users, or 5 per cent of the married couples in the country, or roughly 7.5 per cent of the married couples where the wife is not pregnant, other things being equal....Using (recent IUD follow-up studies in East and West Pakistan) it is estimated that 940,000 women of the 1,612,000 reported receiving an IUD may still be wearing the IUD at the end of the third year, or roughly 4.5 per cent of the eligible women....Assuming that all of the men having a vasectomy or women having a tuba ligation are still living and in the child-bearing years, an additional 1.5 per cent of the eligible population is protected against the risk of childbearing." Ibid., p. 54.

<sup>2</sup>Wajihuddin Ahmad, Field Structures in Family Planning, Appraisal and Search, Islamabad: Pakistan Family Planning Council, 1970.



Inexpensive oral contraceptives were to be distributed without prescription to rural women; but this was countermanded just before the programme was to begin because of the fear of side effects, though this was later reversed again and they were made available within two years. But at the time, the programme was left with only conventional contraceptives, mainly the condom.

There were other institutional difficulties as well. The programme's implementation had not been adequately planned. There were disputes with the Ministries of Health and Education. Other departments were grasping for the large family planning budget and they were able to obtain some of the funds after Ayub Khan's opponents castigated the programme.<sup>1</sup> Later a Continuous Motivation Scheme was developed using both a man and a woman in a team to go to each household and talk to parents. While many plans were made for this, it was never really implemented. There were many reasons: the political changes from 1969 and onward, the new provincial changes in the country and the beginning of the Civil War, and a severe cutback in national funds for foreign assistance. All combined to virtually shut down the programme. Thus, the population policy of the Fourth Five-Year Plan (1970-

<sup>1</sup>See Shahid Javed Burki, 'Pakistan: A Demographic Report', Population Bulletin, Vol. 29, No. 4, Washington D.C.: Population Reference Bureau, 1973; and a personal communication from Burki, 1974, cited in Tine Bussink, 'Major Aspects of Family Planning in Pakistan', Prologue to Development Policy and Population Policy - The Pakistan Experience, Population Planning Division, Government of Pakistan and the I.C.P. Smithsonian Institution, 1975, p. 47.

1975) written prior to the independence of Bangladesh is not reviewed here.<sup>1</sup>

In Pakistan in 1972, the then Prime Minister Zulfikar Bhutto instituted a Special Committee which developed a Two-Year Scheme that was to have a broader approach to population and was to integrate demographic considerations into development efforts. The Family Planning Programme was now dubbed the Population Planning Programme. A budget of Rs. 204 million was proposed. The Continuous Motivation Scheme was to be expanded to cover nine million fertile couples. New population growth targets were set. A Demographic Policies and Action Research Centre has been established in order to integrate a so-called 'population planning bias' into the planning for education, welfare, employment and manpower, rural development, housing, and other sectors.

The U. S. Agency for International Development has made a grant of 7.5 million U. S. (Rs. 75 million) for contraceptive supplies. It is hoped that this programme will saturate the country with low cost contraceptives given out by all health clinics, family planning workers, and some 20,000 commercial distributors.

The implementation of the latest plans has not yet been investigated by this writer; but since the success or failure of the efforts may depend largely upon the people's motivation to control reproduction as well as administrative strength, it seems

<sup>1</sup>Stamper, B. Maxwell, Population and Planning in Developing Nations, (New York: The Population Council), 1977, pp. 171-174.

unlikely that these programmes will be demographically effective. In addition, one might speculate that under the present political circumstances in Pakistan, the administrative efficiency of government efforts may not be high.

## BANGLADESH

### The First Five Year Plan (1973-1978)

Much has been written about the tragic circumstances of Bangladesh's struggle for independence. A desperately poor country hit by a cyclone and tidal wave in 1970, it fought a war of independence in 1971 that killed many and left almost ten million refugees. Even if the new government had not been grossly incompetent, there would have been great difficulties in rebuilding the country. And following all this came the great famine of 1974.

In November 1973, The First Five Year Plan was published. The Plan was extremely optimistic in most respects, and it naively assumed that the rate of economic growth of the late 1960s would soon return. It failed to consider the real severity of the disrupted economy. Like many plans, it was a political document written to encourage the national and international audiences with what might have been possible - in theory only. With the benefit of some luck, several years of excellent harvests, a huge amount of aid, and effective leadership, the economy might have recuperated somewhat within a few years had it not been for the rise in import prices.

But the harvests were not good, nor was the weather, nor the political leadership; and, furthermore, there was a fantastic rise in import prices which completely ruined any reality of the plan and devastated any chance of a smooth management of the economy. This ultimately resulted in severe production cutbacks through shortages in imports. Things were made even more difficult in 1973-74 because the export performance<sup>1</sup> fell short of the Plan and the additional foreign aid was less than anticipated.

Unfortunately, Bangladesh's limited modern sector is extremely dependent upon heavy foreign trade and critical imports. When import prices rose, critical imports were curtailed. Petroleum imports were about one-third less than planned; cement and fertilizer were reduced by about half; 2.2 million tons of foodgrains, valued at U. S. 213 million, were planned for 1973-74 but the actual imports were more like 1.6 million tons, but at a price of U.S. 296 million - nearly twice the 100 per ton estimate.

Customs and excise duties account for a substantial proportion of government revenue, thus the curtailment of imports substantially lowered expected government revenue which had been earmarked for development expenditure.

The First Five Year Plan presents an entire chapter detailing its population planning programme. The plan utilizes considerable demographic data and presents projections of the total population,

<sup>1</sup>The Plan placed critical importance upon the jute manufacturing industry and in the early years of the Plan period the annual production deteriorated. According to the Annual Plan for 1974-75 and The White Paper on Economic Situation in Bangladesh, the annual production of jute textiles was 561 thousand tons in 1969/70; 446 in 1972/73; 500 in 1973/74; and 450 in 1974/75.

school-age population, and working-age population.

The plan recognizes a broad range of problems that are exacerbated by rapid population growth: economic development; unemployment; increasing school-age population; high dependency ratio; population pressure on health services, social services, housing, and food production; and the effects of population density upon physical infrastructures, recreation space, roads, and land.

The planners state that rapid population growth is 'likely to continue unless radical preventive steps are taken,' and urge that the nation's programmes for population control be critically reviewed and that a new programme be formulated with 'a set of bold and, if necessary, drastic policies for vigorous action with a view to reducing this high rate of population growth within a reasonable time. Failure in this critical area would frustrate all our development efforts. Therefore, the programme for population planning is given a place of high priority in the development plan'.

The plan's population policy falls basically into five categories: (1) a campaign for both population education and contraceptive education; (2) the integration of family planning and population education programmes with the various ministries; (3) the voicing of public concern about rapid population growth by political leaders, educators, social workers, and student organizations; (4) an increased role for abortion; and (5) the serious national consideration of the 'imposition of progressively increasing punitive measures against [families with] more than two children'.

The planners evaluate past efforts to reduce population growth and credit them with bringing about a new awareness of the problems of population growth, an organizational structure for the family planning programme, and a new environment conducive to other fertility-control programmes. A number of weaknesses of the past programme are also discussed, including unrealistic targets that, without extensive supervision, led to fictitious reporting and to abuses of the cash incentive programme. The underemphasis of such nonclinical methods as oral contraceptives and condoms is also viewed as a weakness. Past programmes, the planners say, were limited too strictly to family planning; better defined population policies would adopt more non-family planning strategies for fertility control. A number of organizational drawbacks are also discussed, including the untrained and part-time working staff, conflicts among supervising staff members, and problems of coordination.

The plan sets the demographic target of reducing the rate of population growth, estimated to be 3 per cent, 'by at least 0.2 per cent at the end of the plan period' (i.e., from 3.0 to 2.8 per cent). Two projections of future populations are given, one based on the assumption of a decline in the birth rate from 47 births per 1,000 population to 43 by 1978. This projection is based on the assumed effect of the family planning programme. The other projection of total population is based on an assumption of no family planning programme. It is not evident from the published data if there is any decline in fertility in the second projection. No method of projection or source of data is presented and neither projection gives a distribution by age and

sex. The rate of growth assumed in the plan is three per cent, based on  $(\text{CBR} = 47) - (\text{CDR} = 17) = 30$  per 1,000, but other rates are given in connection with the population policies' anticipated effects. No source of data is given for any of these rates. Longer range projections are discussed in the plan, with four different paths of reduction in fertility to the year 2003. The details of the assumptions as well as the age distributions are not published.

The plan presents a comprehensive population strategy for reducing fertility, indeed more comprehensive than any other national development plan surveyed. It is comprehensive in the range of policies considered and proposed, and it is a broad strategy involving more than six different government ministries. It attempts to integrate the policies and programmes and to make them consistent, cogent, and reinforcing. There is an attempt to integrate these efforts at the highest levels of government with a national population council which oversees the efforts by various ministries.

The Ministry of Health and Family Planning is to carry out the bulk of the programme, of course, by supplying contraceptives and attempting to motivate their acceptance by the activities of health and multipurpose field workers. The Minister of Rural Development is to promote women cooperatives for increasing literacy and employment potential, and it will also promote family planning education. The Ministry of Education is to introduce population education into the school and adult education curriculum. The Ministry of Agriculture will incorporate family planning into its nutrition education of its extension programmes. The Ministry of Information and Broadcasting will have programmes about both

population and family planning in its radio, t.v., newspapers, posters, pamphlets, etc.. The Ministry of Labour and Social Welfare is to promote population and family planning information, education, and motivation in its relevant social work programmes. Various student organizations are encouraged to carry out similar activities and political leaders, educationalists, social workers and intellectuals are urged to voice their concern and advocate fertility control.

Does all of this mean anything? It is clear from the plan that an attempt is being made to produce programmes which reinforce each other. This would have a greater potential than programmes set up in isolation. But the extent to which they in fact do reinforce each other depends upon their implementation at the village level.<sup>1</sup> It may well be that these programmes will be implemented at the top levels of government, but will they be integrated at the bottom? There are thousands of villages in Bangladesh. Integration at the top is easy but integration at the bottom of a long chain of command in a newly created bureaucracy is difficult. And it would be difficult even if it were not plagued with widespread corruption. At best, different levels of government are likely to have different priorities.

Furthermore, for most ministries, population programmes are outside the scope of their main functions and it seems unlikely that peripheral functions will be maintained and run with any

<sup>1</sup>Paul Demeny, 'Observations on Population Policy and Population Program in Bangladesh, 1960-74', Population and Development Review, Vol. 1, No. 2, December 1975, pp. 307-321.



vigour, especially down through the bureaucracy.

It is hoped that all-purpose field workers will be a key to integration of a population policy at the bottom of the hierarchy. But will these mostly middle class women really be successful at the village level? Can they really relate to the villagers?

The population programme, along with most other government programmes, was brought to a virtual standstill during the civil war, and it has been only partly reestablished. IUD insertions, the major method of the former programme, were near nil in 1971. By 1974, only 35,000 were reported - less than 10 per cent of the number reported in 1968. Oral contraceptives were introduced in 1973 and more than 750,000 cycles were distributed in 1974. Sterilizations in 1974 were only about 20 per cent of the number carried out in 1968.<sup>1</sup>

The plan does not outline specific targets for the number of contraceptive acceptors or births to be averted, but it does give a proportional allocation to each method: orals, 20-25 per cent; condoms, 25-30 per cent; vasectomy, 20-25 per cent; IUD, 20-25 per cent; other, 10-12 per cent. To obtain the plan's crude birth rate target of 44 per 1,000 (with a crude death rate of 15) by mid-1978, it has been roughly estimated that some 620,000 births must be averted.<sup>2</sup>

A number of population projects are currently under way, backed

<sup>1</sup>M. Ataur Rahman and Lincoln C. Chen, 'Bangladesh', Family Planning Programs: World Review 1974, Walter B. Watson and Robert J. Lapham, eds., Studies in Family Planning, Vol. 6, No. 8, August 1974, pp. 248-251.

<sup>2</sup>Ibid.

by almost all of the large international population donors. UNFPA and USAID have committed some U.S. 10 million each during the plan period. The World Bank has established a U.S. 46 million IDA credit for a national population programme in the same period.

The population programme is officially stated to be the second national priority - after agricultural development - and one member of the Planning Commission is quoted<sup>1</sup> as explaining:

When we say that population control should be our second priority, what we mean is that we will spend the next four or five years concentrating on agriculture, and then we will take up population control in a big way. For the present, we really haven't had time to think about it - besides, it is probably a subject that is best left in the background until our people are ready for it.

Following the publication of the plan, the population programme was reorganized under the new Population Control and Family Planning Division within the Ministry of Health, Population Control, and Family Planning, which was to implement the new programme by integrating it with the MCH services. But given the recent political changes, the policies and development strategy of the new government cannot be told with any certainty.

<sup>1</sup>Marcus F. Franda, 'Perceptions of a Population Policy for Bangladesh', American University Field Staff Reports, South Asia Series, Vol. 17, No. 2, 1973.

## CHAPTER FIVE

### ISSUES AND THEORIES OF FERTILITY DECLINE IN PAKISTAN AND BANGLADESH

Assuming the validity of the goal to reduce the rate of population growth in Bangladesh and Pakistan; and further recognizing that a substantial reduction in fertility is the only feasible or acceptable approach; then, how can the various theories about fertility decline be utilized in development planning?

In looking for a conceptual framework for Bangladesh and Pakistan's population policies we shall briefly mention several basic approaches and discuss their utility and limitations. A simple typology of these approaches would include the following:

1. The family planning approach.
2. Beyond family planning measures.
3. The development hypothesis and the transition theory.
4. The distributive hypothesis and fertility.

## The Family Planning Approach

There is a widespread disillusionment with the family planning approach as the principal policy instrument for reducing fertility. After all these years of effort, the 1975 Pakistan Fertility Survey, conducted as a part of the World Fertility Survey Programme, found no evidence of a fertility decline.<sup>1</sup> In Bangladesh, an analysis of the 1974 Census and its special survey on fertility found no evidence of a decline in fertility.<sup>2</sup> Nevertheless, the family planning approach remains the chief policy instrument for reducing the rate of population growth.

Two fundamental problems lie at the heart of the family planning failure in these countries: an extremely difficult setting for the administration of such a programme, and insufficient motivation to control reproduction. The setting for the Pakistan family planning programme is exceedingly adverse; in fact, if the family planning approach can succeed in Pakistan and Bangladesh, it most certainly can succeed anywhere in the world. Enver Adil,<sup>3</sup> the Pakistan Commissioner of Family Planning in 1965, gave the following reasons for the continued high fertility: (1) Early and

<sup>1</sup>Population Council of Pakistan, Pakistan Fertility Survey: First Report, Lahore: Directorate of Production and Publication, 1976, 110p.

<sup>2</sup>Bangladesh, Census Commission, Bangladesh Population Census, 1974, Provisional Results Bulletin, Dacca, 1975.

<sup>3</sup>Enver Adil, 'Pakistan', Family Planning and Population Programs: A Review of World Developments, Bernard Berelson, et al., eds. Chicago: The University of Chicago Press, 1966, p. 124.

near universal marriage with an average female age of marriage of between 15 and 16, and nearly 100 per cent of the women marrying by the end of their reproductive ages. (2) Early childbearing within marriage. (3) The remarriage of widows. (4) A predominately (near 90 per cent) rural population with perhaps three-quarters of the population working in agriculture. (5) Very high illiteracy rates. (6) General isolation of the population. (7) A very low standard of living with per capita incomes of less than U.S. 100. (8) A traditional extended family organization. (9) A degree of fatalistic attitudes. (10) A lack of economic incentives to limit family size. Dudley Kirk<sup>1</sup> has also argued that Islamic social values have tended to favour high fertility. Additional reasons for the adverse setting for the family planning programme were cited by Warren Robinson: infant mortality is still so high that a high fertility is perceived as being necessary; the proportion of the population which is educated is extremely low and among women it is exceedingly low; the population is predominately rural; in Bangladesh travel and communications are extremely difficult; and finally, male dominance and Purdah make it very difficult to introduce contraceptive information. Robinson goes on to say, "This totality of socio-economic-psychological barriers, the combination of poverty, ill-health and deprivation with strong religious and social values in favour of high fertility and strong resistance to any change, probably make the 'setting' in Pakistan one of the most

<sup>1</sup>Dudley Kirk, 'Factors Affecting Muslim Natality', Family Planning and Population Programs, Bernard Berelson, et al., eds., Chicago: University of Chicago Press, 1966, pp. 561-579.

difficult in the world for the successful introduction of a sudden large-scale family planning scheme".<sup>1</sup>

Given the adverse setting in Pakistan, the family planning programme may have been expected to fail. The best that can be said is that it may not have failed worse than other programmes. Social programmes have not done very well, certainly health and educational services have been a disaster, and few of the development goals have been met. Family planning as an organizational feat may have succeeded better, or at least failed less than many other programmes.

What can we learn from the failure of the family planning approach to actually reduce fertility? Should the effort be continued or strengthened or discontinued? Part of the answer may lie in the fact that too much is expected from the programme; and if less were expected, it might not be judged a failure so quickly. In the historical European setting changes in fertility took generations; but in Pakistan if changes in the birth rate are not measured from year to year, then some charge that the effort is a failure and should be abandoned. Despite a long period of activity in family planning, serious efforts only started in 1965 and lasted until 1969. So at best there were only four years of strong programme efforts. It might also be argued that rather than family planning, it is the failure of development efforts - and no one wants to abandon them - that has hindered a reduction of fertility. It could also

<sup>1</sup>Warren C. Robinson, 'Family Planning in Pakistan's Third Five Year Plan', The Pakistan Development Review, Vol. 6, No. 2, Summer 1966, p. 275.

be said that it is the failure of these development efforts that has hindered the family planning programme itself. Defenders of this approach claim that the programme may accelerate the acceptance, adoption, and diffusion of birth control practices, if not initiate a decline in fertility. Even if the programme fails to initiate a general decline in fertility it will, nevertheless, provide services for those who are motivated. Thus, any given level of motivation for reducing fertility will result in more effective fertility control. Any "natural decline" in overall fertility would probably be accelerated if a national family planning programme were established. It is also argued, and generally agreed, that family planning is a basic human right; that people, and especially women, should have the right to control their own family size; and that a population which controls and spaces its fertility will generally have better maternal and child health<sup>1</sup> and better health through the reduction of dangerous illegal abortions. It is also argued by Bernard Berelson<sup>2</sup> that this approach is acceptable and feasible while most other population policies which go beyond family planning are either politically unrealistic, morally unacceptable, or administratively infeasible.

There is some consensus that the family planning approach should

<sup>1</sup>While most agree that family planning is worthwhile in terms of health and as a basic human right, some would argue that it has been "actively nurtured at the cost of the general health services particularly in the rural areas". D. Banerji speaking of India, in D. Banerji, 'Health Services and Population Policies', Economic and Political Weekly, Vol. 11, Nos. 31-33, August 1976, p. 1251.

<sup>2</sup>Bernard Berelson, 'Beyond Family Planning', Studies in Family Planning, Vol. 1, No. 38, February 1969, pp. 1-16.

not be abandoned; that it is necessary; and that perhaps it should even be strengthened, though it must be recognized that the approach is not at all sufficient to significantly reduce population growth. Planners should not be misled into thinking that this approach alone will have a meaningful demographic impact.

#### Demand for Family Planning

It is evident that there is little motivation to control reproduction. Either it is not within the range of conscious choice to limit fertility, or it is not perceived to be an economic or social advantage to do so. Sirageldin and others<sup>1</sup> in studying the 1968-1969 National Impact Survey for Bangladesh found that only 3.7 per cent of the population were currently using contraceptives and only 6.4 per cent had ever used contraception. They further argue on the basis of the Impact Survey that the demand for reduced fertility is not at all sufficient to have a major impact upon population growth. They report that if one takes "all current use and expected future use based on reported intentions, this total expected demand was and is not large enough to generate the desired fertility reductions in Bangladesh."<sup>2</sup>

To what extent does the demand for children reflect the economic advantages to the family? In a micro-study of the economic activities of children in the village of Char Gopalpur in north-

<sup>1</sup>Ismael Sirageldin, Monowar Hossain, and Mead Cain, 'Family Planning in Bangladesh: An Empirical Investigation', Bangladesh Development Studies, Vol. 3, No. 1, 1975, p. 6.

<sup>2</sup>Ibid, p. 24.



central Bangladesh, Mead Cain found that from the point of view of the parents, high fertility and many children were economically "rational".<sup>1</sup> Children put in long hours of work and by the average age of twelve, male children were net producers; by the average age of fifteen, they had compensated for their own cumulative consumption. Because of the rigid division of labour by sex, female children did not compensate for their consumption, but Cain found that by the age of 22, male children had compensated for their sisters' cumulative consumption as well as their own. The ages at which children compensated for their consumption varied according to economic class. Children of landless households were of the least economic value to their parents because the children had less return for their labour and parents had less control over the income.

The study was essentially limited to the work contributions of children and since the costs of child rearing were not thoroughly analyzed, the study's conclusions must remain somewhat tenuous. In addition, the study did not attempt to measure changes in the average productivity and employment with different numbers of children in the household. This could be a serious limitation since fertility decisions might be different if the average productivity of children declined as the number of children in the family increased. Cain suggests that in the case of male children the average productivity may not be affected by the number of brothers in

<sup>1</sup>Mead T. Cain, 'The Economic Activities of Children in a Village in Bangladesh', Population and Development Review, Vol. 3, No. 3, September 1977, pp. 201-227.

the household. If there is sufficient labour to operate the farm the relatively well-to-do can diversify the household enterprise via trade and wage employment or by the education of one or more sons. The constraints to employment among the poor are external to the household and these constraints will not be changed by the number of sons. However, the average productivity for an increasing number of daughters may well decline since the amount of household work is limited and the opportunities for productive work outside the household are extremely limited for women.

Although high fertility may be economically "rational" from the point of view of the family, it is clearly not economically rational from the point of view of the village; and Cain reports that "continued rapid population growth is likely to intensify the pressure on resources and erode overall economic welfare".<sup>1</sup> Thus, there exists the serious dilemma between the competing interests of the family and the society. Because the costs of high fertility are being externalized and are paid by the community, high fertility is economically rational from the family viewpoint. Demeny argues that "...unwittingly, people are locked in a competitive race, in which almost everybody wins, yet by the same token almost everybody loses as society pays the price for rapid population growth".<sup>2</sup>

<sup>1</sup>Cain, *op. cit.*, p. 202.

<sup>2</sup>Paul Demeny, 'Observations on Population Policy and Population Programs in Bangladesh', Population and Development Review, Vol. 1, No. 2, December, 1975, 316. For a further treatment of this issue see Paul Demeny, 'The Economics of Population Control', Rapid Population Growth, National Academy of Sciences, Baltimore and London: The Johns Hopkins Press, 1971, pp. 199-221; and Geoffrey McNicoll, 'Community-Level Population Policy: An exploration', Population and Development Review, Vol. 1, No. 1, September 1975, pp. 1-21.

If high fertility is economically rational from the family viewpoint, then no matter how effective the family planning programme is, the demand for its services will only be marginal. Essentially, the family planning programme is only a supply mechanism which subsidizes the cost of contraceptives, improves the ease of access, and provides relevant information. If there was sufficient demand for contraceptives, the private market could supply them. If sufficient demand existed for contraceptives, even a restrictive government policy could not prevent the black market from supplying them, as it now supplies everything from illegal drugs to bicycles, and in so doing it overcomes the most difficult transportation problems.

The new Bangladesh and Pakistan population schemes are envisioned to be more than a supply system; it is hoped that they will be able to create demand as well. But it seems questionable that these middle class motivators will be able to create the demand for their services if to do so runs against the economic interest of the average family. Information and motivation campaigns of this sort may have some small effect, but they are not likely to have a significant demographic impact. To the extent that they are not demographically effective, government policy options will be limited to disincentives and policies to internalize externalities; or to more stringent measures; or to broad structural measures which will indirectly alter how families perceive the costs of their children.

### Beyond Family Planning Measures

A number of policies have been advocated to reduce fertility which go beyond the family planning approach and attempt to directly influence the demand for reproductive control and contraceptives. Policies aiming to reduce the demand for additional children have ranged from the provision of old age support, to monetary incentives for reduced fertility at the family and community level, and even to stringent and coercive measures.

#### Fertility and Old Age Support

It is generally agreed that one motivational reason for high fertility is the parents' need to have enough children in order to support them in their old age. This may be a powerful and long term motive for having children which is not easily influenced by short term government policies. In an attempt to deal with this phenomenon Ridker and Muscat<sup>1</sup> have proposed a scheme in which the payment of a pension to a couple is linked with the number of surviving children. This scheme was developed for Malaysia but its authors claim that it is, with suitable modifications, applicable to many other Third World countries as well. No payments would be made for parents with four or more children; but for those with fewer children, payments would vary inversely with the number of surviving children. Many variations of the scheme and the scale of incentives are possible. Its authors argue that these schemes

<sup>1</sup>Ronald Ridker and Robert J. Muscat, 'Incentives for Family Welfare and Fertility Reduction', Studies in Family Planning, January 1973.

force the state to pay substantial sums only if they produce results - that is, if there are fewer surviving children and the rate of growth is actually reduced. The payment would be delayed for many years and would be presumably be paid at a time when incomes were higher. Many people would remain ineligible since they had four or more surviving children. At the current age structure only about seven per cent of the population is aged 60 or over. But this represents about 15 per cent of the employed population aged 15 to 59. Reduced fertility would, of course, increase their proportion of the total population, but the total dependency ratio would continue to decline until the reduced fertility cohorts moved well into their working ages.

Even if such a scheme were feasible in Malaysia it is doubtful that it would work in Bangladesh or Pakistan. Malaysia has a population of only eleven million and a per capita income of some U. S. 430 - this compares with Bangladesh's 80 million people and per capita income of only U. S. 70. In this writer's view, this and similar schemes have several fatal flaws. The scheme would be open to fraud on a massive scale. This would be true even if, somehow, there was suddenly a complete vital registration system for all births and deaths and a register for migrants. Such a scheme would require an effective governmental administration and also the long-term confidence of the people in that government. This is hardly what one would expect under the political circumstances in Bangladesh and Pakistan.

## Fertility Decisions at the Community Level

The new Bangladesh Plan does call for the immediate adoption of a programme giving awards to communities on the basis of the demographic impact; that is, 'priority in providing community and public facility' for areas where fertility is reduced. Geoffrey McNicoll<sup>1</sup> argues for such an approach where communities and not individuals would be the target of policies aimed at internalizing the costs of high fertility. This might be a reasonable approach providing it happens within the context of a unified community development programme. Certainly, the success of these sorts of efforts in China are notable, as Pi-chao Chen reports:<sup>2</sup>

A Ward ("Street") Committee or Commune may suggest as a target that the crude birth rate be brought down a few points from that of the previous year, perhaps from 25/1000 to 22/1000; this reference point (not binding at lower levels) would be passed down through administrative channels. The eligible couples would meet in their production team, residents' group, or factory to plan how to meet such targets. Taking into account their population size, they calculate the number of births which would yield the proposed birth rate, then proceed to "allocate" the births among themselves - deciding who should have a child in the coming year. In doing this they follow certain priorities in the following order: 1) newly marrieds are free to bear their first child without delay. (In some areas they may not even get birth control education until after the first child); 2) couples with only one or two children; 3) couples whose youngest child is closer to five years old. The couples thus allocated a turn will refrain from using contraception while the others practice contraception. Obviously adjustments have to be made for failure to conceive within the year, unexpected pregnancies, and situations where the husband works away from home; these are made by discussion and mutual agreement.

<sup>1</sup>Geoffrey McNicoll, 'Community-Level Population Policy: An Exploration', Population and Development Review, September 1975, Vol. 1, No. 1, pp. 1-21.

<sup>2</sup>Pi-chao Chen, 'The 'Planned Birth' Program of the People's Republic of China', mimeograph, 1974, cited in McNicoll, *Ibid.*

This is certainly a straightforward and effective population policy, but it seems highly unlikely that even a much less radical and watered-down version of this approach would be workable in Bangladesh and Pakistan under the present social structure. This approach implies a consensus within the community, but given the hostilities between the landowners and the landless it seems doubtful that family fertility decisions will move into the community arena.

With the apparent failure of voluntary family planning, some have urged stronger methods to reduce fertility. But the case-wise incentive system for both the acceptor and the family planning worker used in Pakistan was rejected in the Bangladesh Five Year Plan for the following reasons: The scheme led to corruption and inflated reporting of contraceptive acceptance; it kept the supervisory field officers deskbound making disbursements and keeping records; it distorted the perspective of the programme, and its demographic impact was low.

Any scheme which pays recipients for irreversible sterilization raises difficult political and ethical issues which would have to be carefully resolved in light of the Indian experience.

#### Stringent Fertility Policies

The Bangladesh Plan called for "...a set of bold and if necessary drastic policies for vigorous action with a view to reducing this high rate of population growth..."<sup>1</sup> It goes on to say that

<sup>1</sup>Planning Commission, Government of the People's Republic of Bangladesh, The First Five-Year Plan, 1973-78, Dacca, 1973, p. 537.

"No civilized measure would be too drastic to keep the population of Bangladesh on the smaller side of 15 crores (150 million) for sheer ecological viability of the nation".<sup>1</sup>

The Plan entertains the idea of punitive measures against large families without actually calling for its immediate adoption.

We must consider the imposition of progressively increasing punitive measures against additional children after the second child on all couples. Once the programme gets well under way it may be worthwhile, for example, (i) to restrict ration cards in statutory and modified rationing areas to a maximum of two children; (ii) to debar couples from enjoying the benefit of fair price shops for more than two children per family. All couples should be required by law to register with the family planning organization.

The first phase of launching a major educational and motivational drive, if successful, should, at least, create a climate where the possibility of more drastic measures, such as compulsory sterilization of either husband or wife after the second child, legalization of abortion and establishment of abortion clinics for performing abortion free of cost, social measures to bring about women's emancipation, etc., may be considered.<sup>2</sup>

Some stringent policies have been theoretically justified to some as an attempt to internalize externalities. That is, if many of the costs of high fertility are being externalized or paid at the community or national level, it will be cheaper to have higher fertility from the family point of view. If the family is forced to accept the true costs of high fertility, their externalities will be internalized; and the costs of high fertility will be greater.

However, policies aimed at internalizing the cost of high

<sup>1</sup>Planning Commission, Government of the People's Republic of Bangladesh, The First Five-Year Plan, 1973-78, Dacca, 1973, p. 537.

<sup>2</sup>Ibid.



fertility upon large families would have adverse distributional implications. The large families, already poor, would be made poorer by paying the direct costs of educating their children, for example. These sorts of policies would have an inverse welfare effect, and would directly penalize the children in large families who, after all, had no involvement in the decisions regarding their own existence. Such policies are likely to be viewed as morally unacceptable as well as politically impractical and administratively infeasible. Furthermore, the demographic effectiveness is questionable.

Compulsory population policies have now been implemented in India, and all the world knows the result. Without a well-defined national policy, the Indian state governments began instituting drastic policies of compulsory birth control. Overzealous bureaucrats proposed a number of compulsory birth control laws which harassed the poor into irreversible sterility. Early in 1976 the Haryana government passed legislation to punish the parents giving birth to a third child with forced sterilization and a fine. A few days later the Punjab government was reported to have approved legislation making it an offense to have more than two children. This crime was to be punishable with imprisonment and a fine. The Maharashtra government had announced its planned compulsory family planning. The state chief minister proclaimed that people with "communicable diseases" would be forcibly sterilized. He did not specify which communicable diseases or what

would be done in the event the disease was cured.<sup>1</sup>

The district magistrate of Varanasi reportedly ordered that government employees in the district would not be paid their salaries in March 1976 if they did not "persuade" two persons to accept vasectomy or tubectomy operation<sup>3</sup>. It was reported that the Delhi administration had forced every teacher it employs to bring five persons to be sterilized in order to obtain their teaching salary for the month of March 1976. In some talukas of Aurangabad, district teachers had been "advised" to be sterilized and to "bring some cases for operations". On 30 March 1976 the Maharashtra government proposed legislation in the state assembly which authorized in certain conditions forced sterilization.<sup>2</sup>

Years ago Frank Notestein wrote that such compulsory policies will bring down the government before they bring down the birth rate. They did bring down the government; but they also abused the poor and powerless with irreversible sterilizations, and they damaged the viability of the voluntary family planning programmes as well.

### The Development Hypothesis And The Transition Theory

What is the relevance of the demographic transition theory for

<sup>1</sup>'Drastic Solutions', Economic and Political Weekly, Vol. XI, No. 13, March 27, 1976, pp. 479-480.

<sup>2</sup>Ibid.

development planners in Bangladesh and Pakistan? At a time when the demographic transition theory had been discredited by demographers, it was adopted by many others, including important policy makers, as a key assumption in the so called population-development debate throughout the Third World and, particularly, at the U.N. Bucharest conference in 1974.

...in a developing country where fertility is initially high, improving economic and social conditions are likely to have little if any effect on fertility until a certain economic and social level is reached; but once that level is achieved, fertility is likely to enter a decided decline and to continue downward until it is again stabilized on a much lower plane.<sup>1</sup>

It has truly been said that the best contraceptive is development.<sup>2</sup>

Development goals generally have an effect on the socio-economic context of reproductive decisions that tend to moderate fertility levels.<sup>3</sup>

Take care of the people and population will take care of itself.<sup>4</sup>

There is no need to take steps to affect fertility directly; all our resources should be directed to accelerating development, not preventing births.<sup>5</sup>

These statements take as a presupposition the theory of the demographic transition, which itself is largely based upon the historical experiences of Europe. The Princeton European Fertility

<sup>1</sup>United Nations, Population Bulletin of the United Nations, No. 7, New York: United Nations, 1963, p. 143.

<sup>2</sup>Karan Singh, Statement made at the World Population Conference, Bucharest, August 1974, Mimeograph.

<sup>3</sup>World Population Conference, World Population Plan of Action, New York: United Nations Economic and Social Council, E/5585. (E/CONF. 60/19).

<sup>4</sup>Action Pack, Distributed by the World Population Year Secretariat of the United Nations Fund for Population Activities, 1974.

<sup>5</sup>National Academy of Sciences, et al., In Search of Population Policy: Views from the Developing World. Washington D.C.: National Academy of Sciences.

<sup>1</sup>  
Studies found very few generalizations that could be made about the specific causal mechanisms which reduced fertility in Europe. Furthermore, in some cases, fertility was found to have declined prior to mortality. Of the generalizations that remain, Ansley Coale<sup>2</sup> offers three preconditions for a sustained decline in marital fertility: 1) fertility control must be a matter of conscious choice, 2) it must be perceived as a social or economic advantage, and 3) birth control methods must be known, accepted, and used.

Strictly speaking, the demographic transition theory is not a scientific theory at all. The transition theory is too grand a generalization; it lacks a measurable and specifiable causation mechanism -- it does not "explain"; it lacks a definite time scale; it is of little predictive value; and furthermore, it does not even accurately describe the experiences of Europe and Japan much less Pakistan and Bangladesh.

Nevertheless, this grand generalization remains fundamental to many assumptions upon which population and development policies are based. The theory itself is based largely upon the historical experiences of Europe which differed greatly from that of present day south Asia. The following section analyzes these differences, some of which might in general postpone a decline in fertility, and some which might accelerate such a decline.

<sup>1</sup> Ansley Coale, 'The Demographic Transition Reconsidered', In International Population Conference, I.U.S.S.P., Liege, 1973, Vol. 1, pp. 53-72.

<sup>2</sup>Ibid.

### Mortality and Fertility Decline

Mortality declined slowly in Europe over a long period of time, and it was brought down largely by the improvement in the standard of living. Naturally, declining mortality would have a positive effect upon family size because there would be more survivors. But the improved standard of living also had the important effect of increasing people's aspirations, which in turn improved their reproductive control, both directly and through changes in marriage patterns. At the same time, these increased aspirations followed an intergenerational pattern and people acted in ways that would prevent a decline in their standard of living. Thus, they may have reduced their marital fertility or their marriage patterns in an attempt to maintain themselves at their parents' standard of living.<sup>1</sup>

<sup>1</sup>See D. V. Glass, 'Population Growth and Population Policy', Public Health and Population Change: Current Research Issues, Mindel C. Sheps and Jeanne Clare Ridley, Pittsburgh: University of Pittsburgh Press., 1965, pp. 3-24.

The decline in mortality in Pakistan and Bangladesh was caused largely by technological advances transferred from the West and not so much from any improved standard of living. These declines were not only quicker but brought down the level of mortality below that of early industrial Europe; and, thus, much higher rates of population growth have ensued. But the mechanism which probably did most to bring down fertility in the West -- an improved standard of living -- is still absent in Pakistan.

Warren C. Robinson has identified four phases of mortality decline in Pakistan.<sup>1</sup> The first was during the period between the turn of the century and the 1920s when sharp fluctuations in mortality caused by famine and epidemics were controlled. Then, during the 1920s and the 1930s, smallpox, plague, and cholera were brought under greater control. At the time of Partition, typhoid, malaria, tuberculosis and maternal mortality were the major causes of death; but deaths from typhoid and malaria were quickly reduced. Robinson sees the fourth phase occurring in the mid-1960s when malaria and typhoid deaths continued to decline along with a rapid decline in tuberculosis-related deaths; but with maternal and infant mortality rates remaining high -- averaging between 172 and 211 deaths per thousand,

with a crude death rate of around 15 to 18 per 1000 population. In addition, there have been a great number of major disasters including the 1974 famine, the 1971 War of independence,

<sup>1</sup>Warren C. Robinson, 'Recent Mortality Trends in Pakistan', in Studies in the Demography of Pakistan, ed. W. C. Robinson, Karachi: Pakistan Institute of Development Economics, 1967.

the 1970 cyclone and tidal wave, the 1947 partition of India, and the Bengal famine of 1943, to name a few. Thus, the source and pace of mortality decline in Pakistan was quite different from that of the European experience upon which the demographic transition theory is based.

### The Rate of Growth

A rate of growth of around three per cent may not sound excessive, but by historical standards it is phenomenally high; in fact, it is unprecedented. A three per cent rate of growth, if continued, will result in a doubling of the population every 23 years; and if further sustained, would result in nearly a 32 fold increase in a century. Historically, the rate of growth of the human population from its earliest to its early modern times, though marked with great fluctuations from disease and famine, must have been nearly zero. That is, its growth rate could not have averaged more than 0.002 per cent or 20 per million per year. Compare this with the annual rate of growth for Pakistan and Bangladesh which is more than three per cent or 30,000 per million. That is 1,500 times greater! During the European demographic transition the annual rates of growth ranged between 0.5 to 1.5 per cent (5,000 to 15,000 per million) while averaging around 0.7 per cent (7,000 per million). Europe had few countries with doubling times less than 50 years, and most doubled around every 90 years. A three per cent rate of growth requires a huge effort just to maintain investments in social overhead at current inadequate per capita levels. And investments to actually improve

the standard of living -- the driving force of the decline in fertility in the West -- are all the more difficult.

In 1901 the population of what was later West and East Pakistan was estimated to have been around 46 million; 50 years later in 1951 the population had increased to around 76 million, an addition of 30 million persons. During the following ten years, 1951 to 1961, the population grew by some 18 million to 102 in 1961.

In 1951, after Pakistan's first partition, the population size for the West was reported to be 33.7 million with an average annual rate of growth of 1.7 per cent between 1941 and 1951, a rate which would double its population every 40 years. In 1972, at the time of Pakistan's second partition, the Census reported a population size for the West of 64.9 million with an average annual growth rate of 3.7 per cent between 1961 and 1972, a rate which would double its population every 19 years. If one accepts these figures as true, then Pakistan has very nearly the highest rate of growth in the world.<sup>1</sup>

If the following conservative estimates of the average rates of growth (3.0 per cent for Bangladesh and 2.5 per cent for Pakistan) were to continue unchanged and are applied to mid-year 1970

<sup>1</sup>Lee L. Bean has argued, on the other hand, that the population estimate of the 1972 Census of Pakistan is inflated because the Census occurred at the same time as the Sind language riots and conflicts over state representation to the National Assembly which resulted in overreporting to gain greater regional representation, much like India in 1931, and Nigeria in 1962 and 1972. But Bean still estimates the true size at around 60 million with an average annual rate of growth of three per cent. See Lee L. Bean, 'Demographic Review, The Population of Pakistan: An Evaluation of Recent Statistical Data', Middle East Journal, Vol. 28, No. 2, Spring 1974, pp. 177-184.



estimates of 69.2 million (100) and 57.0 million (100) (with the numbers in the parentheses as base index numbers), then by the year 2000 the population would reach 170.2 million (246) and 120.7 million (212). By the year 2030 the population would reach 418.6 million (605) and 255.5 million (448) -- more than a six and four fold increase respectively. But are these projections realistic? No, this sort of projection makes the unlikely assumption that fertility, mortality, and migration will remain unchanged; or, at least, that their net sum, the rate of growth, will remain unchanged.

#### Population Growth

Using alternative projections, Tomas Frejka<sup>1</sup> suggests that by the year 2000 these populations could increase to between 151 and 186 million for Bangladesh and 110 and 130 million for Pakistan. What are the basis for these projections? Essentially the range of these projections result from differing assumptions about fertility declines. International migration is assumed to be nil while mortality is assumed to decline, but this decline is the same in each projection. Thus, the differing range for the year

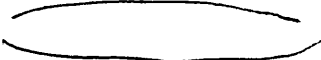
<sup>1</sup>Frejka assumes the following demographic statistics for Bangladesh and Pakistan, respectively. In 1972, a crude birth rate of 44 and 45; a crude death rate of 17 and 16; and thus a crude rate of natural increase of 27 and 29. For the period 1965 to 1970 the total fertility rate (TFR) is assumed to be 6.8 and 6.2, the gross reproduction rate was estimated at 3.3 and 3.0, and a net reproduction rate of 2.5 and 2.3 was used. Under these mortality conditions a total fertility rate of 2.6 would represent replacement in both countries. See Tomas Frejka, 'Bangladesh', Country Prospects, New York, The Population Council, 1974, 31p; and Tomas Frejka, 'Pakistan', Country Prospects, New York, The Population Council, 1974, 31p.

2000 is entirely due to different assumptions about fertility decline. Under these assumptions a slow decline in fertility would result in the high estimates of 186 and 130 million, respectively; but with a drastic decline in fertility, the population would still reach 151 and 110 million, respectively. Frejka's approach assumes that at some point in time the population of Bangladesh and Pakistan will cease to grow and will become stationary. These alternative projections allow us to examine the feasibility of a stationary population at different points in time, to get some idea of the eventual size of the population, and to see the demographic conditions occurring with different paths of growth. However, they do not show the more pessimistic path to a stationary population created by a substantially increased mortality.

#### Age Structure

Because of the high fertility, the age structure in Asia<sup>2</sup> is much "younger" than it was in Europe; and, thus, it is much more difficult to reduce the rate of population growth. The momentum of this young age structure will ensure a substantial growth in population even if fertility were suddenly to drop to replacement levels. Let us suppose that fertility were to immediately drop to the level of replacement; that is, a level just above two children per family on average, a level which would ensure that enough children would survive to their own childbearing years to enable them to exactly replace their parents. Each person in the population would be replaced by only one other person, no more and no

less. At first glance one might expect that the rate of population growth would then immediately drop to nil. However, the high proportion of young people in the age structure will make the continued growth of the population inevitable for some 60 to 70 years.

One of the most startling implications which leaps from Frejka's projections is the effect of the age structure on the eventual size of the population. Even on the most unrealistically optimistic, indeed now impossible, assumption  where there is an immediate decline in fertility to the level of replacement in 1970 and from there afterward, Bangladesh's population would grow by about 46 per cent by the year 2000 and would finally level off in the year 2050 with a population some 87 per cent larger than in 1970. Under the same assumptions, Pakistan's population would level off at a size some 70 per cent greater than in 1970.

### Fertility

The present levels of fertility in Bangladesh and Pakistan, with a crude birth rate of between 45 and 50 per thousand, are much higher than that of pretransition Europe. The crude birth rate of early 19th century Britain was less than 35 per thousand. The main reason for this difference is the early and near universality of marriage in Asia. Such a high fertility level would have to fall a great deal farther than it did in the West in order to achieve a low rate of growth. To date, there has been no evidence of a decline in fertility.

A major effort to make an estimate of fertility was the Pakistan

Population Growth Experiment of 1962-1965. This was the first national dual record survey which required four years of field work and another five years for matching, analysis, rechecking, and publication. The fertility estimates for what is now Bangladesh were thought to be somewhere between the registration figures ( Crude birth rate of 44 and a total fertility rate of 6.29) and the Chandrasekaran-Deming adjusted figures ( C.B.R. of 53 and total fertility of 7.4). Similarly, crude birth rates for Pakistan were reported to be between 42 and 52. Serious methodological criticisms including false non-matches resulting in inflated estimates have been raised about this study. J.G.C. Blacker has also criticized the time and apparent cost of such dual procedures relative to the effort needed to complete single surveys.<sup>1</sup> In analyzing the data M. Badrud Duza<sup>2</sup> found no significant fertility differentials among urban and rural populations. Since fertility differentials usually accompany a decline in fertility, he argues on theoretical grounds that a decline in fertility was unlikely, especially since the mass of the population has been so little affected by the kinds of socio-economic development

<sup>1</sup>See F. Yusuf, Population Growth Estimation: Studies in Methodological Matching of Vital Events, Research Report No. 67, Karachi: Pakistan Institute of Development Studies, 1968; W. Brass, 'A Critique of Methods for Estimating Population Growth in Countries with Limited Data', Bulletin of the International Statistics Institute, Vol. 44, No. 1; and most recently see J. G.C. Blacker, 'Dual Record Demographic Surveys, A re-assessment', Population Studies, Vol. 31, No. 3, November 1977, pp. 585-597.

<sup>2</sup>M. Badrud Duza, 'Differential Fertility in Pakistan', Studies in the Demography of Pakistan, Warren C. Robinson, ed., Karachi: Pakistan Institute of Development Economics, 1967, pp. 93-137.

normally associated with smaller family size. Duza also argues that the age specific fertility rates are likely to have remained fairly constant even though the crude birth rate may have fluctuated because of changes in the age structure of the population as well as random and nonrandom changes from year to year.

Between 1968 and 1969 the National Impact Survey was undertaken to study the demographic effects of the family planning programme. The validity of the fertility and infant mortality level and trend data are dubious at best.<sup>1</sup>

The Bangladesh Retrospective Survey of Fertility and Mortality followed immediately upon the 1974 Census and gave estimates of 7.08 for total fertility and a crude birth rate of 48 per thousand.<sup>2</sup> Blacker has noted that the indirect techniques used to derive these estimates probably resulted in an underestimation of the events rather than an overestimation.<sup>3</sup> In any case, there is no evidence of a fertility decline.

No evidence of a fertility decline was found in the 1975 Pakistan fertility survey conducted as a part of the World Fertility Survey programme.<sup>4</sup>

<sup>1</sup>See I. Sirageldin, D. Norris and M. Ahmad, 'Fertility in Bangladesh: Fact and Fancies', Population Studies, Vol. 29, No. 2, July 1975, pp. 209-216.

<sup>2</sup>Bangladesh, Census Commission, Bangladesh Population Census, 1974, Provisional Results, Bulletin, Dacca, 1975.

<sup>3</sup>Blacker, loc. cit., p. 589.

<sup>4</sup>Population Council of Pakistan, Pakistan Fertility Survey: First Report Lahore, Directorate of Production and Publication, 1976, xix, 110p.

Thus, the fertility levels in Bangladesh and Pakistan are high compared to those of other less developed countries and are extremely high in comparison with those of pretransition Europe. Fertility would have to drop much farther to reach replacement levels, and to the best of our knowledge, a downward trend has not yet begun.

### Education

There is some evidence that universal primary education may reduce the level of fertility in Asian countries. Primary education, especially for women, may result in a desire for smaller families by expanding nontraditional opportunities and by increasing the opportunity costs of early marriage and familial roles. It also raises intellectual barriers between them and earlier and more traditional generations. Education also raises the costs of children through school-related expenditures while diminishing their productive value in agriculture and at home. It is also argued that education may make people more receptive to family planning information.

However, because the school-age population is increasing so rapidly, Pakistan and Bangladesh are having difficulty maintaining even past enrollment ratios which are abysmally low. Less than one out of ten persons in Bangladesh is functionally literate, or has at least five years of formal education.<sup>1</sup> Gavin Jones has

<sup>1</sup>W. Henry Mosley and Monowar Hossain, 'Population: Background and Prospects', Disaster in Bangladesh: Health Crisis in a Developing Nation, New York: Oxford University Press, pp. 8-17.

analyzed educational targets against projected population growth for Pakistan and concluded "(the nation)...would find it impossible to provide universal, high quality education within a decade or two even if fertility were to decline quite rapidly."<sup>1</sup>

Nevertheless, much more could be done to improve education even within the existing financial constraints. The distribution of primary education could be greatly expanded if less were spent on higher education. The curriculum could be vastly altered and made relevant to rural peoples. Some type of nonformal education combined with an agricultural extension service could be more effective than a formal system.

<sup>1</sup>Gavin W. Jones, 'Effect of Population Change on the Attainment of Education Goals in the Developing Countries', Rapid Population Growth. National Academy of Sciences, Baltimore and London: The Johns Hopkins Press, 1971.

### Nonagricultural Employment

There is some reason to believe that Europe's fertility decline was accompanied and reinforced by urbanization and a movement away from agricultural employment. But because of Asia's rapid population growth, the demand for non-agricultural jobs far exceeds the supply; and since urbanization without urban jobs will not improve the standard of living, fertility may remain high. According to an unpublished paper by Hofmeister,<sup>1</sup> the total employment for registered factories (all factories with more than ten employees) was less than the average yearly increase in the labour force, despite the fact that manufacturing represents more than 15 per cent of Pakistan's gross domestic product. The growth of the labour force in relation to expected employment is perhaps the most disturbing and most inevitable aspect of population dynamics.<sup>2</sup> The scarcity of jobs and, thus, the low standard of living may in part account for the unusual fact that fertility differentials between urban and rural areas are so slight.

### Employment of Women

If the increase in nonagricultural employment of women was

<sup>1</sup>R. Hofmeister, 'Economic Situation and Prospects in Pakistan, 1974', Annex D, Document of the World Bank, forthcoming, 1974. Cited in D. C. Rao, 'Urban Target Groups', Redistribution with Growth, Hollis Chenery et al., London: Oxford University Press, 1974, p. 139.

<sup>2</sup>See, for example, the work by Ghazi Farooq including, 'Dimensions and Structures of Labour Force in Relation to Economic Development: A Comparative Study of Pakistan and Bangladesh', Islamabad, Pakistan Institute of Development Studies, 1975.



a factor in Europe's reduced fertility, it is not likely to be a factor which will reduce fertility in Bangladesh and Pakistan. Even if the status of women were somehow greatly improved, the number of women entering into employment would be severely limited because of the rapid growth of the labour force population.

Chaudhry has recently found an overall negative relationship between fertility and the proportion of women in the labour force in Bangladesh,<sup>1</sup> and he even reported a negative relationship with agricultural activity and a positive relationship with non-agricultural activity. Nasra M. Shah, however, argues that this might result from an artifact in the data as participation rates might have been over-reported and fertility under-reported in the rural areas.<sup>2</sup>

Shah's multivariate analysis of the 1968-69 National Impact Survey found that a weak bivariate relationship was not substantiated and that the "net" effect of the wife's employment on desiring an additional child was negligible. The age of wife and the number of living sons was deemed much more crucial than any socio-economic factors. "Given our data limitations, we can say with some confidence that policies for increasing female employment can not be expected to have miraculous negative effects on fertility,

<sup>1</sup>Chaudhry, Rafiqul-Huda. 'Labour Force Status and Fertility', The Bangladesh Development Studies, Vol. II, No. 4, October, 1974, pp. 819-838.

<sup>2</sup>Shah, Nasra M.. 'Female Labour Force Participation and Fertility Desires in Pakistan: An Empirical Investigation', Pakistan Development Review, (Islamabad) Vol. 14, No. 2, Summer 1975, pp. 185-206.

except for specific jobs in some subgroups (such as professionals)."<sup>1</sup>

### Migration

Migration played an important role in Europe by lessening the effects of rapid population growth as tens of millions of persons moved to the Americas and elsewhere. But it is completely unrealistic to expect outmigration to mitigate the current population growth. The migrants would be unacceptable to any other country and Pakistan's history of mass migration has already been more than tragic. Following the first partition, the 1951 Census found one out of every 14 Pakistanis was a refugee. During the Bangladesh War of Independence there were perhaps as many as ten million refugees, though this official estimate may be an overstatement. But the appalling conditions in the refugee camps is not overstated.<sup>2</sup> Any policy or programme which would encourage migration on a scale that would be demographically effective would not be politically realistic, administratively feasible, nor morally acceptable. Such a migration could only be another tragic response to a catastrophe.

<sup>1</sup>Shah, Nasra M.. 'Female Labour Force Participation and Fertility Desires in Pakistan: An Empirical Investigation', Pakistan Development Review, (Islamabad) Vol. 14, No. 2, Summer 1975, p. 203.

<sup>2</sup>J. E. Rohde, L. C. Chen, and P. Gardner, 'Refugees in India: Health Priorities', Disaster in Bangladesh: Health Crises in a Developing Nation, L. C. Chen, ed., New York: Oxford University Press, 1973.

## Marriage

Because of the early and near universal marriage in Asia there is a greater potential for reduced fertility via a delay in the age of marriage or a reduction in the proportion marrying than existed in Europe. European marriage patterns prior to the decline in fertility consisted of much later and less universal marriages.<sup>1</sup> The decline in overall fertility would have been even greater in Europe had these marriage patterns remained constant, but some countries experienced trends toward earlier and more universal marriages. At least this is not possible in Bangladesh and Pakistan.

In Bangladesh the female age of marriage among rural women is as early as 13 and around 16 for urban women. The average age of marriage for men is comparably high at around 23 to 24, making them on average nearly ten years older.<sup>2</sup> Mosley and Hossain report that "nearly all women marry and...marry at an early age. Fifty per cent of all females are married by the age 13 and over 99 per cent are married by the age of 19. On average, males are ten years older than their wives."<sup>3</sup>

<sup>1</sup>Industrializing Western Europe was very unusual in its pattern of late marriage and nonmarriage. See John Hajnal, 'European Marriage Patterns in Perspective', Population in History, D. V. Glass and D. E. C. Eversley, eds., Chicago: Aldine, 1965.

<sup>2</sup>See Mohammad Afzal, 'The Fertility of East Pakistan Married Women', in W. C. Robinson, loc. cit., 1967; M. Dadrud Duza, loc. cit., 1967; M. Obaidullah, 'On Marriage, Fertility and Mortality', Demographic Survey in East Pakistan, Dacca: University of Dacca; and M. Badrud Duza and C. Stephen Baldwin, Nuptiality and Population Policy, The Population Council, 1977, pp. 49-56.

<sup>3</sup>W. Henry Mosley and Monowar Hossain, loc. cit.

With the limited capacity for educational expansion, it seems doubtful that formal education for women could be employed to reduce or delay marriage. The best that might be done within this social structure would be to greatly expand nonformal educational programmes for women.

It is also unrealistic to expect industrial employment or even urbanization to have much impact on marriage patterns. The Bangladesh Academy for Rural Development has successfully experimented with new cottage industries for women's cooperatives; and while it may demonstrate some feasibility, that is, Muslim women are willing to work outside the home, there are great difficulties in extending such programmes across the countryside. The Women's Rehabilitation Board<sup>1</sup> and the Bangladesh Rural Advancement Committee are also involved in such experiments.

The Bangladesh First Five Year Plan proposes to increase the age of marriage through legislation: "in an attempt to check high growth rate of population necessary steps to promulgate a law raising the legal age of marriage will be taken during the plan period in collaboration with the relevant Ministries." This is not much. There are no details of implementation; and no mention is made of how low the age of marriage is, how much it varies, or its universality. But how effective might a policy be if it were really implemented? Many countries have attempted to ensure a minimum legal age at marriage for nondemographic social reasons,

<sup>1</sup>See S. Jahangeer Haider, ed., Women's Work, Dacca: National Board of Bangladesh Women's Rehabilitation Program, 1974; and Khushi Kabir, Ayesha Abed, and Marty Chen, 'Rural Women in Bangladesh: Exploding Some Myths', Report No. 42, Dacca, Ford Foundation, May 1976.

but any enforcement in Bangladesh, for any reason, would be very difficult. A government incentive scheme would be dependent upon the ability to prove one's legal age, nearly impossible in a country without vital registration or similar administrative measures.<sup>1</sup>

### Birth Control Technology

New methods of birth control have become much more effective than the traditional methods used in the European decline of fertility. Providing that such methods are known, available, and acceptable, any given level of motivation for reducing fertility will probably result in more effective fertility control.

Abortion, another factor reducing fertility in Europe, is now a potentially safe technique. In some countries government policies on abortion have produced some dramatically rapid changes in fertility. In Japan, fertility declined rapidly after the legalization of abortion,<sup>2</sup> while in Romania fertility rapidly increased immedi-

<sup>1</sup>This brings to mind a relevant statement by Karol Krotki in which he explained the opposition by some to a vital registration system. "...the public is only too happy to go on with its present erratic systems. In fact it sees an actual advantage in not having births registered. In the absence of a birth certificate, the age limit at stages of one's life when it really matters, such as: admission to school, early marriage, admission and promotion in public life, compulsory retirement, becomes less rigidly operative." Karol J. Krotki, The Problem of Estimating Vital Rates in Pakistan, United Nations World Population Conference, September, 1965, WPC/WP/234, mimeographed, p. 1.

<sup>2</sup>Kingsley Davis, 'The Theory of Change and Response in Modern Demographic History', Population Index, Vol. 20, No. 4, October 1963, pp. 345-366.

ately following restrictive policies.<sup>1</sup> There are no laws forbidding abortion in Pakistan and the Bangladesh First Five Year Plan suggests a liberalization of the abortion laws. Ambulatory services for abortion and "menstrual regulation" were provided by at least two clinics in 1974. In 1975 the government of Pakistan officially sponsored training in the use of aspiration abortion procedures.<sup>2</sup> But abortion is not openly discussed in either of the two countries; and though it is practiced in the rural areas to prevent unwanted illegitimate births, there are strong religious and social objections to its use. Although there is no specific mention of abortion in the Quran, and some modern Islamic thinkers have agreed on a rather liberal view of abortion in the first 120 days after conception, much of the population and even those women who resort to abortions themselves may view it as contrary to their religion. It is commonly believed that if abortion was to become an important public policy, it would be strongly opposed.

In general, modern methods of contraception, if acceptable

<sup>1</sup>Fertility rose for only a short time and then fell, suggesting that the population at first had become dependent upon abortion as a normal method of birth control; but then they accommodated to the new regulations by simply changing to other methods of birth control. The increase in fertility resulted from a lag in the change from one method of birth control to another.

See Michael S. Teitelbaum, 'Fertility Effects of the Abolition of Legal Abortion in Romania', Population Studies, Vol. 26, No. 3, November, 1972, pp. 405-417.

<sup>2</sup>Christopher Tietze and Marjorie Cooper Murstein, Induced Abortions: 1975 Factbook, Reports on Population/Family Planning, No. 14, 1975.

and accompanied with appropriate motivation, provide a greater potential for a rapid fertility decline than existed in Europe. European fertility might have fallen much more quickly and to a lower level had oral contraceptives, IUDs and other modern methods been used instead of the more traditional methods which included coitus interruptus. The traditional methods can be effective providing there is enough motivation to use them properly. The main difference is that there was substantial motivation in Europe while there is little in Asia today. But for any given level of motivation, modern contraceptives will result in more effective birth control. Some modern methods may also require less frequent motivation, that is, a person may only have to be motivated once to have an IUD. Thus, if there is sufficient motivation to regulate fertility, the methods are available today for a more rapid transition than occurred in Europe.

Certainly there were no population policies and family planning programmes to supply these contraceptives during the European fertility transition, and the whole range of policies discussed in other sections of this thesis may well accelerate a decline in fertility.

#### Linguistic Barriers, the Mass Media, and Fertility Decline

The Princeton European Fertility Studies found some evidence that contraceptive practices in Europe spread easily within linguistic or cultural groups but not easily between them. This may facilitate the diffusion of these practices in Bangladesh but not in Pakistan where there is much less unification among the Punjabis,

Pathans, Sindis, and Baluchis.<sup>1</sup> But unlike transitional Europe, Pakistan is developing a modern communication system which has a much greater potential for permeating these linguistic barriers. In Bangladesh, travel and communications are very difficult in much of the rural area and during some seasons, are not possible at all.

Through technical improvements in the mass media there may come a general commercial saturation by Western culture; and among its many influences, it may bring an "increased legitimacy of the small family norm".<sup>2</sup> This example, which pretransition Europe never really had, may show that a small family is normal and legitimate and that the planning of births is both within the calculus of conscious choice and is really feasible.

There is also increasing evidence from Kirk,<sup>3</sup> Beaver,<sup>4</sup> and Mauldin<sup>5</sup> that in other Third World countries where fertility is

<sup>1</sup>The 1951 Pakistan Census (Vol. I, p. 71) found the following linguistic proportions: Urdu, 7.2 per cent; Punjabi, 28.4 per cent; Pushto, 7.1 per cent; Sindhi, 5.0 per cent, and Bengali, 54.6 per cent.

<sup>2</sup>Michael Teitelbaum, 'Relevance of Demographic Transition Theory for Developing Countries', Science, Vol. 188, 2 May 1975, pp. 420-425.

<sup>3</sup>Dudley Kirk, 'A New Demographic Transition?' Rapid Population Growth, National Academy of Sciences, Baltimore: Johns Hopkins Press, 1971, pp. 123-147.

<sup>4</sup>Steven E. Beaver, Demographic Transition Theory Reinterpreted: An Application to Recent Natality Trends in Latin America. Lexington: Lexington Books, 1975, 208 p.

<sup>5</sup>W. Parker Mauldin, 'Assessment of National Family Planning Programs in Developing Countries', Studies in Family Planning, Vol. 6, No. 2, 1975, pp. 30-36.



declining, it is doing so at "a much more rapid pace than it did historically in Europe and among Europeans overseas".<sup>1</sup>

#### Development and Fertility

During the decade of the 1960s Pakistan's rate of economic growth was much more rapid than anything experienced during the European transition. That rapid growth did not continue during the 1970s, but it could not have been expected to in view of the civil war and all the other political and natural calamities; and besides, such growth rates often fluctuate. But nevertheless, there remains a great potential for rapid economic expansion in the agricultural sector for Bangladesh and in both agricultural and non-agricultural sectors in Pakistan. The agricultural output per acre in Bangladesh is exceedingly low by international standards, and this is to a large extent a reflection of the low level of fertilizer and other biological inputs used per acre. So even without massive investments in flood control, Bangladesh has a tremendous potential for increased agricultural output.

Shortages of capital, technology, and trained personnel can be surmounted by transfers from the developed world; and, if appropriately applied to the problems of development, they could, in theory, be a great advantage which transitional Europe did not have. Unfortunately, such transfers also bring a tremendous dependency and a distortion of development objectives.

The rate of population growth, the absolute number of people

<sup>1</sup>Dudley Kirk, 'A New Demographic Transition?' Rapid Population Growth, Consequences and Policy Implications, National Academy of Sciences, (Baltimore: The Johns Hopkins Press), 1971, pp. 123-147.

added every year, and even the density of population on the land is so high, that the chances for development are less than those of pretransition Europe. A large proportion of the development budget must go toward maintaining, rather than improving, per capita investments in social overhead for a growing number of people. Since fertility is high, the child dependency ratio is high; and, thus, there are relatively higher costs to maintain the same per-capita investments in education, housing, health, and so forth. This in turn reduces the potential level of investment, and it may limit investment from <sup>other</sup> more productive sectors. With the labour force growing so rapidly, the capital investment per worker is reduced; and, thus, the productivity per worker may not increase. At the same time, unemployment continues to increase.

To the best of our knowledge, the rapid economic growth in the 1960s did not result in a reduction of fertility. There could be many explanations of this since we are unsure of the causal mechanisms which relate these phenomena. It might easily be argued that under the present circumstances, economic growth reduces fertility only over the long run through indirect effects, and that in the short run, it might have the direct effect of increasing fertility. Pakistan's economic growth was not sustained for a long period and had it continued for a longer duration, there might have been a measurable demographic change. It might be that a rapid rate of growth at this low level of development would not have a negative effect upon fertility in any case. But perhaps the key issue lies in how this rate of growth was distributed

across the population.

Is development an ip so facto population policy? Over the long run development is an important way of reducing fertility. But the desire for economic growth is widespread; and if governments are not already doing everything they can to accelerate economic growth, it seems doubtful that they will do more to foster growth just because over the long run it might reduce fertility.<sup>1</sup> There is certainly a consensus that the more economic growth these countries have the better; it will improve the standard of living; it will enable better preparation for the population growth that is inevitable; and it may reduce fertility over the long run. But such platitudes are not of much use to development planners.<sup>2</sup> The fundamental issue is the type of development: what set of policies? how will these be implemented? and what sort of impact and distribution will there be? Demographic considerations should be taken into account in all of these aspects, and particularly in regards to which aspects of development strategy will most effectively reduce fertility.

<sup>1</sup>"That population policy considerations somehow could speed up the overall level of such development efforts of governments seems to me to be an extremely farfetched idea". Paul Demeny, 'On the Economic Theory of Fertility', A paper presented at the Conference on the Economic Aspects of Population Growth, Valescure, France, 3 September 1973, Mimeo, p. 4.

<sup>2</sup>"We are likely to be left with the platitudinous proposition that economic and social development will be helpful in solving the population problem - the more development, the better - but the structure of development measures, the real policy issue, remains determined without reference to demographic considerations". Paul Demeny, Ibid, p. 5.

Population policies and development are not mutually exclusive and there are many reasons to think that they are reinforcing. Any "either/or" type of argument is not cogent because there is little reason to choose between them if they are mutually supportive.<sup>1</sup> Population policies should not and have not been a substitute for development efforts. This does not mean that there is no room to argue about their relative importance or the way in which international agencies have given emphasis to population. But nevertheless, in this writer's view, the size of the family planning budget compared to development budgets has not been excessive, especially in relation to the magnitude of the population growth in these countries. If the entire family planning budget for Pakistan in 1966 or 1967 had been diverted instead to education it would have brought 8 and 7 days respectively, of extra education; or raised by 3.6 and 3.0 per cent the number of children in school.<sup>2</sup> The family planning programme then accounted for about 12 per cent of the budget for the Ministry of Health.<sup>3</sup> Had the funds been diverted to the military they would have raised defence expenditure

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See Michael S. Teitelbaum, 'Population and Development: Is a Consensus Possible?' Foreign Affairs, Vol. 52, No. 4, July 1974, pp. 742-760.

<sup>2</sup>Gavin W. Jones, 'Effect of Population Change on the Attainment of Educational Goals in the Developing Countries', Rapid Population Growth, Consequences and Policy Implications, National Academy of Sciences, Baltimore and London: The Johns Hopkins Press, 1971, p. 357.

<sup>3</sup>Dorothy Nortman, 'Population and Family Planning Programs: A Factbook', Reports on Population/Family Planning, New York: The Population Council, December, 1969.

by only 1.8 percent.<sup>1</sup> If anything is competing with the development budget it is the military and not the family planning programme.<sup>2</sup>

While population policies have not been a substitute for development, neither should development be a substitute for population policies. Population policies should be a component of development policies, and they should be integrated into development planning.<sup>3</sup> Unfortunately, this is not as easy as it may seem. It is relatively simple, though discouraging, to incorporate demographic projections into various sectoral plans and to see what efforts are needed to accommodate to the expected population. But integrating policies of family planning and "beyond family planning measures" is more difficult. How is family planning going to be efficiently integrated into such programmes as health, maternal and child care,

<sup>1</sup>Gavin W. Jones, 'Effect of Population Change on the Attainment of Educational Goals in the Developing Countries', Rapid Population Growth, Consequences and Policy Implications, National Academy of Sciences, Baltimore and London: The Johns Hopkins Press, 1971, p. 357.

<sup>2</sup>"To an economist...the inescapable conclusion would seem to be that Pakistan, which was already spending too much of her own resources on military purposes, was encouraged by the U.S. military aid program to spend even more on military purposes". David Bell, then Deputy Director, Pakistan-Iran Advisory Group, Graduate School of Public Administration, Harvard University, in Hearings on the Mutual Security Programs, House of Representatives, 86th Congress, First session, 22 January 1959.

<sup>3</sup>Riad B. Tabbarah, 'Population Policy Issues in International Instruments: With Special Reference to the World Population Plan of Action', Draft of paper for publication in Journal of International Law and Economics, December 1974.

community and rural development, agriculture, and so on? Is that really efficient? Are the benefits of specialization lost by these steps? Will it not raise more problems?<sup>1</sup> Such policies may be integrated at the top levels of government but integrating them at the village level is difficult.<sup>2</sup>

Perhaps what is needed is not so much an integration of the family planning programme into these other areas but that these other areas, or certain areas, be identified for special emphasis in the development strategy. Kocher and Rich and others have emphasized the extension of primary education; a greater equality for women; a more equitable distribution of income; greater efforts to increase employment, especially for women; old age welfare payments and so on. These sorts of policies with an important distributional emphasis will by definition most directly change the lives and standard of living of the population.<sup>3</sup> Such a distri-

<sup>1</sup>These are questions raised by Bernard Berelson in The Great Debate on Population Policy, An Instructive Entertainment, New York: The Population Council, 1975, p. 4.

<sup>2</sup>Paul Demeny, 'Observations on Population Policy and Population Program in Bangladesh, 1960-74', Population and Development Review, Vol. 1, No. 2, December 1975, pp. 307-321.

<sup>3</sup>D. V. Glass has asserted that "direct programmes for spreading the use of birth control are, however, only a small part of the action in which developing societies will require to engage. The largest part will have to consist of planned economic and social development--and development at a considerably higher rate than appears to have been evident so far. This will be needed because, without an improvement in levels of living, birth control programmes may well be empty frameworks...Desirable social change may involve additional expenditure beyond that justifiable for purely economic considerations...Many of the developing societies themselves could and should do much more to mobilize and use their own resources, especially their human resources. Economic and social development must be shown to have meaning for, and impact upon, the population in general." D. V. Glass, 'Population Growth and Population Policy', Public Health and Population Change, M. C. Sheps and J. C. Ridley eds., Pittsburgh: University of Pittsburgh Press, 1965, pp. 23-24.

butional emphasis, if successfully implemented, would probably have a tremendous demographic impact because of the sheer arithmetical power of weighted averages. There is an emerging international consensus that this is the developmental structure which is worthwhile in and of itself,<sup>1</sup> and, furthermore, is likely to have important influences on the motivation for reproductive control.<sup>2</sup>

But a word of caution must be added. Development plans and programmes and virtually all other governmental efforts are made within political and economic constraints and represent political compromises within the existing power structure. Because these programmes are worthwhile in and of themselves, they should have been adopted already and they have not been. It certainly seems unlikely that they will now be adopted because of their presumed negative effect upon fertility.<sup>3</sup>

<sup>1</sup>Even the World Bank is now emphasizing the distributional aspects of its programmes, see Hollis Chenery, et al., Redistribution With Growth, London: Oxford University Press, 1974.

<sup>2</sup>See World Bank, Population Policies and Economic Development, Staff Report Baltimore: The Johns Hopkins University Press.

<sup>3</sup>"It is, in fact, doubtful whether arguments based on fertility effects of development policies are ever strong enough appreciably to modify the mix of development measures that planners would otherwise propose." Paul Demeny, 'Population Policy: The Role of National Governments', Paper presented at the First Regional Population Conference, Beirut, 18 February 1974, p. 9.

### The Distributive Hypothesis And Fertility

It is evident that Pakistan's rapid economic growth of the 1960s was extremely concentrated in a small modern sector which absorbed a huge proportion of the total investment. This growth was not shared with the vast majority of the population who were denied access to physical and human capital. The inequitable distribution of income was further reinforced by trade and fiscal policies which intentionally financed industrial growth with transfers from agriculture. Government policies further accelerated the trend toward a dual, bimodal agricultural system. Furthermore, the inequality was exacerbated by the distribution of public expenditure.

This has been the experience of many countries, especially in the early stages of development. But it is not necessarily inevitable as the experience from many countries during the last fifteen years shows; there is a great diversity in income distribution and, in a few cases, rapid growth has been accompanied with a real improvement in the actual and relative welfare of the poorest. Traditional welfare economics, which had stressed that policies for optimum growth and policies for equitable distribution are mutually exclusive, is now being called into greater question. Even the World Bank is now emphasizing development strategies, within the narrow limits of fiscal measures, which will have growth implications for the poorest of the poor. Such policies would encourage greater incomes for the poor by a redirecting of public investment to expand their productive capacity



and income.

The development and demographic transition hypothesis focuses mainly on aggregate economic and social measures rather than on their underlying distributions. This is essentially where it differs from the distributive hypothesis as proposed by Kocher,<sup>1</sup> Rich,<sup>2</sup> Repetto,<sup>3</sup> and others including Stamper.<sup>4</sup> James E. Kocher has argued that a redistribution of income in the rural areas of the Third World would not only accelerate a broad development process and reduce dual or bimodal agriculture, but that such a process may be crucial to a sustained decline in fertility. Kocher does not specifically apply this theory to Bangladesh or Pakistan, and it is one of the aims of this thesis to explore more fully its relevance and application in these particular countries.

When discussing the effects of income on fertility, it is first necessary to make an important distinction between the short-run and the long-run effects. In the long-run, a previous increase in income influences structural changes by buying more education, or better health, improved housing, and locational changes,

<sup>1</sup>James E. Kocher, Rural Development, Income Distribution, and Fertility Decline, New York: The Population Council, 1973.

<sup>2</sup>William Rich, Smaller Families Through Social and Economic Progress, Monograph No. 7, Washington, D.C.: Overseas Development Council, 1973.

<sup>3</sup>Robert Repetto, The Interaction of Fertility and the Size Distribution of Income, Research Paper No. 8, Cambridge, Mass.: Center for Population Studies, Harvard University, 1974.

<sup>4</sup>B. Maxwell Stamper, 'Some Demographic Consequences of the Cuban Revolution', Concerned Demography, Vol. 2, No. 4, March 1971, see also Amit K. Bhattacharyya, 'Income Inequality and Fertility; A Comparative View', Population Studies, Vol. 24, No. 1, March 1975, pp. 5-19.

as well as changes in outlook, and, some would argue, changes in tastes for buying consumer durables including children. In the short-run, however, an increase in income will have less impact on such structural changes which might have fertility-reducing effects later on. Thus, an increase in income may not reduce fertility but increase it temporarily, because the desire for children has not changed though the cost of children is cheaper. It is this time distinction which is usually used to explain the apparent inconsistency between the negative relationship of income and fertility in cross-sectional studies and the positive relationship found in time series.<sup>1</sup>

Another distinction should be made between absolute and relative income and fertility. First, we might ask, to what extent is fertility influenced by redistribution of incomes to improve the absolute incomes of the poorest? Secondly, to what extent is fertility influenced by the redistribution of incomes to alter a family's income relative to other families' incomes? Clearly the latter is of less importance.

It is, of course, difficult to specify the exact causal mechanism of these relationships. Part of this argument must lie in the more general concept that fertility declines within the broad context of social and economic development. And since it is generally agreed that development will ultimately reduce fertility, it seems evident that fertility will decline more quickly the

<sup>1</sup>See Julian L. Simon, 'The Effect of Income on Fertility', Population Studies, Vol. 23, No. 3, November 1969, pp. 327-341; Julian Simon, The Effects of Income on Fertility, Chapel Hill: University of North Carolina Press, 1974.

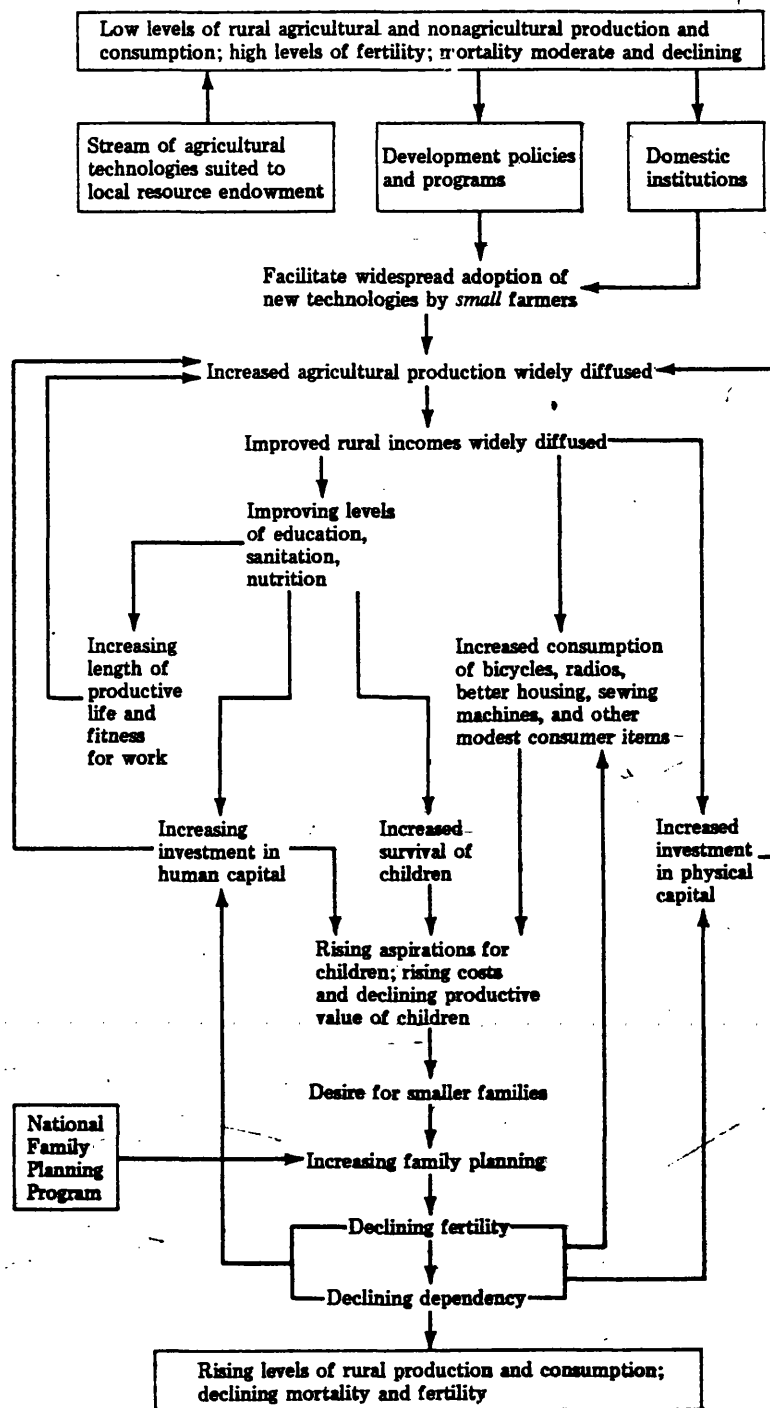
sooner development reaches a greater proportion of the population. The sheer power of weighted arithmetical averages supports the distributional argument.

According to this approach government policies should promote a greater level of investment in human capital, and should do so with a much wider distributional emphasis. Although much could be done to improve the distributional aspects of government programmes, it would be expensive for these poor countries to radically increase the level of investment in human capital. But it is argued here that it is feasible to increase the incomes of the poor by redirecting public investment to expand their productive capacity. Any efforts to increase the productive capacity of the poor in Bangladesh or Pakistan must lie within the agricultural sector.<sup>1</sup>

To briefly summarize, Kocher argues that government development policies which aim to accelerate the broad diffusion of new agricultural technologies (See Figure 1 ) to the smallest farmers would increase and widely diffuse productivity and incomes. This in itself would enhance development. Greater incomes for the poor

<sup>1</sup>In discussing rural development projects something must be said about the fundamental causes of rural poverty and inequality and different models of development. Neoclassicists might argue that the poor were excluded from technological changes while the large landowners were quick to adopt technology and thus became richer. While others might argue that the poor are so for historical reasons and that they have been systematically exploited, alienated, and marginalized by the landowning class. The type of interventions recommended for reducing rural poverty depend largely upon one's view of these fundamental causes. If one takes the latter view then projects which challenge the social structure are of great importance. Instituting land reform, and the organization of landless and near landless peasant to challenge the existing structure.

Figure 1 Illustration of a Possible Rural Growth Equity Model and its Relation to Fertility



SOURCE: James E. Kocher, Rural Development, Income Distribution, and Fertility Decline, New York: The Population Council, 1973, p. 58.

would bring greater investment in physical capital as well as a greater distribution and increased investment in human capital, i.e., education, sanitation, nutrition and so forth. This new and diffused investment in human capital would indirectly influence the desire to control reproduction. These services would bring an increase in child survival, and fewer births would be necessary for a desired number of children to survive. With a greater investment in human capital, parents' aspirations for their children would increase. The child's cost to the parents would increase while the productive value of the children would decline. Education, especially of women and children, will probably in the long-run result in a desire for smaller families. The cost of raising children increases when they attend even free schools because of clothing, transportation and supply costs and because they are of less productive value when they are away from the home and the fields. It is also argued that education raises intellectual barriers between their own generation and that of more traditional earlier generations. Furthermore, education for women expands nontraditional opportunities and raises the opportunity costs of early marriage and familial roles.

It is also argued that diffused modernization brings with it materialistic aspirations for not only radios, housing, sewing machines and bicycles but also for water pumps, fertilizer, improved implements, and other physical investments which will further increase productivity. These materialistic aspirations begin to compete with the cost of additional children.

All these factors working together over time and reinforcing

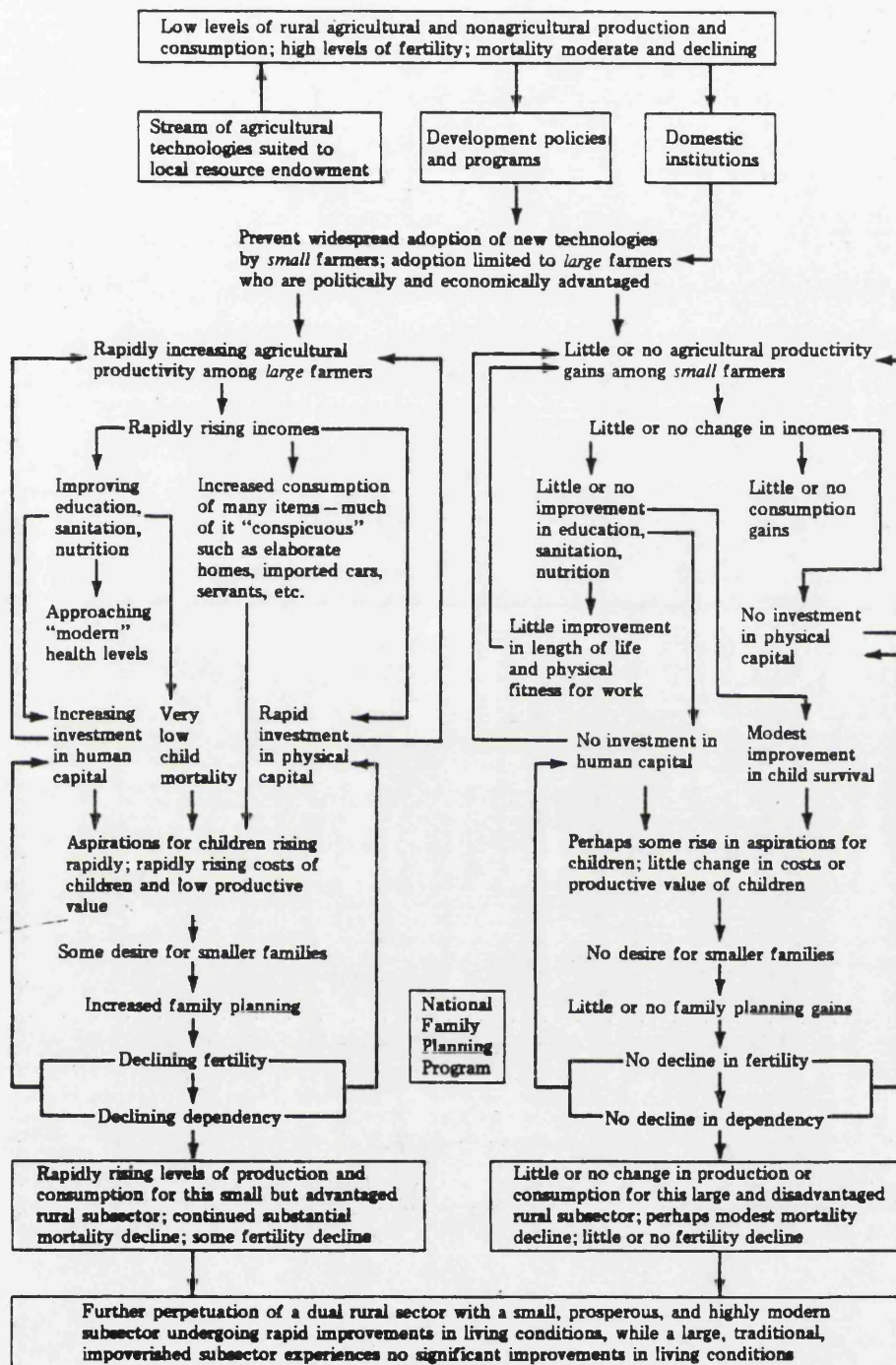
each other within the context of broad development will substantially contribute to the control of human reproduction. Under these circumstances, a programme which supplies contraceptives and relevant information is likely to accelerate the decline in fertility.

On the other hand, if the productive capacity of the poor is not substantially improved then the agricultural sector in these countries will continue along its bimodal path. An accelerating trend toward a dual agricultural sector -- one modern, small, highly productive subsector and one large, traditional subsector having only marginal productivity. The trend toward dualism is accelerated not only by the existing economic and political power structure but by new technology and the way that new technology is introduced and supported by government policies.

Kocher's second scheme (Figure 2 ) shows a remarkable resemblance to the agricultural system of present day Pakistan. The left of the illustration represents the small, modern, agricultural sector benefiting from government supports of mechanical and biological technologies; rapidly rising incomes; conspicuous consumption of imported luxury goods; investment in physical capital (often labour replacing); and expenditure for education, sanitation, and nutrition and modern health services for a small proportion of the population. All this may result in some fertility declines among those in this subsector but since its population is so small, national fertility rates may remain unchanged.

The right side of the illustration represents the large, traditional, poor, agricultural subsector, with little or no change

Figure 2 Illustration of a Possible Rural Bimodal Growth Model and its Relation to Fertility



SOURCE: James E. Kocher, Rural Development, Income Distribution, and Fertility Decline, New York: The Population Council, 1973, p. 59.

in incomes; no improvement in education, nutrition, sanitation; little investment in human or physical capital; little improvement in health; few changes in the costs or the productive value of children; continued desire for large families; no motivation for accepting contraception; and continued high fertility and dependency ratios. Since there is little demand for contraceptives, family planning programmes would be ineffective even if they were administratively effective.

There is not a great deal of evidence on this relationship but what there is suggests some relationship between a more equitable income distribution and lower fertility. Kocher looked at the experience of twelve Third World countries and the U.S. (see Table 13). He arranged these countries into three groups according to their fertility experiences (Columns 9 and 10), the first group having the greatest declines in fertility and the last group having the least. Within a group, the countries were then ranked in order of their index of relative income inequality (Column 4) from more to less equal. In the first group were South Korea, Japan, Taiwan, and West Malaysia which have had rapid and substantial declines in fertility and which according to these ~~data~~ had relatively less income inequality. Kocher hypothesized that if a fertility decline was related to a more equitable distribution of income then the first group of countries with the greatest declines would also have had the most equitable distribution and the group with little change would have greater inequality. In the second group he listed the U.S.A., Sri Lanka, China, and Costa Rica which have had more moderate declines in fertility but for



**Table 13 Income, Distribution, Growth, and the Crude Birth Rate in Selected Countries**  
Average annual growth (percent)

Country (1)	Estimated per capita income		Relative income inequality: Sum of decile deviations from 10 percent (4) [Gini]	Period (5)	Agricultural output (6)	Population (7)	Crude birth rate		
	Year (2)	Dollars (3)					Period (8)	Beginning (9)	End (10)
<b>Group 1</b>									
South Korea	1961	\$ 106	38	1960-70	u	2.5	1950-60	45	42
	1969	210					1960-70	42	30
Japan	1961	383	45	1880-1960	1.6	1.2	1920-55	36	19
	1969	1,430							
Taiwan	1961	116	47	1920-40	4.2	2.4	1932-47	45	41
	1969	300		1950-60	4.5	3.5	1963-70	36	26
West Malaysia	1961	368	52	1960-70	4.5	2.7	1956-70	47	32
	1969	340		1958-67	u	3.0			
<b>Group 2</b>									
United States			u	1880-1960	1.5	1.6	1880-1940	40	19
Sri Lanka	1961	123	67	1958-68	3.9	2.5	1950-70	39	32
China	1961	83	u		u	u	1950-70	43	32
Costa Rica	1961	510	u		u	u	1954-69	51	32
<b>Group 3</b>									
India	1961	70	u	1920-40	0.2	1.0	1920-40	46	45
	1969	110		1940-50	-1.0	1.0	1950-60	43	45
Philippines	1961	188	74	1960-67	3.5	2.0	1960-70	45	45
	1969	210		1967-71	-1.0	2.5			
Thailand	1961	101	76	1902-61	6.0	2.5	1960-70	45	45
	1969	160		1952-63	2.4	2.3			
Mexico	1961	297	82	1952-63	4.3	2.7	1960-70	43	43
	1969	580		1959-69	7.0	3.2			
Brazil	1961	268	99	1948-55	8.4	2.5	1950-60	44	44
	1969	270		1955-70	4.0	3.2	1960-70	44	41
	1961	268		1950-60	4.0	3.0	1950-60	41	41
	1969	270		1960-70	4.0	3.0	1960-70	41	38

SOURCE: James E. Kocher, Rural Development, Income Distribution, and Fertility Decline, (New York: The Population Council), 1973, pp.64-65. Gini coefficients from Robert Repetto, op. cit.

which few data on income inequality were presented. In the third group is listed India, Philippines, Thailand, Mexico, and Brazil which have had smaller declines in fertility and whose relative income inequality was found to be greater. In comparing columns 4, 9, and 10 there is a fairly close and consistent relationship between fertility trends and the data on relative income inequality.

If one takes this index of inequality, which is the sum of decile deviations from ten per cent, and averages the index for Group One and Group Three, one gets a mean of 46 and 83, respectively, which amounts to a substantial difference with the latter some 80 per cent larger.

As a check on the findings this writer used a different estimate of income inequality, Gini coefficients taken from Robert Repetto's work,<sup>1</sup> and substituted them for Groups 1 and 3 for the same countries for which data were presented.<sup>2</sup> Gini coefficient means of 43 and 50 respectively were found. Though not numerically comparable to the earlier index, these estimates show the latter group to be only 16 per cent larger than the former, as compared to the 80 per cent difference with the original data. Since Kocher first grouped the countries by their fertility experience, a finding of substantially smaller differences between the groups

<sup>1</sup>Repetto, 1974, loc. cit., Annex A.

<sup>2</sup>The Gini estimates may, however, introduce an unfair time comparison. Though Kocher's indices of income inequality show levels and not trends, at least they generally fall within the corresponding changes in fertility, unlike some of the Gini coefficients which were substituted into the table.

would weaken the significance of the relationship.<sup>1</sup>

Another interesting aspect of Table 13 is that there is no apparent relationship between the growth of agricultural output and fertility decline, nor does there seem to be any relation between the growth of agricultural output and income inequality,

Furthermore, population growth and food production are not related. Thus, if one accepts the data as valid, then income distribution is the most distinguishing variable influencing fertility.

In studying the relationship between the general fertility rate and the share of income to the poorest 40 per cent of households in 64 countries (using data from 1960-65), Repetto<sup>2</sup> found an elasticity of  $-.36$ , while the elasticity between average growth of per capita income and the general fertility rate was  $-.20$ . However, if lower fertility results in a more equitable distribution of income, then these estimates which were based upon an ordinary least-squares technique could be biased.

In a subsequent study of 68 countries Repetto attempted to get around this by using a two-stage, least-squares analysis and his results were similar; indeed, the size of the regression coefficient was larger. A reduction of 0.10 in the Gini coefficient

<sup>1</sup>When a Gini estimate for India was substituted, the former was only twelve per cent larger than the latter.

<sup>2</sup>Robert Repetto, Appendix A, Population Policies and Economic Development, Timothy King, et al., eds., Baltimore: The Johns Hopkins University Press, 1976.

was associated with a gross reproduction rate lower by 0.21. With sample means of 0.4415 (Gini) and 2.41 (GRR) an elasticity of 0.39 was implied, thus a ten per cent reduction of income inequality (in Gini coefficients) was associated with a reduction in fertility of 3.9 per cent (in the gross reproduction rate). Using another measure of fertility, an approximate of the general fertility rate, the elasticity was found to be even greater at 0.47.

Repetto's model also took into account infant mortality, female literacy, growth of per capita income, and newspaper circulation and over 60 per cent of the total fertility variation (with one exception) was accounted for by the model. The elasticity at the sample mean of fertility with the average growth of income per capita was  $-.10$  and with female literacy,  $-.25$ ; and with infant mortality,  $0.02$ . Thus, Repetto tentatively concluded that income distribution is by far the most distinguishing variable influencing fertility, not only because of the high elasticities but because the coefficients increased when estimated as part of a larger model encompassing other variables and because his use of the two-stage, least-squares technique reduced the possible effects of high fertility upon income distribution.

The sample of 68 countries was very wide, including countries with all types of development; and since the variables, especially from the Third World, were often unreliable, a more accurate estimate of the coefficients is given when the true underlying variables come from a wide range. However, when the sample was

<sup>1</sup> Repetto, 1974, loc. cit.

restricted to forty-one less developed countries, the regression coefficient of income distribution was statistically insignificant. More significantly, however, was the case when the entire world sample<sup>1</sup> was run but with the exclusion of only five East European countries--Bulgaria, Czechoslovakia, Hungary, Poland, and Yugoslavia--all of which were extreme in their equitable income distribution and their low fertility. Without these five countries, the relationship was no longer significant.

It would be an understatement to say that there were serious deficiencies in the income distribution data. Furthermore, such data are likely to have changed over time, particularly in the thirteen rapidly changing countries selected by Kocher. Though we are given some time series data on the per capita income and crude birth rate we are only able to make cross-sectional comparisons with his income inequality data. The estimates come from the years between 1958 and 1966.

Perhaps a more important aspect of this relationship is not so much the level of inequality but the trends in inequality over time. And, unfortunately, though Kocher presented time-scale data for crude birth rates and per capita income, he was not able to obtain time-scale data on income distribution. Robert Repetto<sup>2</sup> has

<sup>1</sup>China and Cuba, two important countries with relatively equitable income distribution and declining fertility, were not included in any of the samples presumably because the necessary data were not available. North Korea and North Vietnam were not included either.

<sup>2</sup>Repetto, loc. cit., pp. 14-15.

put together some income distribution time-series data for ten countries (see Table 14 ). In the first group are countries in which income distribution apparently improved--Costa Rica, Sri Lanka, and Taiwan; in the second group were countries in which it apparently deteriorated--Brazil, India, and Puerto Rico. In comparing changes in the crude birth rates in these countries over the same period, Repetto concluded that when income distribution became more equal, birth rates dropped more rapidly than when it did not.

Repetto did not mention that fertility declines were about the same or perhaps slightly greater in countries where income distribution deteriorated than where income distribution remained substantially unchanged. But nevertheless, he argues that income distribution was the best distinguishing variable--much better than the rate of growth of per capita income which was low in Sri Lanka and India but high in Taiwan, Mexico, Brazil, and Puerto Rico.

In a contrasting view the inegalitarian effects of bi-modal agriculture are recognized as inherent, though to some extent they may be compensated by other fiscal policies and programmes, including price policies against capital-intensive labour replacing mechanization. As productivity increases, largely through new biological technology, improved irrigation, and multiple cropping, the demand for labour may rise. Though evidence on the demand for labour under different modes of agricultural production is mixed and depends upon many factors.

The transition in the mode of production from the peasant to

Table 14

Changes in Income Distribution and Changes in the Crude Birth Rate

<u>Country</u>	<u>Year</u>	<u>Source</u>	<u>Gini Coeff.</u>	<u>Year</u>	<u>CBR</u>
(A) Countries in which Income Distribution Apparently Improved					
Costa Rica	1961	IBRD	.5064	1960-65	44-46
(households)	1971	"	.4287	1971	31.6
Sri Lanka	1953	"	.4503	1953	38.7
(households)	1969-70	"	.3730	1971	29.9
Taiwan	1953	"	.5542	1953	45.2
(households)	1961	"	.4500	1961	38.3
	1964	"	.3180	1964	34.5
(B) Countries in which Income Distribution was Substantially Unchanged					
Mexico	1963	IBRD	.5509	1960-65	44-45
(households)	1969	"	.5580	1969	41.6
Peru	1961	"	.5886	1960-65	44-45
(Econ. Act. Population)	1970/1	"	.5714	1965-70	41.8
Philippines	1956	"	.4742		
(households)	1965	"	.4891		
Yugoslavia	1963	"	.3304	1963	21.4
(households)	1968	"	.3309	1968	19.0
(C) Countries in which Income Distribution Apparently Deteriorated					
Brazil	1960	"	.5578	1960-65	41-43
(Income Recipients)	1970	"	.6135	1965-70	37.8
India	1953-5	"	.3955	1953	41
(Income Recipients)	1961-4	"	.4610	1963	38
Puerto Rico	1953	Weisskopf	.417	1953	35
(households)	1963	"	.441	1963	31

SOURCE: Robert Repetto, 'The Interaction of Fertility and the Size Distribution of Income' Cambridge, Mass.: Harvard Center for Population Studies, Harvard University, Research Paper No. 8, October 1974, pp. 14-15.

the capitalist,<sup>1</sup> or from the familial to the nonfamilial may, however, reduce the incentives for high fertility.<sup>2</sup> It may increase the costs and reduce the benefits of additional children; lessen traditional kinship ties which emphasize children, and increase migration and urbanization which may also reduce fertility; whereas the integrated rural development programmes, according to some, may subsidize the costs of children while increasing their benefit on the family farm. Thus, the bimodal agricultural process may have the important and unintended impact of reducing fertility even though it conflicts with the more important development objectives of equity and employment. This hypothesis in part rests on the perceived and actual costs and benefits of children in peasant agriculture about which there is still considerable debate.

In peasant agriculture, children are both economic consumers and producers, and their net economic contribution to their parents changes over time and is often different according to sex. Eva Mueller<sup>3</sup> has carefully reviewed the available evidence, mostly from Asia, and found, contrary to much opinion, that children represent a serious economic burden in peasant agriculture. She

<sup>1</sup> A transition of the mode of production, from the peasant to the communal may result in reduced fertility, also. This may have happened in China, a country which also achieved some of its objectives of equity and employment.

<sup>2</sup> Caldwell, John C., 'Toward A Restatement of the Demographic Transition Theory', Population and Development Review, Vol. 2, Nos. 3-4, 1976, pp. 321-366.

<sup>3</sup> Mueller, Eva, 'The Economic Value of Children in Peasant Agriculture', Population and Development: The Search for Selective Interventions, Ronald G. Ridker, ed., (Baltimore, Johns Hopkins University Press) 1976, pp. 98-153.



found that from birth to the time of their own marriage, children consume far more than they produce; and because there is an excess of supply of adult labour in the countryside, child labour-participation rates are low. The policy findings from her study recommend:

- 1) More research to improve the data base, and to construct consumption profiles, production profiles, and analyze the intra-family transfer systems.
- 2) Government or cooperatively run social security systems for the aged, perhaps restricted to couples with fewer than two sons.
- 3) The development of secure savings institutions with access for rural poor.
- 4) Life insurance schemes
- and 5) Policies that might encourage women to spend more time, and children less time, in the market--though child labour laws would be difficult to enforce and have negative welfare implications for the poor.

Most of Mueller's data is based on national employment and labour force statistics and not on village and household level studies; therefore, they may have underestimated the actual amount of work that children perform. Micro analysis on the household level and the village level is greatly needed to examine the costs and benefits of children in peasant agriculture and to see how fertility might change in response to labour demand for both the mother and the child.

Some recent studies have contradicted Mueller's conclusions about child labour participation rates (White, 1976 for Indonesia; Caldwell, 1977 in Nigeria; Cleave, 1974, in Uganda and Gambia, and

Cain, 1977, 1978 in Bangladesh).<sup>1</sup> These studies generally support the strong arguments made by Mamdani, (1972)<sup>2</sup> about the parents' perception of their children as valuable economic assets in peasant agriculture.

One must conclude that the evidence supporting the equity/fertility thesis is mixed and is mostly based on national data (Kocher, and Repetto)<sup>3</sup> which, because of its aggregation is inadequate to substantiate the hypothesis. The case studies of China and the Indian state of Kerala (J. Ratcliffe, 1977; 1978)<sup>4</sup> tend to support the thesis but the evidence is still fragmentary and even if validated it is not apparent that such policies could be duplicated elsewhere.

Will a strategy of poverty alleviation, meeting the basic

<sup>1</sup>White, Benjamin, 'Population Involvement and Employment in Rural Java', Development and Change, Vol. 7, 1976, pp. 267-290; Caldwell, John C., 'The Economic Rationality of High Fertility: An Investigation Illustrated with Nigerian Survey Data', Population Studies, Vol. 31, No. 1, March 1977; Cleave, John H., African Farmers: Labor Use in the Development of Smallholder Agriculture, New York: Praeger, 1974, 253p; Cain, Mead T., 'The Economic Activities of Children in a Village in Bangladesh', Population and Development Review, Vol. 3, No. 3, September 1977, pp. 201-227.

<sup>2</sup>Mamdani, Mahmood, The Myth of Population Control: Family, Caste, and Class in an Indian Village, (New York: Monthly Review Press) 1972.

<sup>3</sup>Kocher, 1973, loc. cit.; Repetto, 1974, op. cit., and 1976 op. cit.

<sup>4</sup>Ratcliffe, John, 'Poverty, Politics, and Fertility: The Anomaly of Kerala', Hastings Center Report, February 1977, pp. 34-42, and Ratcliffe, John, 'Social Justice and the Demographic Transition: Lessons from India's Kerala State', International Journal of Health Services, Vol. 8, No. 1, 1978, pp. 123-144.

needs of the poorest of the poor, reduce fertility? It is entirely possible that development strategies which benefit the poor may in the short run actually increase fertility. The costs of children may be subsidized by welfare programmes. The demand for child labour may increase with rural labour-intensive strategies. And improved health and nutrition may increase fecundity. But ultimately, socioeconomic development will result in a decline in fertility, and the sooner an improved standard of living is shared by the poor, perhaps the sooner fertility will decline.

In this writer's view, all of the major conceptual frameworks for analyzing fertility-related policies for Pakistan and Bangladesh are inadequate or seriously flawed. Theories about fertility reduction are not pragmatic - they do not answer the kinds of questions that development planners need to know. They often do not identify or give weights to the crucial causal factors, nor do they specify thresholds or critical minimum levels. They are often atemporal, that is, they do not usually have a specified time schedule or time horizon. They all have a high unexplained variance, they often ignore cultural settings, and none are anthropological.<sup>1</sup> In addition to not being able to specify the key variables or their thresholds, theories attempting to explain fertility are not useful for planners because they often ignore the manipulability of the key variables.

<sup>1</sup>Thomas K. Burch, 'Theories of Fertility Decline as Guides to Policy', Draft of a paper presented at the Annual Meeting of the Population Association of America, New York City, 19 April 1974. Mimeo.

## CHAPTER SIX

### POPULATION, INCOME DISTRIBUTION, AND DEVELOPMENT PLANNING:

#### A FRAMEWORK FOR PAKISTAN

This is an exploratory examination of a framework for development planning. It is being investigated because it is a promising way of integrating the crucial issues faced by development planners in Pakistan and Bangladesh: population, income distribution, and the evaluation of alternative development strategies. Since appropriate data were available, Pakistan was chosen.

In the early 1970s the international approach to the study of economic development among economists began a substantial change away from the near exclusive emphasis on gross national product to a broader scope of development which included the distribution of income, the absolute level of poverty, the problem of increasing employment, and so forth. This changing concern was also expressed by a number of economists in Pakistan and was even reflected

ostensibly in the Fourth Five-Year Development Plan.

An outcome of this new concern was the development of three broad types of social welfare indices to measure development and to examine development strategies: (1) a GNP index, (2) a poverty weights index, and (3) an equal weights index.<sup>1</sup> The GNP index employs the existing size distribution of income as a welfare weight. Therefore, if,

$W$  = The weighted index for aggregate economic or social welfare growth. (expressed in per cents)

$g_i$  = the rate of growth of income for the  $i^{\text{th}}$  group (expressed in per cents). Each group has an equal number of households (average family size and number of people will be different in each group)<sup>2</sup> and is ordered from lowest income to highest.

$w_i$  = the social welfare weight for each  $i^{\text{th}}$  group, and  $\sum w_i = 1$

$i = 1, 2, 3 \dots n$

then,

$$W = w_1 g_1 + w_2 g_2 + \dots + w_n g_n$$

Taking income distribution data derived from the Khandker study of West Pakistan for 1963-64 (see Appendix E) and substituting

<sup>1</sup>See H. Chenery et al., Redistribution with Growth, (New York: Oxford University Press), 1974.

<sup>2</sup>Simon Kuznets argues that the measure of income distribution by 'household income per person' is a more appropriate measure than [ 'individual head of household', or by family or household alone. See Simon Kuznets, 'Demographic Aspects of the Size Distribution of Income', Economic Development and Cultural Change, Vol. 25, No. 1 (October 1976) 1-94.

it into the GNP Index formula we get the following:

$$W = 10g_1 + .16g_2 + .24g_3 + .50g_4$$

where  $w_1 = .10$ ,  $w_2 = .16$ , and so forth.

If, for example, the average family income per person were to increase by 10 per cent for each income group, then  $W$  and the GNP would both increase by 10 per cent. On the other hand, suppose that  $g_1$  and  $g_2$ , the lower income groups, did not grow at all while  $g_3$  and  $g_4$  grew by 10 and 20 per cent respectively. Then both  $W$  and the GNP would reflect a vigorous 12.4 per cent growth. The absolute level of income for the poorest 50 per cent of households would not have improved at all; and, furthermore, their relative income would have deteriorated substantially as the distribution of income became more unequal. Hence, in this case, the GNP is actually measuring the economic growth of the upper income households; and the GNP index, which uses the existing size distribution of income as the actual welfare weights, is a wealthy weighted social welfare index.

Attempts have been made to develop various poverty weighted indices that would measure the impact of development strategies aimed at diminishing poverty among the very poor. Welfare weights favouring the poor would of course be larger for  $w_1$  and  $w_2$  and smaller for  $w_3$  and  $w_4$ . For example, this writer has employed the same Pakistan data in the inverse to the existing size distribution of income. That is,

$$W = .50g_1 + .24g_2 + .16g_3 + .10g_4.$$

If this social function were to be used, government programmes could

be judged on the basis of their impact largely upon the incomes of the poorest section of the population.

An equal weights index could also be constructed which would weight each income group equally. Thus,  $W = w_1g_1 + w_2g_2 + \dots + w_n g_n$  where  $w_1 = w_2 = \dots = w_n = 1/n$ . Such an approach would fall somewhere between the GNP and the poverty weighted indices.

The differences in these three indices of development (GNP, poverty, and equal weights) will narrow as the size distribution of income becomes more equal or enlarge as income is distributed less equally. Table 15 presents these different indices for thirteen countries.

Table 15 Income Distribution and Growth

Country	Period	I. Income Growth			II. Annual Increase in Welfare			III. Initial Gini Coefficient
		Upper 20%	Middle 40%	Lowest 40%	(A) GNP Weights	(B) Equal Weights	(C) Poverty Weights	
Korea	1964-70	10.6	7.8	9.3	9.3	9.0	9.0	.34
Panama	1960-69	8.8	9.2	3.2	8.2	6.7	5.6	.48
Brazil	1960-70	8.4	4.8	5.2	6.9	5.7	5.4	.56
Mexico	1963-69	8.0	7.0	6.6	7.6	7.0	6.9	.56
Taiwan	1953-61	4.5	9.1	12.1	6.8	9.4	10.4	.55
Venezuela	1962-70	7.9	4.1	3.7	6.4	4.7	4.2	.52
Colombia	1964-70	5.6	7.3	7.0	6.2	6.8	7.0	.57
El Salvador	1961-69	4.1	10.5	5.3	6.2	7.1	6.7	.53
Philippines	1961-71	4.9	6.4	5.0	5.4	5.5	5.4	.50
Peru	1961-71	4.7	7.5	3.2	5.4	5.2	4.6	.59
Sri Lanka	1963-70	3.1	6.2	8.3	5.0	6.4	7.2	.45
Yugoslavia	1963-68	4.9	5.0	4.3	4.8	4.7	4.6	.33
India	1954-64	5.1	3.9	3.9	4.5	4.1	4.0	.40

SOURCE: Montek S. Ahluwalia and Hollis Chenery, 'The Economic Framework', Hollis Chenery et al., Redistribution with Growth, A Joint Study by the World Bank's Development Research Center and the Institute of Development Studies at the University of Sussex, (London: Oxford University Press) 1974, p. 42.

Note: The rates of growth of income in each income group were calculated as follows: income shares were applied to GNP (constant prices) to obtain the income of each group in each year. The growth rate is the annual compound growth rate estimated from the two endpoint income estimates for each income group. Sources of income share data for each country are identified in Chapter 1 of Redistribution with Growth. GNP series are from the World Bank data files. Equal weights imply a weight of 0.2, 0.4, 0.4 for the three income groups while poverty weights are calculated by giving weights of 0.1, 0.3, and 0.6 respectively.

Let us examine in a theoretical way an approach for relating population, income distribution, and development planning. Table 16 represents the following hypothetical situation: Column 1 divides all households into quartiles ranked by income, from lowest to highest, with each quartile having the same number of households. Column 2 represents the percentage distribution of income ( $w_i$ ) for West Pakistan in 1963-64. Column 3 represents a hypothetical proportion of the population in each quartile ( $\alpha_i$ ). Column 4 represents a hypothetical coefficient for income elasticity of [ family size ( $\eta_i$ ). The last two columns represent two different hypothetical distributions of income growth ( $g_i$ ). The first reflects an income growth which is favourable to the high income groups (HI), while the second reflects an income growth distribution which is favourable to the low income groups (LI). The HI column might represent the outcome of successful development policies in the modern, urban, industrial sectors while the LI might represent the outcome of successful development policies in the traditional, rural, small-scale agricultural sector.



TABLE 16 Demographic Implications of Hypothetical Paths of Income Growth

Percentage of Households (1)	Percentage Distribution of Income ( $w_i$ ) (2)	Hypothetical Percentage of Population ( $\alpha_i$ ) (3)	Hypothetical Income Elasticity of Family Size ( $\eta_i$ ) (4)	Hypothetical Distribution of Income Growth ( $g_i$ ) Favours:	
				High Income Groups (HI) (5)	Low Income Groups (LI) (6)
0-25	10	40	-0.4	0.0	20
26-50	16	30	-0.2	5	10
51-75	24	20	0.0	10	5
76-100	50	10	0.2	20	0.0

SOURCE: Adapted from Michael P. Todaro, 'Development Policy and Population Growth: A Framework for Planners', Population and Development Review, March and June 1977, Vol. 3, Nos. 1 & 2, p. 35. Column 2 is derived from Khandker, 'Distribution of Income and Wealth in Pakistan', Pakistan Economic and Social Review, Spring 1973.

Using the G.N.P. income weights, that is, the welfare index which is weighted toward the existing distribution of income, one gets the following indices depending on the impact of different development alternatives. The impact of a development strategy which increases the income of the higher income groups (HI) would have the following effect on the GNP income weighted welfare index:

$$W_{HI} = .10 (0) + .16 (.05) + .24 (.10) + .50 (.20)$$

$$W_{HI} = 13.2$$

The impact of a development strategy which would increase the income growth of the lower income groups would have the following effect on the GNP income weighted welfare index:

$$W_{LI} = .10 (.20) + .16 (.10) + .24 (.05) + .50 (0.0)$$

$$W_{LI} = 4.8$$

The substantial difference between the two indices can, of course, disappear or be reversed if the equal weights welfare index or the poverty weighted index is employed. For example, in employing the equal weights index where  $w_1 = w_2 = w_n = 1/n$ , one finds no difference in the measures:

$$W_{HI} = .25 (0) + .25 (.05) + .25 (.10) + .25 (.20)$$

$$W_{HI} = 8.75$$

$$W_{LI} = .25 (.20) + .25 (.10) + .25 (.05) + .25 (0.0)$$

$$W_{LI} = 8.75$$

In employing the poverty weighted index one finds the reverse,

$$W_{HI} = .50 (0) + .24 (.05) + .16 (.10) + .10 (.20)$$

$$W_{HI} = 4.8$$

$$W_{LI} = .50 (.20) + .24 (.10) + .16 (.05) + .10 (0.0)$$

$$W_{LI} = 13.2$$

The difference between the high income group strategy and the low income group strategy, even when using the GNP income weights ( $W_{HI} = 13.2$ ;  $W_{LI} = 4.8$ ;  $W_{HI} - W_{LI} = 8.4$ ) might be reduced if one could calculate the long-run impact of the more equitable distribution strategy upon fertility and family size.

Michael Todaro<sup>1</sup> has recently developed an extension of the

<sup>1</sup>Michael P. Todaro, 'Development Policy and Population Growth: A Framework for Planners', Population and Development Review, March and June, 1977, Vol. 3, Nos. 1 & 2, pp. 23-43.

social welfare index which attempts to incorporate the effects upon fertility of differential income growth. This assumes that as per-capita income grows, the marginal fertility will be different for different income classes. That is, higher income groups are assumed to have a lower fertility on average than do lower income groups. Secondly, mortality and fertility are both assumed to be inversely related (at least over the medium and long range) with levels and changes in household income. Since a nonlinear relationship is assumed between changes in income and fertility, income changes in various income classes will differ in the magnitude and direction of their fertility impact.

Today's new social welfare function combines any of the three broad types of welfare indices. (GNP, poverty, and equal weights) with differential income induced fertility changes. He has rewritten the basic social welfare equation as follows:

$$W = w_1 g_1 - \alpha_1 \eta_1 g_1 + \dots + w_n g_n - \eta_n g_n$$

or reformulated,

$$W = (w_1 - \alpha_1 \eta_1) g_1 + (w_2 - \alpha_2 \eta_2) g_2 + \dots + (w_n - \alpha_n \eta_n) g_n.$$

Where,

$\alpha_i$  = the per cent of the total population in the  $i^{\text{th}}$  income group.

$\eta_i$  = an arc (between sequential groups) and a specified time period per person elasticity of demand for children for households in each  $i^{\text{th}}$  group.

$\eta$  =  $\frac{\text{Percentage change in Average Household Size}}{\text{Percentage change in Average Household Income per person between successively higher income groups}}$

$\eta_i$  could be positive or negative. Todaro assumes that generally it would be negative for most income groups in developing countries. He concedes that it might be positive for the lower income groups, but this would normally be the case only in the short-run. Several different theoretical and operational definitions of  $\eta_i$  are actually presented in the framework. In theory,  $\eta_i$  is the income elasticity of the birth rate and its calculation would be based on sophisticated time series data on actual family income and family size, adjusted for age of parents, and their desired and actual family size. This would incorporate the concept of expected permanent family income and its relationship to desired family size. Admittedly, even if such sophisticated data were available, it would be inadequate because of changes in intergenerational behaviour and expectations. But in attempting to make use of generally available statistics, the above operational definition is employed for period data.

There is some ambiguity in the article outlining this framework and in places it mistakenly labels the latter of the above coefficients the "Income Elasticity of the Birth Rate" when in fact it is the income elasticity of family size which is being defined. A number of issues are raised by the use of income elasticity of family size instead of the income elasticity of the birth rate. Indeed, income and mortality are perhaps more closely related than are income and fertility. An improvement in overall income is likely to result from development, which is likely to be strongly associated with an improvement in the mortality conditions, which will naturally result in a greater number of **surviving**

children. The author of the model recognizes this difficulty and explains:

Although income growth will also lower mortality rates among low-income groups and thus partially or completely offset any short-run birth rate reductions, our perspective is on the long-term decline in population growth, and, thus, our primary focus is on the fertility effects of family income growth. Moreover, mortality declines are inevitable short-run outcomes of successful development policies and should not be viewed as undesirable "side effects" (from a social welfare viewpoint) of antinatal population policies.<sup>1</sup>

But it seems that this does not really answer the difficulties in the operation of the model. Increased income for income groups  $w_1$  and  $w_2$  will probably reduce mortality in the short, medium, and long run. And this will contribute a positive influence on family size from the short to the long-run. Whether or not it is "desirable" is not relevant to the model. Furthermore, we do not know with any certainty that an increase in income will have a negative short-run effect upon fertility. Since an improved income will reduce the costs of childbearing and childrearing, and it is associated with improved nutrition and health, there are many reasons to believe that in the short-run it may increase fertility and family size. It is true that in the long-run we would expect that increased income would, in a number of indirect ways reduce fertility and family size, though the mechanisms by which it would do so would be complex and synergetic.

A change in income among various income groups is likely to have a significant influence on the rate of new family formations, both independently and in association with changes in fertility

<sup>1</sup>Todaro, *lo. cit.*, p. 42.

and mortality. Naturally, changes in the rate of family formations will directly alter family sizes and are likely to do so differently for each income group. Furthermore, the concepts of "household" and "family" are used interchangeably to simplify the framework but the differences in meaning, particularly for Pakistan, are more than slight, and present a formidable complication. However, the available data are no more sophisticated than the model in this respect.

By using the income elasticity of family size as a proxy for the income elasticity of the birth rate, the model is employing at least two additional components, changes in mortality and family formation, which may be substantially more powerful than fertility in the determination of  $\gamma_i$ . This may be true even over the long run.

On the other hand, there are hundreds of potential intervening variables which might exert such an influence and it is not possible with the present data base to unravel the problems with simultaneity, multicollinearity, accurate specification, time lag structures, and controls for ceteris paribus assumptions. Julian Simon argues,

"All of these correlations of rises in income are closely associated statistically which makes it impossible to learn their separate effects by statistical analysis, and these forces are all interacting constituent parts of economic development, all linked and working hand in hand. Hence,<sup>1</sup> it is not even sensible to try to separate their effects."

<sup>1</sup> Julian L. Simon, 'Income, Wealth, and Their Distribution As Policy Tools in Fertility Control', Population and Development; The Search for Selective Interventions, Ronald Ridker, ed., (Baltimore: Johns Hopkins Press), 1976, p. 55.

The power of the concept of elasticity is that it enables one, within limits, to make broad generalizations if they are empirically supported and to do so without attempting to unravel all the intermediate variables. It might be argued that the pathways of causality are less important for these particular policy purposes, thus enabling the use of the elasticity concept to provide a general indicator, despite the fact that the numerator and denominator have less than a direct causal relationship.

Later in this chapter attempts will be made to estimate  $\eta_i$  from both the period (arc) data and from time series data on family size and income in Pakistan.

Let us return to our hypothetical example of the application of a GNP welfare index for evaluating the implications of two alternative development strategies. We found a considerable gap in the GNP welfare index between the development strategy which emphasized income growth for the highest income groups (HI) and that emphasizing growth for the lowest income groups (LI), ( $W_{HI} = 13.2$ ,  $W_{LI} = 4.8$ ;  $W_{HI} - W_{LI} = 8.4$ ). But if we incorporate the concept of  $\eta_i$  into the GNP welfare index using the hypothetical values found in Table 16 we get the following:

$$W_{HI} = (w_i - \alpha_i \eta_i) g_i + \dots + (w_n - \alpha_n \eta_n) g_n$$

$$W_{HI} = (.10 - .40 (-0.4)) (0) + (.16 - .30 (-0.2)) (.05) +$$

$$+ (.24 - .20 (0.0)) (.10) + (.50 - .10 (0.2)) (.20)$$

$$W_{HI} = 0 + (.16 - (-.06)) (.05) + (.24 - 0) (.10) + (.50 - (.02)(.20))$$

$$W_{HI} = 13.1$$

$$W_{LI} = (.10 - .40 (-0.4)) (.20) + (.16 - .30 (-0.2)) (.10) + \\ + (.24 - .20 (0.0)) (0.5) + (.50 - .10 (0.2)) (0.0)$$

$$W_{LI} = (.26) (.20) + (.22) (.10) + (.24) (.05) + 0.0$$

$$W_{LI} = 8.6$$

When taking into account these hypothetical values of  $\eta_i$  the gap between the two development strategies is reduced ( $W_{HI} = 13.1$ ;  $W_{LI} = 8.6$ ;  $W_{HI} - W_{LI} = 4.5$ ) by some 46 per cent from 8.4 to 4.5. This is true despite the fact that we are employing the conservative GNP weighted welfare index. The development strategy for low income groups would have been substantially higher had we employed the equal weights or the poverty weighted welfare index.

Todaro suggests that births among different income groups may be more or less likely to contribute to society's social welfare. He proposes the incorporation of differential social premiums based on the relative social benefit-cost ratio of lowered fertility for various income groups. Essentially, it is argued that though the children of poorer families use fewer social resources, the lifetime earnings and productivity of the children from wealthier families is substantially greater. In other words, the greater the investment in human capital the greater the return. Therefore, the net social costs of accruing births are less, the higher a family's present income.

If  $\beta_i$  can be defined as the "relative social benefit (cost) of a unit decrease (or increase) in average family size in the income class  $i$ "; then, the welfare equation may be rewritten as:

$$W = (w_1 - \beta_1 \eta_1) z_1 + \dots + (w_n - \beta_n \eta_n) z_n$$



An estimate of  $\beta_i$  might be obtained by finding the inverse of the social benefit-cost ratio  $R_i$ .<sup>1</sup> But of course, it is not possible to directly calculate a social benefit - cost ratio for different income levels. But if it were possible to get values for  $R_i$ , say  $R_1 = 0.5$ ;  $R_2 = 0.8$ ;  $R_3 = 1.2$ ; and  $R_4 = 2.5$ ; then we could determine  $\beta_i$  from  $\beta_i = 1/R_i$ . Thus,  $\beta_1 = 2.0$ ;  $\beta_2 = 1.25$ ;  $\beta_3 = 0.83$ ; and  $\beta_4 = 0.40$ .

Returning to our hypothetical example,  $\beta_i$  could be incorporated into the GNP welfare index to again evaluate the two alternative development strategies favouring the growth of the high income groups (HI) or the low income groups (LI).

$$W_{HI} = (.10 - (2.0) (.40) (-0.4)) (0) + (.16 - (1.25)(.30)(-0.2))(.05) \\ + (.24 - (0.83)(.20)(0))(.10) + (.50 - (0.4)(.10)(0.2))(.20)$$

$$W_{HI} = 0 + .01175 + .024 + .0984$$

$$W_{HI} = 13.4$$

$$W_{LI} = (.10 - (2.0)(.40)(-0.4))(.20) + (.16 - (1.25)(.30)(-0.2))(.10) + \\ + (.24 - (0.83)(.20)(0))(0.5) + (.50 - (0.4)(.10)(0.2))(0)$$

$$W_{LI} = .084 + .0235 + .12 + 0$$

$$W_{LI} = 22.8$$

This demonstrates that by incorporating the concept of  $\beta_i$ , the relative welfare rankings of the high and low income development stra-

<sup>1</sup>The following relationships between  $\beta_i$  and  $R_i$  are assumed: "if  $0 < R_i < 1$ , then  $\beta_i = 1/R_i$  (marginal births in income group  $i$  have a net social cost); if  $R_i = 1$ , then  $\beta_i = 0$  (marginal births in group  $i$  do not directly add to or subtract from society's social welfare); if  $R_i > 1$ , then  $\beta_i = -R_i$  (additional births in group  $i$  yield net social benefits); where  $R_i = \beta_i/C_i$  is the discounted social benefit-cost ratio of a 1 per cent increase or decrease in the average birth rate of income group  $i$ ." Todaro, Ibid, p. 37.

regies can be dramatically reversed to favour strategies helping the poor. Of course, this is only a hypothetical example, and the magnitude of the relative welfare indices depends entirely upon the hypothetical values employed. But it does show the way in which demographic variables can be employed in relation to the growth of income distribution to evaluate different development strategies, and it demonstrates that, at least in theory, demographic variables can be important.

Todaro argues that if the net social costs of accruing births are less, the higher a family's present income, then the relative social benefit premiums of accruing births may be roughly estimated by using the income distribution as a proxy. Thus, as  $w_i$  decreases  $\beta_i$  increases. It is argued that this is probably valid in poor countries with rapidly growing populations and substantial income inequality. If this presumption is valid, and other data are not present for estimating the relative social benefit premiums of accruing births, then  $\beta_i$  could be roughly estimated by the ratio  $w_m / w_i$  using  $w_m$  as the median value of the  $w_i$  distribution. In our hypothetical example  $w_m$  would equal the average mid-value,

$$w_m = \frac{w_2 + w_3}{2} = \frac{16 + 24}{2} = \frac{40}{2} = 20.$$

$$\begin{aligned} \text{Thus, } \beta_1 &= w_m / w_1 = 20/10 = 2.0 \\ \beta_2 &= w_m / w_2 = 20/16 = 1.25 \\ \beta_3 &= w_m / w_3 = 20/24 = 0.833 \\ \beta_4 &= w_m / w_4 = 20/50 = 0.40. \end{aligned}$$

The inverse of the above  $\beta_i$ s were employed in the previous hypothetical example for  $R_i$ . Unfortunately,  $R_i$  cannot be measured directly

and the above method of estimating  $\beta_i$  from the income distribution is extremely mechanical and dubious at best. It is essentially a per capita GNP welfare index.

### The Data

This section briefly examines the available Pakistani income data needed for the planning framework. Though much attention has been paid to regional income inequality (East-West), only a few studies have been undertaken to examine the income distribution among different income groups, and these have been of little value. In 1964, Khakija--Haq<sup>1</sup> studied income-tax data, which was exceedingly dubious, and which included only the very rich. Some five percent of the urban population was covered and rural areas were excluded.

Another major study<sup>2</sup> was undertaken by Professor Asbjorn Bergan which was wider in scope (both urban and rural) and utilized Central Statistical Office (CSO) data collected in 1963-1964 by the Surveys of Economic Conditions. But the study only looked at one year and that was the first year the CSO undertook such a survey and many serious non-sampling errors were contained in the 1963/64 Quarterly Survey. Furthermore, Khandker has pointed out<sup>3</sup> that

<sup>1</sup>Khadija Haq, 'A Measurement of Inequality in Urban Personal Income Distribution in Pakistan', Pakistan Development Review, Volume IV, No. 4 (Winter, 1964).

<sup>2</sup>Asbjorn Bergan, 'Personal Income Distribution and Personal Saving in Pakistan, 1963/64', Pakistan Development Review, Volume VII, No. 2, (Summer 1967).

<sup>3</sup>R. H. Khandker, 'Distribution of Income and Wealth in Pakistan', Pakistan Economic and Social Review, (Spring 1973), p. 2.

Bergan's unpublished data differed from the Central Statistical Office's data published subsequently.

Khandker published his own study of the CSO's Quarterly Surveys for 1963/64, 1966/67, and 1968/69, in the then West Pakistan.<sup>1</sup> Khandker arrived at the extraordinary finding that income inequality had lessened over the period 1963/64 to 1968/69. In the rural areas he reported a decline in the inequality of income which he attributes to agricultural growth over the period and he makes the surprising argument that the so called Green Revolution might have lessened income inequality by helping medium farmers more than those owning larger or small farms. In the urban areas he reported an increase in inequality between 1963/64 and 1966/67 and then a subsequent decline in 1968/69.

Khandker admits that the urban areas were under represented in the sample and, in addition, that the high income groups were under-enumerated and therefore the study must significantly "understate the degree of inequality of income."<sup>2</sup> Nevertheless, he holds to his conclusions despite, as he says, the nearly universal disagreement with the general public including politicians and economic planners who believe precisely the opposite is true that income inequality has increased over the period. He argues that while his work may not disprove the consensus, it does show that the income curve has flattened. This he maintains could happen concurrently with the accumulation of great fortunes by a very

<sup>1</sup>R. H. Khandker, 'Distribution of Income and Wealth in Pakistan', Pakistan Economic and Social Review, (Spring 1973), p. 2.

<sup>2</sup>Ibid., p. 4.

few families, and that capital gains, which were excluded from his study, may have contributed greatly to income inequality.

Data on income distribution in Pakistan can only be obtained from two sources, either the Central Board of Revenue's Income-tax Revenue Statistics or the Central Statistical Office's Quarterly Surveys of Economic Conditions. The Income-tax Revenue Statistics have not been published in many years, ~~but~~ even if the unpublished ~~were available,~~ they ~~data/~~would not be useful for studying income distribution because of the pervasive tax evasion, the high legal exemption and the great differences between "assessable income" and total income. The other data base, the Quarterly Surveys, have serious nonsampling errors from respondents' biases. Khandker reports also that the extremely low and extremely high income groups have by far the greatest underenumeration through rejection and non-response.<sup>1</sup> Thus the Quarterly Surveys understate the extent of income inequality.

Unfortunately, one must be especially cautious in accepting Pakistan's official or semi-official data precisely because they are optimistic. We have previously described a pattern of official adulteration of demographic statistics and because these figures run counter to an overwhelming consensus that inequality is growing, we must be especially suspicious. Even if we do not doubt the honesty of the survey, we know a substantial list of reasons to doubt the quality of the data. Any attempt to adjust these figures on our part would only introduce an additional bias. Recognizing these serious limitations, we will proceed, hoping to shed perhaps some light on the utility of the model and the reasonableness of

<sup>1</sup> Ibid., p. 5.

the data themselves.

The following procedures were undertaken to change the form of the data to make them appropriate for the model. The Khandker data, shown in Appendix E, is a distribution by percentage and cumulative percentages of household population, earners, and income, / <sup>arranged</sup> by household income groups. The average monthly income (in Rs.), the percentage of households, the population per household, and the earners per household, are also given by the size distribution of household income. This is available for rural areas, urban areas, and rural and urban combined. Furthermore, it is available over three time periods for the fiscal years 1963/64, 1966/67, and 1968/69. The time-series aspect of this body of data is important because it enables us to calculate the  $g_i$ s, the per cent distribution of income growth. Using the three surveys we can also examine changes in family size and changes in family income and together these can be used to make new time series estimates of  $\eta_i$ .

It was felt that the data would be more manageable if the eleven to thirteen income categories were reduced to four for the initial analysis. It is necessary that each category have an equal number of households. Given the nature of the data, this reduction does not result in a loss of precision in the model, and most probably this step improves reliability as the numbers in each case are greatly increased. The data have been divided into quartiles by finding the exact location of the 25, 50, and 75 percentage points within the cumulative household distribution ranked by income (see appendix F). Four groups of households with

exactly the same number of households in each group have been identified and ranked according to ascending income. These quartiles are then interpolated against the cumulative percentage of income distribution to find the per cent distribution of income or  $w_i$ . Therefore,  $w_1$  equals the percentage distribution of income received by the poorest quarter of the households, and so, with  $w_4$  represents the income of the richest household quartile.

Table 17 summarizes the calculations of Appendix F. The first column presents the percentage distribution of income for the years 1963/4, 1966/67, and 1968/69. These figures indicate that roughly half of the income went to the top household quartile while about 10 per cent went to the bottom quartile. This income structure remained roughly constant throughout the three surveys and it held up in both urban and rural areas. The average income (in Rs.) reportedly rose slightly between 1963/64 and 1966/67 only to fall again in 1968/69. By world standards the level of income is extremely low. The concentration ratios of the reported household income distribution (Gini coefficients: .358, .346, and .333 respectively for the above years) are, by world standards, exceedingly low (equal) and becoming more equal. Indeed, if one were to accept these estimates, one would have to place Pakistan as one of the most equitable countries in the world.

These figures reflect income and not wealth so they exclude great fortunes in land or capital, though in theory they should measure the income returned from these investments. In reality,

Table 17 Hypothetical Implications of Alternative Income Growth Patterns

Percentage of Households	Percentage Distribution of Income $w_1$		Percentage of Population $\alpha_1$		Percentage Distribution of Earners		Per Cent Distribution of Income Growth (G <sub>i</sub> )		
	1963/4	1966/7	1968/9	1963/4	1966/7	1968/9	1963-1966	1963-1968	(2 YRs) 1966-1968
<b>RURAL</b>									
0-25	10	12	12	17	18	18	20	20	0.0
26-50	17	17	18	24	20	22	22	5.9	5.9
51-75	24	24	26	27	28	27	25	8.3	8.3
76-100	49	47	44	33	34	33	32	-4.08	-6.38
Average Income (Monthly in Rs.)	193	198	190					$\frac{198}{193} = 1.026$	$\frac{190}{198} = 0.9845$
								2.6%	-1.55%
									$\frac{190}{198} = -4.04\%$
<b>URBAN</b>									
0-25	10			17					
26-50	15			22					
51-75	22			27					
76-100	53			34					
<b>Average Income (Monthly in Rs.)</b>									
<b>Urban &amp; Rural*</b>									
0-25	10	11	11	15	18	18	18	10	0.0
26-50	16	16	17	23	22	22	22	0.0	6.25
51-75	24	23	23	27	26	26	26	-4.17	0.0
76-100	50	50	49	35	34	34	34	0.0	-2.0
Average Income (Monthly in Rs.)	202	219	215					$\frac{219}{202} = 1.084$	$\frac{215}{219} = 0.9817$
								(8.4%)	(6.4%)
									(-1.83%)

SOURCE: Data derived from Appendix F



even Khandker admits that the distribution has been truncated at both ends and that it appears too equal. Khandker acknowledges that the few very rich families who reportedly own and control vast fortunes are not included in the sample. However, he argues that the figures are a reasonable reflection of the income distribution of the bulk of the households, though they do not reflect the true national distribution. If this is true, we might still be able to analyze changes in income and family size for most of the population, recognizing that the sample had been truncated. But if, as seems likely, the development strategies of the 1960s channelled vast funds into one or two per cent of the households which were not included in these samples, then it is rather impossible to evaluate the impact of the development strategy by the reported per cent distributions of income growth ( $g_i$ s). Therefore, the calculation of various welfare indices with these  $g_i$ s is not warranted.

The per cent distribution of income growth ( $g_i$ ) essentially expresses the relative changes in distribution among different income groups ( $w_i$ ). These figures show some relative improvement in the share of income received by the poorest household quartile. Unfortunately, the bottom of the distribution has also been truncated and had the very poor, particularly the landless, been fully included in the surveys, the share of the bottom household quartile may not have looked as relatively favourable.

The most striking feature of the data is the minimal growth which occurred in average monthly income over the three time periods. From 1963 to 1968 the combined urban/rural average income

increased from Rs. 202 to Rs. 215 (see Appendix E) only 6.4 per cent over the five years, while the rural income actually declined from Rs. 193 to Rs. 190 during the same period. Therefore,  $g_i$  represents changes in relative shares of the income, so while the rural  $g_i$  may have changed by 20 per cent between 1963 and 1968, the actual level of monthly income only rose from Rs. 37.57 to Rs. 40.03 among the very poor and from Rs. 77.85 to Rs. 80.37 among those averaging a monthly income of between 50 and 100 Rs. Certainly it is the level of income and not the relative share which most affects the lives of the very poor. No one could argue, on the basis of this data, that the level of income actually improved for the very poor. Taking the data at face value, it still amounts to an increase of only one per cent per year for the very poor, and given inflation, the actual income probably deteriorated significantly.

The percentage of the population  $\alpha_i$  is also presented for the three time periods and for urban, rural, and combined. These figures are extraordinary. One would expect that the households in the poorest quartile would have the largest population by virtue of its large family size and likewise we would assume that the richest household quartile would have the smallest family size and the smaller population. Instead, these figures suggest exactly the reverse. This pattern holds up, though with some variation, throughout the three surveys and in urban and rural areas as well as the urban/rural combined.

The inverse pattern of 'family size and income, if not an artifact of the data, might be explained by several factors. We know

that family income is closely related to the structure of the household. Appendix E lists the proportion and numbers respectively, of earners per household. We know that many of the very poor, the landless, have not been included in this survey. Of those very poor households that have been included, the land holdings may be too small to support an extended family. Children leave early to seek wage employment. Cousins, uncles, and others move on. Poor health and nutrition may also affect family size through reduced fertility and increased mortality. Larger landholdings attract and support the extended family and may provide a greater economic rationale for additional children.

This may help explain the inverse pattern of household size and income in the rural areas, but it seems less likely to be true in the urban areas. These relationships do point out the mechanical and simplistic nature of the planning model in its use of arbitrary income groupings rather than actual social classes and its simplification of complex relationships.

In looking at changes in average family sizes over the three surveys we find that there were some small declines among several household groups (see Appendix E). The following average family sizes for all income groups combined were reported:

	<u>1963/64</u>	<u>1966/67</u>	<u>1968/69</u>
Rural	5.5	5.6	5.4
Urban	5.9	5.6	5.6
Combined	5.6	5.6	5.4

Recognizing that the samples have been truncated at both ends, but with the hope that they might still reflect some valid characteristics of the majority of the population in the large middle range, an attempt has been made to analyze the income elasticity of family size  $\eta_i$  using period (arc) data from the three surveys. Using the average family size ( $X_i$ ) data between successive income groups an arc,  $\frac{X_{(n+1)}}{X_n} - 1$ , was calculated. As explained earlier, these data had the unusual feature of generally showing larger family sizes in higher income groups; therefore, the arc data are usually positive instead of negative. The average monthly household income (in Rs.) for each income group was then divided by the average family size  $X_i$  in that group to obtain the monthly household income per person  $Y_i$ . These data were then used to calculate another arc,  $\frac{Y_{(n+1)}}{Y_n} - 1$ . The ratio of the two arcs,

$$\frac{\frac{X_{(n+1)}}{X_n} - 1}{\frac{Y_{(n+1)}}{Y_n} - 1} = \eta_i$$

is then employed to calculate the income elasticity of household size. These estimates were made separately for both the urban and rural samples using the data from 1963/64, 1966/67, and 1968/69. They are generally positive because income and family size are positively related in these samples. Graphs of these elasticities in Appendix H show wide fluctuations; and though they are generally positive, they literally cover the graph, and it is difficult to find any significant relationships except that the only negative coefficients are among the higher income groups. It must be noted that the sample sizes are smallest in the highest income groups and

we might expect some instability in the highest income groups represented by fewer cases. There are, however, wide fluctuations in the elasticities of the second to fifth lowest income groups and these have the largest sample sizes.

Figure 3 presents the income elasticity of family size for different income groups calculated in time series data for the three periods, 1963/64 to 1968/69; 1963/64 to 1966/67; and 1966/67 to 1968/69. These elasticities are characterized by some strong fluctuations, but the values are negative and in general they decline with income rather than increase. They are lower than the hypothetical values employed in the theoretical section of this chapter and they generally go in the opposite direction. We might disregard the first income category Rs. 0-50 because the sample must have been very small, and sample sizes from income groups above Rs. 500 have also been excluded.<sup>1</sup> These  $\eta_i$ s are of a more reasonable magnitude and are more stable than those found by calculating with period (arc) data. When calculating  $\eta_i$  with period

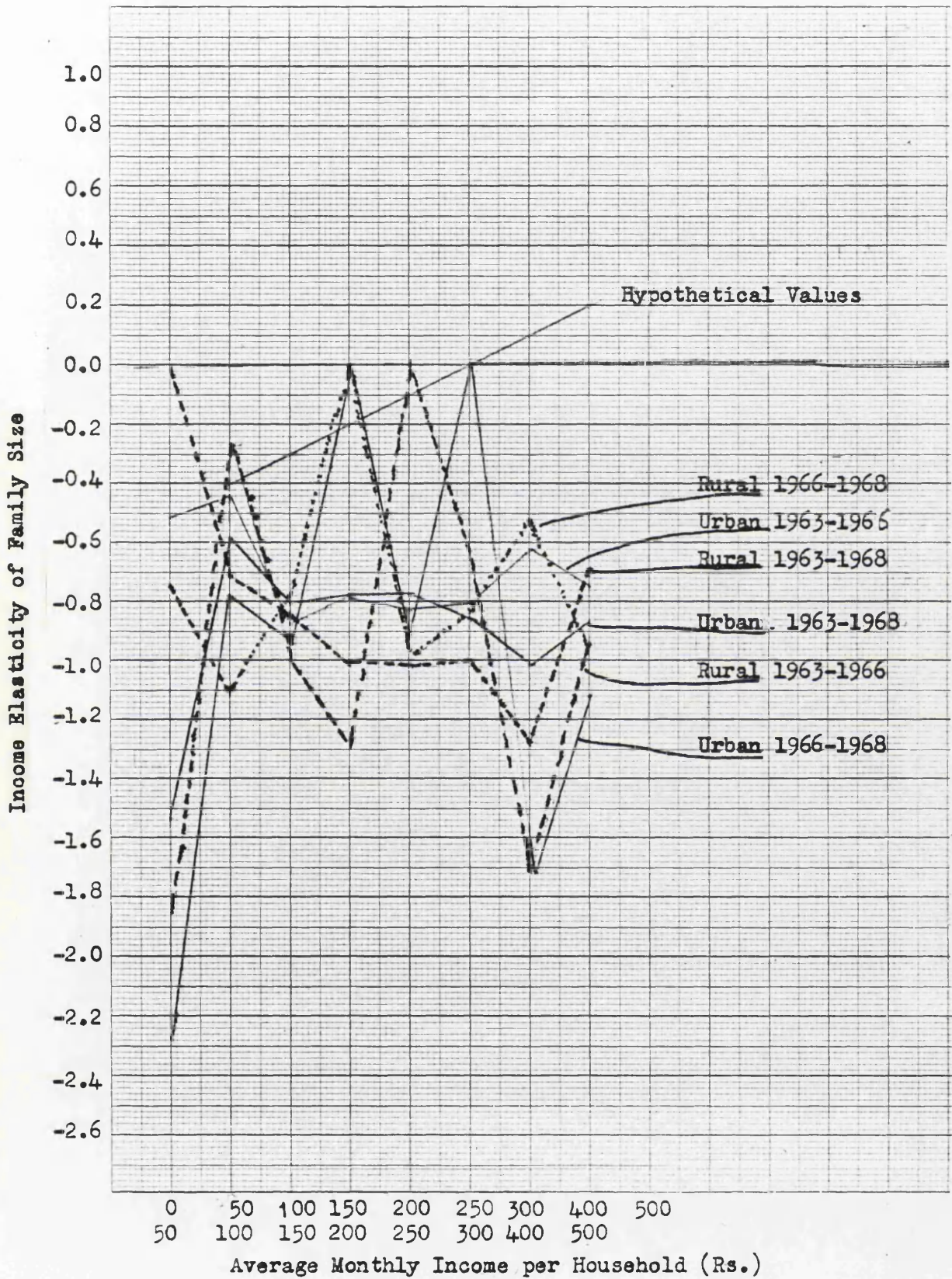
<sup>1</sup>Unfortunately, Khandker did not publish the sample sizes so we must be especially cautious in interpreting the data in particular income groups. We do have the per cent distribution of the population sample (see: Appendix E, Figure 4) and we know that nearly three-fourths of the population is concentrated in the second through sixth income groups. The lowest group has a population of less than one per cent of the sample and, therefore, its sample size is probably too small. Coefficients were not calculated for the highest income groups because they represented a very small proportion of the households and, therefore, their numbers must have been very small. In addition, the income categories for these groups were different in each survey and thus not strictly comparable. Figure 4 presents the distribution of households across the income scale. From this we can see that the great majority of the households fall within the group averaging less than Rs. 500 per month. It is also apparent that the distribution of rural households has remained stable over the three surveys though there has been an apparent decline in the proportion of poor urban households. The relative stability of the rural household distribution is at least an indication that changes in the persons per household distribution, used to calculate  $\eta_i$  are not a reflection of underlying changes in family formation.

Table 18

The Calculation of the Income Elasticity of Family Size  $\eta_i$   
 from Time Series Data, Pakistan 1963/64 to 1968/69, Rural

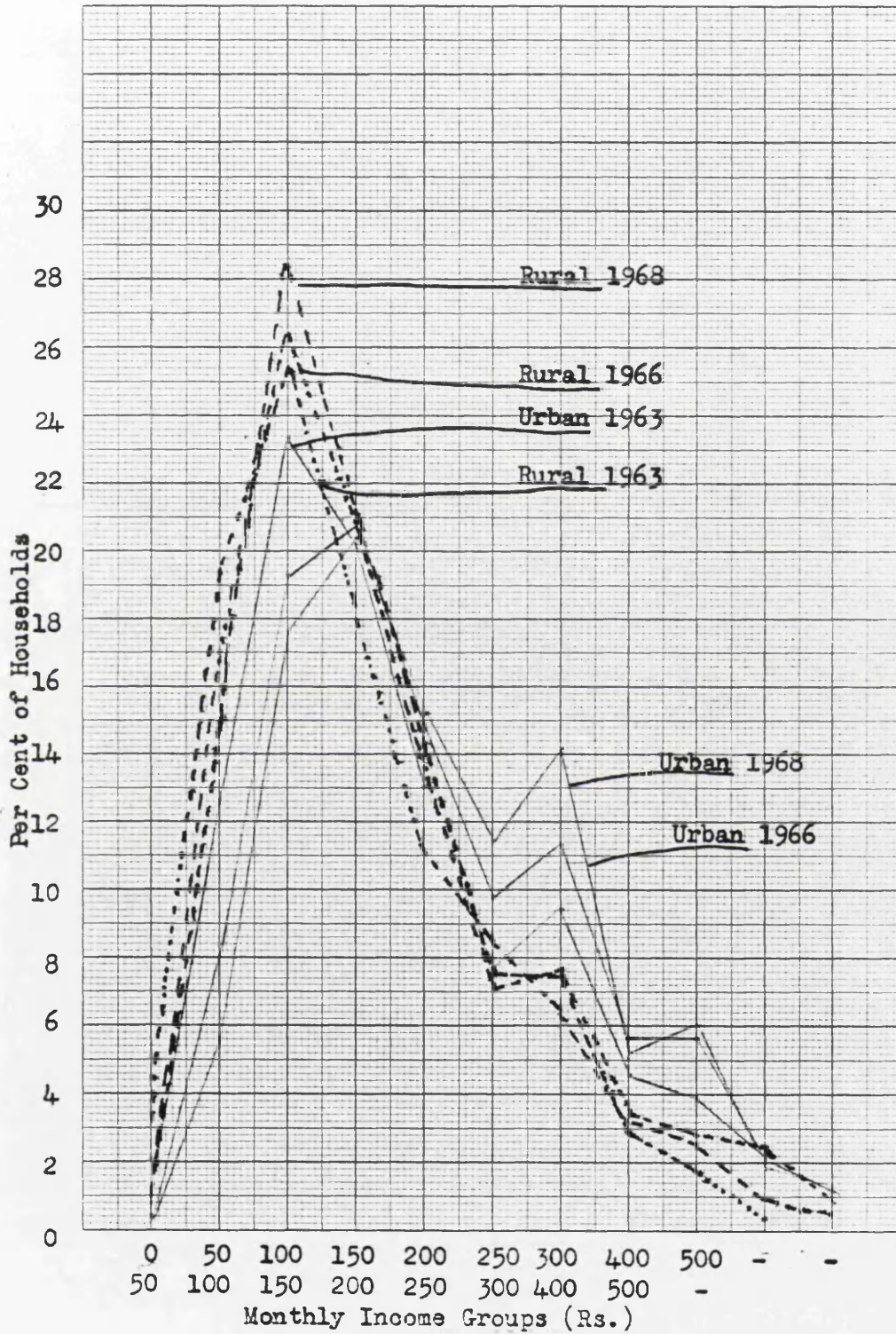
Average Monthly Household Income Groups (Rs.)	1963/64 Average Monthly Income (Rs.)	1968/69 Average Monthly Income (Rs.)	Persons Per Household $X_{1963}$	Persons Per Household $X_{1968}$	Monthly Household Income Per Person $Y_{1963}$	Monthly Household Income Per Person $Y_{1968}$	$\frac{Y_{1968}}{Y_{1963}} - 1$	$\frac{X_{1968}}{X_{1963}} - 1$	Income Elasticity of Household Size $\frac{\Delta X}{\Delta Y}$	Change in Household Income 1968 - 1963
Less 50	37.57	40.03	2.1	2.1	17.89	19.06	0.065	0.0	0	0.065
50-100	77.85	79.68	3.8	3.5	20.5	22.77	0.111	-0.079	-0.712	0.024
100-150	124.52	124.85	5.2	4.5	23.95	27.74	0.159	-0.135	-0.850	0.003
150-200	173.33	172.96	5.7	5.5	30.41	31.45	0.034	-0.036	-1.059	-0.002
200-250	221.75	221.70	6.2	6.1	35.77	36.34	0.016	-0.017	-1.063	0.000
250-300	272.04	270.76	6.8	6.4	40.01	42.39	0.059	-0.059	-1.00	-0.005
300-400	344.50	339.11	7.2	7.8	46.46	43.48	-0.064	0.083	-1.297	-0.016
400-500	450.73	438.50	7.7	8.1	58.54	54.14	-0.075	0.0519	-0.692	-0.027
500-	600.70	560.22	9.3	8.6	64.59	65.14	-0.009	-0.076		
-	803.11	833.88	9.4	11.8	85.44	70.67				
-	1153.83	1319.00	8.6	7.0	134.16	188.43				
-	-	-	-	-	-	-				
-	2352.00	-	7.5	-	313.6	-				
All Groups	193.24	189.87	5.5	5.4	35.13	35.16				

Income Elasticity of Family Size Calculated from Time Series  
 Data by Average Monthly Income Groups (Rs) Pakistan, Urban and Rural  
 1963/64 - 1968/69; 1963/64 - 1966/67; 1966/67 - 1968/69





Per Cent Distribution of Households by Average Monthly Income Groups (Rs.) Pakistan, 1963, 1966, 1968, Urban and Rural





data we were confronted with an unusual positive relationship between family size and income. This difficulty was overcome by using time series data to look at  $\eta_i$  over time rather than by income groups.

In looking at the rural data over the five year period from 1963 to 1968, we find a 1.7 per cent decline in the average monthly household income of all groups combined, from Rs. 193 to Rs. 189.9. The percentage change over the period was essentially stagnant for all income groups, though the lowest income groups reported some slight positive changes while the higher income groups reported slight negative changes. The average number of persons per household declined by 1.9 per cent from 5.5 to 5.4. These declines in reported household size were concentrated among the lowest income groups. In one sense, the decline in the household income was offset by the decline in the reported average family size; therefore, the average monthly household income per person remained constant over the period from Rs. 35.13 to Rs. 35.16. We can see that the level of income per household remained essentially stagnant for all income groups, though the lowest income groups reported some slight positive changes while the higher income groups reported slight negative changes. The average number of persons per household declined by 1.9 per cent from 5.5 to 5.4. These declines in reported household size were concentrated among the lowest income groups. In one sense, the decline in the household income was offset by the decline in the reported average family size; therefore, the average monthly household income per person remained essentially unchanged, and yet because of declines in the reported

family size, the income per person among certain income groups changed dramatically. The households earning between Rs. 50-100 and Rs. 100-150 reported rather substantial declines in family size and only slight gains in family income. Careful examination of  $\eta_i$  reveals a further limitation of the planning model. Upon first inspection the income elasticities of the household size look fairly reasonable. They are based on the per cent change in household income per person. Household income per person is acknowledged to be a better indicator than average household income. But problems of circular causality remain, in this case we do not know why family size declined but we can determine that it was not the rise in household income per person which reduced family size. The decline in family size is the chief reason why household income per person increased.

This framework illustrates some of the important relationships between population, income distribution, and the evaluation of alternative development strategies. However, it is much too simplistic to be used as an analytical tool for actual planning purposes and even if high quality data were available, serious methodological difficulties would remain.

## CONCLUSION

The findings in the first part of this thesis indicate a surprising dearth of demographic data in development plans of the Third World. With a few exceptions, the data found in these plans are inadequate and are not presented in forms easily used by planners. Use varies significantly by region, with Asia presenting more data than Africa or Latin America and the Caribbean. This regional variation is even more marked when population is taken into consideration. A substantial variation in the parameters of demographic data used is also evident. More demographic data are found in recent plans than in earlier ones,<sup>1</sup> but many

<sup>1</sup>Stamper, B. Maxwell, 'Population Policy in Development Planning: A Study of Seventy Less Developed Countries,' Reports on Population/Family Planning, No. 13, 1973.

countries with rapid population growth continue not to consider rudimentary demographic statistics in their national development plans. Few of the projections that are presented are sufficiently detailed for effective planning, and even fewer have actually been integrated with development strategies.

The recognition of population problems in development plans is substantial: Two-thirds of the countries studied mention a wide spectrum of population problems in their plans. An earlier study of 70 development plans of the 1960s<sup>1</sup> found slightly more than one-third of them acknowledging such problems. Recognition of population problems has thus increased dramatically. The regional differences in problem recognition are acute when population is taken into consideration, Asia again having the most comprehensive coverage.

Countries that make extensive use of demographic data tend to recognize more population problems than those that do not. Data on the age structure of a population, for example, appear to help alert a planning commission to the problems of a high dependency ratio and an increasing working-age population; when population projections are available to be studied in conjunction with economic data, the effect of population growth on economic development is more readily apparent. And once at least two population problems are recognized, others suggest themselves: Of the countries that recognize more than one such problem --

<sup>1</sup>Stamper, B. Maxwell, 'Population Policy in Development Planning: A Study of Seventy Less Developed Countries,' Reports on Population/Family Planning, No. 13, 1973.

and just half of the countries studied do -- 80 per cent recognize four or more.

Forty-three per cent of the countries studied propose some policy to reduce the rate of population growth. Only 26 per cent of the 1960s development plans studied had such policies, so it is apparent that Third World countries are becoming increasingly aware not only of the problems arising from population growth but of the advisability of some sort of action to deal with them. Yet the evidence found in these plans strongly suggests that many countries do not plan for the consequences of short-term population growth, let alone long-term growth. Most of these policies support only family planning programmes; other measures receive relatively little attention. Nine plans advocate special family planning education efforts and seven advocate broader education about population issues, but only four mention the use of the mass media to spread this information. Nine plans explicitly state a policy assumption that economic development would result in reduced fertility. Two plans advocate an improvement in the status of women in conjunction with a decline in fertility. Almost no attention is given in the plans to an improvement in the status of women for their own sake or for their contribution to development. Again a regional pattern emerges, with the Asian plans having far more population policies than those of Africa or Latin America and the Caribbean.

Twenty-two countries recognize no population problems and include no population policies in their plans; twelve countries recognize population problems but have no population policies;

the remaining both recognize population problems and include population policies in their plans (see Figure 5 ). There are great extremes in this group: Bangladesh recognizes nine population problems and has 14 policies for dealing with them; Guatemala also recognizes nine problems but has only two policies -- and one of these is increased employment of women, only partially in the context of population policy. Malaysia, on the other hand, mentions only one problem but proposes seven policies. A median of 4.0 policies is proposed by the countries that have policies; the mean is 4.8. These figures are rather high, and might be explained by an overlap of classifications. As might have been anticipated, there tends to be a positive relationship between the number of population problems recognized and the number of policies proposed in the development plans.

Figure 5 gives a more realistic view of the population policies and problem recognition in the development plans by comparing them with the official positions of the governments concerned.<sup>1</sup> The dates of official policy adoptions are presented as well as the plan periods so that sequential comparisons can be made. Of the 60 countries studied, 22 countries (37 per cent) do not recognize a problem from rapid population growth,

<sup>1</sup>Nigeria, Uganda, Panama, and Swaziland, which had weak statements of policy in the plans, are in apparent contradiction, with no official government policy but with a policy stated in the plan. The contradiction can be explained by different interpretations of the plan document or the fact that the official classification may be based on counter-vailing information outside of the plan.

FIGURE 5 Population policy and problem recognition in 60 development plans with official government positions

Population policy and problem recognition in development plans			
Official government position <sup>a</sup>	Policy to reduce population growth and recognition of population problems	Recognition of population problems but no policy to reduce population growth	No mention of population problems and no policy to reduce population growth
Policy and programme to reduce population growth rate	1970 Botswana 1970-1975 1966 Kenya 1970-1974 1965 Mauritius 1971-1975 1968 Morocco 1973-1977 1964 Tunisia 1973-1976 1971 Bangladesh 1973-1978 1952 India 1974-1979 1968 Indonesia 1969/70-1973/74 1967 Iran 1967-1972 1961 Korea, Republic of 1972-1976 1966 Malaysia 1971-1975 1970 Nigeria 1970-1974 1971 Swaziland <sup>b</sup> 1973-1977 1972 Uganda 1971/72-1975/76 1969 Panama 1970-1980	1968 Taiwan 1969-1972 1968 Dominican Republic 1968-1985 1974 El Salvador 1973-1977 1970 Puerto Rico 1969-1972 1966 Nepal 1970-1975 1960 Pakistan 1970-1975 1970 Philippines 1972-1975 1965 Sri Lanka 1972-1976 1970 Thailand 1972-1976 1965 Turkey 1973-1977 1975 Vietnam, Republic of 1972-1975 1967 Barbados 1969-1972 1970 Colombia 1970-1973 1975 Guatemala 1971-1975 1967 Trinidad and Tobago 1969-1973	1971 Algeria 1970-1973 1972 Mali 1970-1972 1966 South Africa 1966-1971 1970 Sudan 1970/71-1974/75 1970 Afghanistan 1967-1971 1974 Brazil 1972-1974 1966 Chile 1971-1976 1971 Haiti 1970-1971 1972 Paraguay 1971-1975 Cameroon 1971-1976 Ethiopia 1968-1973 Ivory Coast <sup>b</sup> 1971-1975 Mauritania <sup>b</sup> 1970-1973 Senegal <sup>b</sup> 1969-1973 Somalia <sup>b</sup> 1971-1973 Israel <sup>b</sup> 1974-1978 Laos 1969-1974 Lebanon <sup>b</sup> 1972-1977 Saudi Arabia 1970 Argentina <sup>b</sup> 1974-1977 Peru 1971-1975 Uruguay <sup>b</sup> 1973-1977
Support of family planning program <sup>a</sup> for non-demographic reasons		1970 Tanzania 1969-1974 1972 Iraq 1970-1974 1968 Costa Rica 1974 1968 Venezuela 1970-1974	
No policy to reduce growth rate and no official support for a family planning programme		Burundi <sup>b</sup> 1968-1972 Togo <sup>b</sup> 1971-1975 Zambia <sup>b</sup> 1972-1976 Guyana <sup>b</sup> 1972-1976	

NOTE: A date before a country name represents the year the official government position was adopted (see Nortman, 1975); countries that give no official support to a family planning program, of course, have no date of policy adoption. The dates following the country names represent the development plan periods.

<sup>a</sup>Based on the classification developed by Nortman (1975).

<sup>b</sup>Classified by the author.

Note: A date before a country name represents the year the official government position was adopted, see Dorothy Nortman, 'Population and Family Planning Programs: A Factbook', Reports in Population/Family Planning, No. 2, 7th ed., New York: Population Council, October, 1975. Countries that give no official support to a family planning programme, of course, have no date of policy adoption. The dates following the country names represent the development plan periods.

<sup>a</sup>Based on the classification developed by Nortman, Ibid.

<sup>b</sup>Classified by the author.

while 38 countries (63 per cent) do recognize such a problem. Of these, 26 countries (43 per cent) present a policy to reduce the rate of population growth in their plans. Of the remaining twelve countries that do recognize a population problem but have no policy in their plans, four have adopted official government positions supporting a policy and a programme outside the plan, and four others actually support family planning programmes for nondemographic reasons. Thus, only four countries (Burundi, Togo, Zambia, and Guyana) recognize a population problem in their plans but have no specific policy to reduce it and give no support to an official family planning programme.

Chapter 4, which begins the second part of this thesis, is a specific examination of population and planning in the development plans of Pakistan and Bangladesh. Pakistan's First Five-Year Plan (1955-1960) never became operational and the general background of the plan -- economically, administratively, and politically -- was that of complete failure. Though population growth was regarded as a serious problem in the Plan, officials deliberately understated the rate of population growth in order to present a more optimistic picture. Virtually no policies were proposed to reduce fertility.

The Second Plan (1960-1965) gave much more attention to the problems of population growth stating that they 'threatened to wipe out the gains of development...' (p. 335). The policy efforts directed by the Second Plan did not have a demographic impact for several reasons. There was little demand for contraceptives; the programme was administered through existing



health facilities which did not reach most of the population and whose personnel, facing more critical clinical cases, did not actively promote contraceptive use; and only half of the funds proposed in the Plan were actually allocated.

The Third Plan's (1965-1970) objectives and programmes to reduce fertility were excessively ambitious. The strategy again faced the basic problem of insufficient demand for contraceptives. Administratively, it relied on existing political structures (rather than medical facilities) that were often uninterested in the objectives, and unwilling to work with little or no compensation. The utilization of the local dais proved ineffective. There were logistical difficulties because the geographic scope of the programme was so wide. Finally, reports of bleeding caused by the IUD made the method unacceptable, and the monetary incentive scheme implemented for IUD insertions, vasectomies, and tubligations was plagued with corruption.

Bangladesh's First Plan (1973-1978) gave considerable attention to population, but extremely adverse conditions in the country have made its implementation exceedingly difficult. The country's efforts since 1974 have not been reviewed in this study.

In Chapter 5 four conceptual frameworks incorporating theories of fertility decline were analyzed, and their relevance and utility for development planning in Pakistan and Bangladesh was assessed. The family planning approach, (i.e., essentially supplying contraceptives and information about their use), remains the principal policy instrument for reducing fertility, though there remain substantial socio-economic-psychological barriers to this approach;

and it has not been successfully implemented nor has it been demographically effective. Until there is greater motivation to control reproduction, the demand for contraceptives and the demographic impact of the family planning programme are not likely to substantially reduce the rate of population growth. In the long run the approach may have some demographic impact; and it remains the most politically acceptable and administratively and economically feasible intervention for reducing fertility.

Policies going beyond the family planning approach which attempt to directly influence the demand for reproductive control, such as the provision of old age support, monetary incentives, stringent and coercive measures, are likely to be economically and administratively infeasible and politically unrealistic.

The demographic transition theory, which states that general economic development brings reduced mortality and greater demand for fertility control, remains fundamental to many assumptions employed by development planners. The historical experiences upon which this theory is based are found to be quite different from the present conditions of Pakistan and Bangladesh; these differences are assessed to determine which in general may postpone a decline in fertility and which may accelerate such a decline. The source and pace of mortality decline, the high rate of growth, the growth in absolute size, the young age structure, the high level of fertility, and the unlikely prospect of universal education or nonagricultural employment (especially for women) all combine to generally impede the demographic transition as it occurred in Europe and other Western countries. Furthermore,

migration is not likely to lessen the effects of population growth as it did in the West. On the other hand, the early and near universal marriage patterns of Pakistan present a greater potential for reducing fertility via a delay in the age of marriage or in a reduction in the proportion marrying than existed in Europe. New birth control technology is more effective, it may require less frequent motivation, and the potential for safe medical abortions now exists. Modern communication systems which have a greater potential for permeating linguistic barriers and bringing a modernization of attitudes now reach remote rural areas. There is also evidence that where fertility is declining in other Third World countries, it is doing so more rapidly than it did in Europe and other Western countries.

Finally, the distributive and fertility decline hypothesis, which focuses on the underlying distributions rather than on aggregate economic and social measures, is examined to evaluate more fully its relevance and application to Pakistan and Bangladesh. This approach raises issues about the redistribution of income growth which in turn raises issues about the bimodal trends in agriculture and rural development, the sector in which the vast majority of the people work and live. Development strategies which emphasize the rural poor are examined for their potential impact upon fertility.

The available evidence from other countries on the fertility/equity thesis is reviewed but because of the aggregate nature of the data, few conclusions can be <sup>drawn</sup> about these relationships. Equity oriented growth strategies may in the short-run increase

fertility though in the long-run they may result in reduced fertility by the various indirect mechanisms discussed.

The approach analyzed in Chapter 6 attempts to integrate the crucial issues faced by development planners in Pakistan and Bangladesh: population, income distribution and the evaluation of alternative development strategies. It is an extension of the social welfare index which aims to incorporate the effects upon fertility of differential income growth. While it successfully illustrates some of these relationships and adds an important emphasis to the distributive-fertility aspect of alternative development strategies, it cannot succeed, in this writer's view, as an analytical tool because of its inherent simplicity. As we have seen, the available data on income distribution and family size (Pakistan 1963/64, 1966/67, and 1968/69) is not of sufficient quality to be appropriately employed even in this simple framework. A more complex model would have to overcome substantial methodological difficulties and would require data of such sophistication that it is not likely to become available.

Though development plans represent only one aspect of planning, their systematic content analysis does point to some tentative conclusions about the emphasis given to population in development planning. Perhaps the most important conclusion is that few plans are preparing to accommodate for the inevitable growth of the population. This is particularly important for employment and education.

Policies for reducing fertility mainly rely upon the family planning approach. In the case of Pakistan and Bangladesh this approach has so far not been efficiently administered nor has it been demographically effective. Direct policies to influence reproductive motivation may not be administratively or politically realistic. Broad changes in development strategy such as a rural based growth-equity emphasis may reduce fertility in the long-run by indirect mechanisms, but the evidence is not conclusive. Mathematical frameworks, though they may illustrate the importance of this distributive aspect of development strategy, lack both the sophistication and the appropriate data to be used analytically.

# APPENDICES

APPENDIX A Populations of African countries included in and excluded from study, 1970 (in millions)

Development plans analyzed		Development plans not analyzed	
Country	Estimated midyear 1970 population	Country	Estimated midyear 1970 population
Algeria	14	Angola	5
Botswana	*	Cape Verde Islands	*
Burundi	4	Central African Republic	2
Cameroon	6	Chad	4
Ethiopia	25	Comoro Islands	*
Ivory Coast	4	Congo, People's Republic of	*
Kenya	11	Dahomey	3
Mali	5	Egypt	33
Mauritania	1	Equatorial Guinea	*
Mauritius	*	French Territory of the Afars and the Issas	*
Morocco	16	Gabon	*
Nigeria	55	Gambia	*
Senegal	4	Ghana	9
Somalia	3	Guinea	4
South Africa	20	Lesotho	1
Sudan	16	Liberia	1
Swaziland	*	Libya	2
Tanzania	13	Madagascar	7
Togo	2	Malawi	5
Tunisia	5	Mozambique	7
Uganda	10	Namibia (Southwest Africa)	*
Zambia	4	Niger	4
		Portuguese Guinea	*
		Reunion	*
		Rhodesia	5
		Rwanda	4
		São Tomé and Príncipe	*
		Seychelles	*
		Sierra Leone	3
		Spanish North Africa	*
		Spanish Sahara	*
		Upper Volta	5
		Zaire (Democratic Republic of Congo)	17

SOURCE: United Nations, *Demographic Yearbook, 1970* (New York, 1971).

\*Under one million.

APPENDIX A Populations of Asian countries included in  
and excluded from study, 1970 (in millions)

Development plans analyzed		Development plans not analyzed	
Country	Estimated midyear 1970 population	Country	Estimated midyear 1970 population
Afghanistan	17	Bahrain	*
Bangladesh	77	Bhutan	*
India	550	Brunei	*
Indonesia	121	Burma	28
Iran	29	China, People's Republic of	760
Iraq	9	Cyprus	*
Israel	3	Hong Kong	4
Korea, Republic of	32	Jordan	2
Laos	3	Khmer Republic (Cambodia)	7
Lebanon	3	Korea, Democratic People's Republic of	14
Malaysia	9	Kuwait	*
Nepal	11	Macau	*
Pakistan	35	Maldives Islands	*
Philippines	39	Mongolia	1
Saudi Arabia	8	Oman	*
Sri Lanka	13	Portuguese Timor	*
Taiwan	14	Qatar	*
Thailand	36	Ryukyu Islands	1
Turkey	35	Sikkim	*
Vietnam, Republic of	18	Singapore	2
		Syria	6
		Vietnam, Democratic Republic of	21
		Yemen (Arab Republic)	6
		Yemen, People's Republic of	1

SOURCE: United Nations, *Demographic Yearbook, 1970* (New York, 1971).

\*Under one million.

APPENDIX A Populations of Latin American and Caribbean countries included in and excluded from study, 1970 (in millions)

Development plans analyzed		Development plans not analyzed	
Country	Estimated midyear 1970 population	Country	Estimated midyear 1970 population
Argentina	24	Antigua	*
Barbados	3	Bahamas	*
Brazil	95	Bermuda	*
Chile	10	British Honduras	*
Colombia	21	British Virgin Islands	*
Costa Rica	2	Bolivia	5
Dominican Republic	4	Cayman Islands	*
El Salvador	4	Cuba	8
Guatemala	5	Dominica	*
Guyana	*	Ecuador	6
Haiti	5	Falkland Islands	*
Panama	2	French Guiana	*
Paraguay	2	Grenada	*
Peru	14	Guadeloupe	*
Puerto Rico	3	Honduras	3
Trinidad and Tobago	1	Jamaica	2
Uruguay	3	Martinique	*
Venezuela	10	Mexico	51
		Montserrat	*
		Netherlands Antilles	*
		Nicaragua	2
		St. Kitts-Nevis-Anguilla	*
		St. Lucia	*
		St. Vincent	*
		Surinam	*
		Turks and Caicos Islands	*
		United States Virgin Islands	*

SOURCE: United Nations, *Demographic Yearbook, 1970* (New York, 1971).

\*Under one million.



## APPENDIX B Development plans studied

Africa	
Algeria	<i>Plan Quadriennal 1970-1973; Rapport Général.</i> 1970.
Botswana	Republic of Botswana. 1966. <i>Transitional Plan for Social and Economic Development.</i> Republic of Botswana. 1970. <i>National Development Plan 1970-1975.</i>
Burundi	Republic of Burundi. <i>Plan Quinquennal de Développement Economique et Social du Burundi 1968-1972: Développement Economique, vol. 2, Développement Social.</i>
Cameroon	Federal Republic of Cameroon, Ministry of Economic Affairs. <i>Second Five-Year Plan of Economic and Social Development (1966-1971).</i> Federal Republic of Cameroon, Ministry of Planning and Territorial Development. <i>The IIIrd Five-Year Development Plan, 1971-1976, Temporary Edition.</i>
Ethiopia	Imperial Ethiopian Government. <i>Second Five-Year Development Plan (1963-1967).</i> Imperial Ethiopian Government. 1968. <i>Third Five-Year Development Plan, 1961-1965 EC (AD 1968-1973).</i> Addis Ababa.
Ivory Coast	<i>Plan Quinquennal de Développement Economique, Social, et Culturel 1971-1975.</i>
Kenya	Republic of Kenya. <i>Development Plan 1966-1970.</i> Republic of Kenya. <i>Development Plan 1970-1974.</i>
Mali	Présidence du Gouvernement, Direction Générale du Plan et de la Statistique, République du Mali. <i>Programme Triennal de Rédressement Economique et Financier 1970-1972.</i>
Mauritania	République Islamique de Mauritanie. <i>Deuxième Plan de Développement Economique et Social 1970-1973.</i>
Mauritius	Mauritius Legislative Assembly. <i>Public Sector Development Program (1966-1970).</i> <i>Four-Year Plan for Social and Economic Development 1971-1975: vol. 1, General Analysis and Policies.</i> Port Louis, Mauritius, 1971.
Morocco	Morocco. 1968. <i>Plan Quinquennal (1968-1972).</i> Rabat. Morocco, Secretariat d'Etat au Plan. <i>Plan de Développement Economique et Social, 1973-1977: vol. 1, Perspectives Générales de Développement.</i>
Nigeria	Federation of Nigeria, Federal Ministry of Economic Development. <i>National Development Plan (1962-1968).</i> <i>Federation of Nigeria, Federal Ministry of Economic Development. Second National Development Plan (1970-1974).</i>
Senegal	République du Sénégal. <i>Troisième Plan Quadriennal de Développement Economique et Social, 1969-1973.</i>
Somalia	1963. <i>First Five-Year Plan (1963-1967).</i> Mogadiscio. Planning and Coordinating Committee for Economic and Social Development. <i>Short-Term Program (1968-1970).</i> Somalia Democratic Republic, Ministry of Planning and Coordination. <i>Development Programme, 1971-1973.</i>
South Africa	Republic of South Africa, Department of Planning. <i>Economic Development Programme for the Republic of South Africa (1966-1971).</i>

- Sudan  
 Republic of the Sudan, Sudan Economic Planning Secretariat. *The Ten-Year Plan of Economic and Social Development (1961/1962-1970/1971)*.  
 The Democratic Republic of Sudan, Ministry of Planning. *Five-Year Plan of Economic and Social Development 1970/71-1974/75*.
- Swaziland  
 Swaziland Government. 1969. *Post-Independent Development Plan (1969/1970-1973/1974)*. Mbabane.  
 Government of Swaziland. *Second National Development Plan, 1973-1977*.
- Tanzania  
*Development Plan for Tanganyika (1961/1962-1963/1964)*.  
 United Republic of Tanganyika and Zanzibar. 1964. *Tanganyika Five-Year Plan for Economic and Social Development (1964-1969)*. Dar es Salaam.  
 United Republic of Tanzania, 1969. *Tanzania Second Five-Year Plan for Economic and Social Development (1969-1974)*. Dar es Salaam.
- Togo  
 Republic of Togo. *Five-Year Development Plan (1966-1970)*. Translated by Regional Technical Aids Center, American Embassy, Paris.  
 Ministère des Finances, de l'Economie et du Plan. *Plan de Développement Economique et Social 1971-1975*. Lomé.
- Tunisia  
 Republic of Tunisia. 1965. *Plan Quadriennal (1965-1968)*. Tunis.  
 République Tunisienne. *IV<sup>e</sup> Plan de Développement Economique et Social 1973-1976*.
- Uganda  
*Work for Progress: Uganda's Second Five-Year Plan (1966-1971)*.
- 
- Uganda, Ministry of Economic Development and Planning. *Uganda's Third Five-Year Plan (1972-1976)*.
- Zambia  
 Republic of Zambia, Office of National Development and Planning. 1966. *First National Development Plan (1966-1970)*. Lusaka.  
 Republic of Zambia, Ministry of Development Planning and National Guidance. *Second National Development Plan, January 1972-December 1976*. Lusaka.
- Asia
- Afghanistan  
 1967. *Third Five-Year Economic and Social Plan of Afghanistan (1967-1971)*. Translated from Pushtu Kabul.
- Bangladesh  
 Planning Commission, Government of the People's Republic of Bangladesh. November 1973. *The First Five-Year Plan, 1973-1978*. Dacca.
- India  
 Government of India, Planning Commission. 1951. *First Five-Year Plan*. Delhi.  
 Government of India, Planning Commission. 1956. *Second Five-Year Plan*. Delhi.  
 Government of India, Planning Commission. 1961. *Third Five-Year Plan*. Delhi.  
 Government of India, Planning Commission, 1964. *Memorandum on the Fourth Plan*. Delhi.  
 Government of India, Planning Commission. *Fourth Five-Year Plan: A Draft Outline*.  
 Government of India, Planning Commission. 1974. *Draft Fifth Five-Year Plan 1974-1979*, vols. 1-2. New Delhi.

- Indonesia Republic of Indonesia, Department of Information. 1969. *The First Five-Year Development Plan (1969/70-1973/74)*, 5 vols. Djakarta.
- Iran Iran, Planning Division. 1963. *Outline of the Third Plan: 1341-1346 (1962-1967)*. Esfand.  
Iran, Planning Division. 1968. *Fourth National Development Plan (1346-1351) (1967-1972)*.
- Iraq March 1970. *Law No. 70 of 1970: The National Development Plan for the Fiscal Years 1970-1974*. Baghdad.
- Israel State of Israel, Economic Planning Authority. July 1972. *Economic Development Plan 1972-1976, Summary*. Jerusalem.  
Ministry of Finance, Economic Planning Authority. May 1973. *The Economic Plan, 1974-1978, Abstract and Summary*. Jerusalem.
- Korea, Republic of Republic of Korea. *Summary of the First Five-Year Economic Plan (1962-1966)*.  
Republic of Korea. *Second Five-Year Plan (1967-1971)*.  
Republic of Korea. 1969. *Third Five-Year Economic Development Plan (1972-1976)*. Seoul.
- Laos Royaume de Laos. *Plan Cadre Développement Economique et Social 1969-1974*.
- Lebanon Ministère du Plan. *Plan Sexenniel du Développement 1972-1977*.
- Malaysia 1965. *First Malaysia Plan (1966-1970)*. Kuala Lumpur.  
1971. *Second Malaysia Plan (1971-1975)*. Kuala Lumpur.
- Nepal His Majesty's Government, National Planning Council, Ministry of Economic Planning. *The Third Plan (1965-1970)*.  
His Majesty's Government, National Planning Commission. 1972. *Fourth-Plan (1970-1975)*. Singha Durbar, Kathmandu.
- Pakistan Government of Pakistan, National Planning Board. 1957. *First Five-Year Plan (1955-1960)*. Karachi.  
Government of Pakistan, Planning Commission. 1970. *Second Five-Year Plan (1960-1965)*. Karachi.  
Government of Pakistan. June 1965. *Third Five-Year Plan (1965-1970)*.  
Government of Pakistan, Planning Commission. 1970. *The Fourth Five-Year Plan, 1970-1975*. Islamabad.
- Philippines Republic of the Philippines, National Economic Council. 1971. *Four-Year Development Plan FY 1972-1975*. Manila.
- Saudi Arabia Kingdom of Saudi Arabia, Central Planning Organization. 1970. *Development Plan, 1390 AH (AD 1970)*.
- Sri Lanka Government of Ceylon, Planning Secretariat. 1959. *Ten-Year Plan (1959-1968)*. Colombo.  
Government of Ceylon, Ministry of Planning and Employment. 1971. *The Five-Year Plan (1972-1976)*. Colombo.
- Taiwan Taiwan Provincial Government, Department of Health. June 1964. *Ten-Year Health Plan (1966-1975)*.  
Taiwan Provincial Government, Council for International Economic Cooperation and Development. 1969. *Republic of China's Fifth Four-Year Plan for Economic Development of Taiwan (1969-1972)*. Taipei.
- Thailand Thailand, National Economic and Social Development Board. 1973. *The Third National Economic and Social Development Plan (1972-1976)*. Bangkok.

Turkey	<i>First Five-Year Development Plan (1963-1967)</i> . Ankara, 1963. Republic of Turkey, Prime Ministry, State Planning Organization. 1973. <i>New Strategy 1973-1995: Strategy and Basic Targets of Long-Term Development and the Third Five-Year Development Plan</i> . Ankara. <i>A Summary of the Third Five-Year Development Plan 1973-1977</i> . Ankara. Republic of Turkey, Prime Ministry, State Planning Organization. 1973. <i>A Summary of the Third Five-Year Development Plan, 1973-1977</i> . Ankara.
Vietnam, Republic of	République de Vietnam, Direction Générale du Plan. 1972. <i>Four-Year National Economic Development Plan 1972-1975</i> . Saigon.
<b>Latin America and the Caribbean</b>	
Argentina	Consejo Nacional de Desarrollo. <i>Plan Trienal para la Reconstrucción y la Liberación Nacional, 1974-1977</i> .
Barbados	<i>Barbados Development Plan 1965-1968</i> . <i>Barbados Development Plan 1969-1972</i> .
Brazil	<i>First National Development Plan, 1972-1974</i> .
Chile	Oficina de Planificación Nacional. 1971. <i>Resumen del Plan de la Economía Nacional 1971-1976</i> . Santiago de Chile.
Colombia	<i>Plan de Desarrollo Económico y Social 1970-1973</i> .
Costa Rica	Oficina de Planificación. 1974. <i>Plan Nacional de Desarrollo, Version Preliminar, Enero 1974</i> .
Dominican Republic	Oficina Nacional de Planificación. 1968. <i>Plataforma para el Desarrollo Económico y Social de la República Dominicana (1968-1985)</i> . Santo Domingo.
El Salvador	Consejo Nacional de Planificación y Coordinación Económica. <i>Plan de Desarrollo Económico y Social 1973-1977</i> . San Salvador.
Guatemala	Secretaría General del Consejo Nacional de Planificación Económica. 1970. <i>Plan de Desarrollo 1971-1975</i> . Guatemala City.
Guyana	Government of the Co-operative Republic of Guyana, Ministry of Economic Development. <i>Second Development Plan, 1972-1976, Draft</i> .
Haiti	République d'Haiti, Conseil National de Développement et de Planification. <i>Plan d'Action Economique et Sociale 1970-1971</i> .
Panama	República de Panamá, Presidencia de la República, Dirección General de Planificación y Administración. <i>Estrategia para el Desarrollo Nacional 1970-1980</i> .
Paraguay	Secretaría Técnica de Planificación. 1970. <i>Plan Nacional de Desarrollo Económico 1971-1975: Síntesis del Plan General y Sectorial</i> .
Peru	República Peruana, Presidencia de la República. <i>Plan Nacional de Desarrollo para 1971-1975</i> , vols. 1, 4, 6-9.
Puerto Rico	Commonwealth of Puerto Rico, Office of the Governor, Puerto Rico Planning Board. <i>The Four-Year Economic and Social Development Plan of Puerto Rico 1969-1972</i> .
Trinidad and Tobago	Government of Trinidad and Tobago. <i>Second Five-Year Plan, 1964-1968</i> . Government of Trinidad and Tobago. <i>Third Five-Year Plan, 1969-1973</i> .
Uruguay	República Oriental del Uruguay. <i>Plan Nacional de Desarrollo 1973-1977</i> .
Venezuela	Oficina Central de Coordinación y Planificación de la Presidencia de la República. 1971. <i>IV Plan de la Nación, 1970-1974</i> . Caracas.

**APPENDIX C** Number of demographic parameters, population problems recognized, and population policies in 60 national development plans and country efforts to reduce population growth rate

Country	Demographic parameters	Population problems recognized	Population policies	Country effort	
				Population Program Effort Index <sup>a</sup>	1973 contraceptive acceptance rates <sup>b</sup>
<b>Africa</b>					
<b>Algeria</b>					
1970-1973	3	0	0	3 <sup>c</sup>	NA
<b>Botswana</b>					
1970-1975	5	4	6	4 <sup>d</sup>	NA
<b>Burundi</b>					
1968-1972	3	4	0	NA	NA
<b>Cameroon</b>					
1971-1976	5	0	0	NA	NA
<b>Ethiopia</b>					
1968-1973	0	0	0	NA	NA
<b>Ivory Coast</b>					
1971-1975	2	0	0	NA	NA
<b>Kenya</b>					
1970-1974	6	3	3	6	2.0
<b>Mali</b>					
1970-1972	3	0	0	NA	NA
<b>Mauritania</b>					
1970-1973	2	0	0	NA	NA
<b>Mauritius</b>					
1971-1975	7	7	4	20	8.8
<b>Morocco</b>					
1973-1977	5	2	4	4	1.6
<b>Nigeria</b>					
1970-1974	3	5	2	2	0.3
<b>Senegal</b>					
1969-1973	5	0	0	NA	NA
<b>Somalia</b>					
1971-1973	1	0	0	NA	NA
<b>South Africa</b>					
1966-1971	3	0	0	NA	NA
<b>Sudan</b>					
1970/71- 1974/75	0	0	0	3 <sup>c</sup>	NA
<b>Swaziland</b>					
1973-1977	5	3	2	3 <sup>d</sup>	NA
<b>Tanzania</b>					
1969-1974	6	5	0	3 <sup>c</sup>	NA
<b>Togo</b>					
1971-1975	6	4	0	NA	NA
1973-1976	8	8	6	12	5.2
<b>Uganda</b>					
1971/72- 1975/76	8	6	5	3 <sup>d</sup>	NA
<b>Zambia</b>					
1972-1976	6	4	0	NA	NA <sup>e</sup>

## APPENDIX C (Continued)

Country	Demographic parameters	Population problems recognized	Population policies	Country effort	
				Population Program Effort Index <sup>a</sup>	1973 contraceptive acceptance rates <sup>b</sup>
Asia					
Afghanistan					
1967-1971	6	0	0	3 <sup>c</sup>	NA
Bangladesh					
1973-1978	8	9	14	3	1.8
India					
1974-1979	8	7	13	19	2.6
Indonesia					
1969/70- 1973/74	2	4	4	14	6.3
Iran					
1967-1972	6	1	3	14	10.8
Iraq					
1970-1974	4	1	0	NA	NA
Israel					
1974-1978	6	0	0	NA	NA
Korea, Republic of					
1972-1976	6	1	3	24	13.4
Laos					
1969-1974	3	0	0	NA	NA
Lebanon					
1972-1977	1	0	0	NA	NA
Malaysia					
1971-1975	8	1	7	18	4.0
Nepal					
1970-1975	7	9	5	6	1.5
Pakistan					
1970-1975	8	8	6	8	1.0
Philippines					
1972-1975	8	8	5	16	11.2
Saudi Arabia					
1970	7	0	0	NA	NA
Sri Lanka					
1972-1976	5	4	3	12	8.0
Taiwan					
1969-1972	6	4	0	24	15.7
Thailand					
1972-1976	4	9	6	11	9.5
Turkey					
1973-1977	8	3	2	6	0.9
Vietnam, Republic of					
1972-1975	5	1	2	NA	NA

## APPENDIX C (Continued)

Country	Demographic parameters	Population problems recognized	Population policies	Country effort	
				Population Program Effort Index <sup>a</sup>	1973 contraceptive acceptance rates <sup>b</sup>
Latin America and the Caribbean					
Argentina					
1974-1977	6	e	f	NA	NA
Barbados					
1969-1972	6	4	7	21	NA
Brazil					
1972-1974	4	0	0	NA	NA
Chile					
1971-1976	2	0	0	16	7.0
Colombia					
1970-1973	8	6	4	16	7.9
Costa Rica					
1974	5	1	0	21	18.2
Dominican Republic					
1968-1985	8	4	0	14 <sup>c</sup>	4.0
El Salvador					
1973-1977	4	2	0	13	4.0
Guatemala					
1971-1975	8	9	2	9	1.7
Guyana					
1972-1976	6	1	0	NA	NA
Haiti					
1970-1971	1	0	0	3 <sup>c</sup>	NA
Panama					
1970-1980	2	6	2	3 <sup>d</sup>	NA
Paraguay					
1971-1975	0	0	0	3 <sup>c</sup>	NA
Peru					
1971-1975	4	0	0	NA	NA
Puerto Rico					
1969-1972	8	1	0	NA	NA
Trinidad and Tobago					
1969-1973	6	8	7	15	10.0
Uruguay					
1973-1977	1	0	0	NA	NA
Venezuela					
1970-1974	3	5	0	7	6.5

NA = Not available

<sup>a</sup>The Population Programme Effort Index was originally devised from 15 input factors that were scored 2 points for 'yes' and 1 for 'qualified yes' by Robert J. Lapham and W. Parker Mauldin, "National Family Planning Programs: Review and Evaluation," Studies in Family Planning, Vol. 3, No. 3, March, 1972. This scheme was further developed in Bernard Berelson, "An Evaluation of the Effects of Population Control Programs," in Population and its Problems: A Plain Man's Guide, ed. H.B. Parry, Oxford: Glarendon Press, 1974, pp. 133-168; and then in Ronald Freedman and Bernard Berelson, "The Record of Family Planning Programs," Studies in Family Planning, Vol. 7, No. 1, January, 1976, Appendix A, from which these data are taken.

(see footnotes next page)

## APPENDIX D

## Number and type of population policies proposed in development plans of 1970s, by country

Countries	Number of policies	Support of family planning for demographic reasons	Integration of family planning with health services	Population growth targets	Extension of family planning services	Socioeconomic development and fertility decline	Family planning acceptor targets	Family planning education	Population education	Delay of marriage to reduce fertility	Use of mass media for family planning information	Motivation schemes for smaller families	Policies on abortion	Family planning incentive schemes	Improved status of women and fertility decline	Comprehensive population strategy	Pronatalist policies	
Bangladesh	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
India	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Malaysia	7	X	X	X	X		X		X			X						
Trinidad and Tobago	7	X	X	X	X		X	X			X							
Barbados	7	X		X	X	X		X	X		X							
Tunisia	6	X		X			X	X				X	X					
Botswana	6	X	X	X	X			X	X									
Thailand	6	X	X	X	X		X		X									
Pakistan <sup>a</sup>	6	X	X	X	X		X							X				
Nepal	5	X	X	X	X	X	?											
Uganda	5	X	X	X	X			X										
Philippines	5	X		X			X	X	X									
Indonesia	4	X	X		X		X											
Mauritius	4	X	X	X	X													
Morocco	4	X		X		X		X										
Colombia	4	X						X		X						X		
Iran	3	X	X							X								
Kenya	3	X			X	X												
Korea, Republic of	3	X		X		X												
Sri Lanka	3	X	X		X													
Nigeria	2	X	X															
Panama	2	X				X												
Swaziland	2	X	X															
Turkey	2	?	X			X												
Vietnam, Republic of <sup>b</sup>	2	X	X															
Guatemala	2	X															?	
Argentina	1																	X

<sup>a</sup>Before the independence of Bangladesh.

<sup>b</sup>Before unification with North Vietnam.

? = Policy as stated in plan does not fit category precisely.

(cont. from page 234)

<sup>b</sup>As percentage of estimated nonusers. The basic acceptor data, originally found in Nortman, *Ibid.*, are cited in Freedman and Berelson, *Ibid.*, who made necessary estimates for the denominator of nonusers.

<sup>c</sup>Estimated values from Freedman and Berelson, *Ibid.*

<sup>d</sup>Values estimated by the author.

<sup>e</sup>Argentina describes its population growth rate as too low.

<sup>f</sup>Argentina has a pronatalist and progrowth policy.



DISTRIBUTION OF HOUSEHOLD, POPULATION, EARNERS  
AND INCOME BY HOUSEHOLD INCOME GROUPS

SOURCE: R. H. Khandker, 'Distribution of Income and Wealth in Pakistan', Pakistan Economic and Social Review, Spring 1973,

Monthly Household Income Groups (Rs.)	1963/1964						1966/1967						1968/1969						
	RURAL AREA			URBAN AREA			RURAL AREA			URBAN AREA			RURAL AREA			URBAN AREA			
	H	P	E	I	Cumulative % of	Percentages of	H	P	E	I	Cumulative % of	Percentages of	H	P	E	I	Cumulative % of	Percentages of	
Less than 50	3.2	1.2	2.2	0.5	3.2	1.2	2.2	0.6	0.6	0.6	0.5	0.5	0.2	0.8	0.5	0.5	0.2	0.5	0.2
50 - 100	19.4	13.3	15.2	7.8	22.6	14.5	17.4	8.4	8.4	8.4	11.7	12.3	7.0	16.7	11.8	6.8	17.5	17.5	8.1
100 - 150	25.4	23.8	22.9	16.3	48.0	38.3	40.3	24.7	23.4	23.4	33.8	34.2	23.4	26.4	21.9	16.4	43.9	43.9	8.1
150 - 200	18.7	19.3	18.5	16.7	66.7	57.6	58.8	41.4	20.7	20.7	54.4	55.2	41.5	20.9	20.6	18.1	64.8	64.8	19.3
200 - 250	11.2	12.5	11.8	12.8	77.9	70.1	70.6	54.2	13.0	13.0	66.7	66.3	56.7	13.6	15.3	15.3	78.4	78.4	20.7
250 - 300	8.5	10.6	10.6	11.9	86.4	80.7	81.2	65.1	14.2	14.2	78.5	79.7	66.3	7.1	8.6	9.2	85.5	85.5	14.9
300 - 400	6.4	8.3	8.4	11.4	92.8	89.0	89.6	77.5	15.8	15.8	89.1	90.2	79.6	7.7	10.6	10.5	93.2	93.2	9.7
400 - 500	3.2	4.4	4.3	7.8	96.0	93.4	93.9	84.9	17.0	17.0	96.0	96.3	84.9	2.5	4.0	3.7	99.1	99.1	11.4
500 - 700	2.5	4.2	3.9	7.7	98.5	97.6	97.8	82.6	18.5	18.5	97.6	97.8	82.6	0.7	1.2	1.3	99.6	99.6	5.7
700 - 900	0.9	1.5	1.3	3.7	99.4	99.1	99.1	96.3	19.0	19.0	99.1	99.0	99.0	0.1	0.2	0.1	99.9	99.9	7.2
900 & above	0.6	0.9	0.9	3.7	100.0	100.0	100.0	100.0	19.6	19.6	100.0	100.0	100.0	0.1	0.0	1.0	100.0	100.0	14.0
All Groups	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Monthly Household Income Groups (Rs.)	1963/1964						1966/1967						1968/1969						
Less than 50	1.3	0.5	0.9	0.3	1.3	0.5	0.9	0.3	0.3	0.3	0.5	0.9	0.3	0.8	0.5	0.5	0.2	0.5	0.2
50 - 100	15.0	9.9	10.7	6.3	16.3	10.4	11.6	6.6	6.6	6.6	11.7	12.3	7.0	16.7	11.8	6.8	17.5	17.5	8.1
100 - 150	28.3	23.9	25.0	18.6	44.6	34.3	36.6	23.2	23.2	23.2	33.8	34.2	23.4	26.4	21.9	16.4	43.9	43.9	19.3
150 - 200	21.1	21.8	20.9	19.2	65.7	56.1	57.5	44.4	44.4	44.4	54.4	55.2	41.5	20.9	20.6	18.1	64.8	64.8	20.7
200 - 250	14.0	15.9	15.8	16.3	79.7	72.0	73.3	60.6	60.6	60.6	66.7	66.3	56.7	13.6	15.3	15.3	78.4	78.4	14.9
250 - 300	7.5	9.0	8.3	10.7	87.2	81.0	81.6	71.4	71.4	71.4	78.5	79.7	66.3	7.1	8.6	9.2	85.5	85.5	14.9
300 - 400	7.6	11.0	10.6	13.5	94.8	92.0	92.2	84.9	84.9	84.9	89.1	90.2	79.6	7.7	10.6	10.5	93.2	93.2	9.7
400 - 500	2.9	4.3	4.4	6.6	97.7	96.3	96.6	91.5	91.5	91.5	96.0	96.3	84.9	2.5	4.0	3.7	99.1	99.1	11.4
500 - 750	1.8	2.9	2.7	5.3	99.5	99.2	99.3	96.8	96.8	96.8	99.6	99.8	98.5	0.7	1.2	1.3	99.6	99.6	5.7
750 - 1000	0.3	0.6	0.5	1.3	99.8	99.8	99.8	98.0	98.0	98.0	99.9	99.9	98.0	0.1	0.1	0.1	99.9	99.9	7.2
1000 - 1500	0.1	0.1	0.1	0.6	99.9	99.9	99.9	98.8	98.8	98.8	99.9	100.0	99.0	0.1	0.2	0.1	99.9	99.9	14.0
1500 - 2000	0.1	0.1	0.1	0.6	99.9	99.9	99.9	98.8	98.8	98.8	99.9	100.0	99.0	0.1	0.0	0.0	100.0	100.0	14.0
2000 & above	0.1	0.1	0.1	1.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.1	0.0	1.0	100.0	100.0	14.0
All Groups	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) less than 0.05

— DISTRIBUTION OF HOUSEHOLDS, POPULATION, EARNERS AND INCOME BY HOUSEHOLD INCOME GROUPS

URBAN AREA						TOTAL AREA					
1963/1964			1963/1964			1963/1964			1963/1964		
Percentages of		Cumulative % of		Percentages of		Cumulative % of		Percentages of		Cumulative % of	
H	P	E	I	H	P	E	I	H	P	E	I
1.2	0.4	0.9	0.2	1.2	0.4	0.9	0.2	2.8	0.9	1.6	0.5
12.6	7.4	9.4	4.2	13.8	7.8	10.3	4.4	17.9	10.5	12.6	6.9
23.4	19.6	19.5	12.3	27.4	29.8	29.8	16.7	25.0	22.0	21.4	15.3
29.2	20.1	19.8	14.0	57.4	47.5	49.6	31.3	19.0	19.7	19.1	16.1
13.0	14.9	14.0	12.1	70.5	62.2	63.6	43.4	11.6	13.6	12.7	12.6
7.7	9.2	8.8	8.8	78.1	71.6	72.4	52.2	8.3	9.9	9.8	11.1
9.4	11.2	11.1	13.3	87.5	88.2	83.5	65.5	7.0	9.6	9.6	11.8
4.5	6.3	6.3	8.4	92.0	89.1	89.8	73.9	3.5	5.3	5.2	7.7
3.9	4.9	5.1	9.5	95.9	94.0	94.9	83.4	2.8	4.5	4.4	8.2
2.1	3.1	2.4	7.0	98.0	97.1	97.3	90.4	1.2	2.2	1.8	4.7
2.0	2.9	2.7	9.6	100.0	100.0	100.0	100.0	0.9	1.8	1.8	5.1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

URBAN AREA						TOTAL AREA					
1966/1967			1966/1967			1966/1967			1966/1967		
Percentages of		Cumulative % of		Percentages of		Cumulative % of		Percentages of		Cumulative % of	
H	P	E	I	H	P	E	I	H	P	E	I
0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.7	0.4	0.3	0.1
8.1	4.8	6.4	2.4	8.3	4.9	6.5	2.4	14.6	9.6	7.8	5.4
19.3	14.3	16.0	8.5	27.6	19.2	22.5	10.9	24.6	20.1	17.8	13.9
20.7	18.2	18.5	12.7	48.3	37.4	41.0	23.6	20.8	20.0	20.2	16.4
14.9	15.5	15.2	11.7	63.2	52.9	56.2	35.3	13.9	15.3	14.8	14.1
9.7	10.6	10.5	9.4	72.9	63.5	66.7	44.7	7.7	9.3	10.5	9.5
11.4	14.0	13.0	13.9	84.3	77.5	79.7	58.6	8.6	11.4	12.6	13.4
5.7	7.8	7.2	9.0	90.0	85.3	86.9	67.6	4.0	6.0	6.3	8.0
5.7	8.0	7.6	11.9	95.7	93.3	94.5	79.5	3.3	5.0	5.9	8.9
2.0	3.2	2.6	6.1	97.7	96.5	97.1	85.6	1.0	1.7	2.3	3.9
1.2	1.8	1.7	5.1	98.9	98.3	98.8	90.7	0.4	0.6	0.9	2.1
0.5	0.7	0.6	3.0	99.4	99.0	99.4	93.7	0.2	0.3	0.4	1.6
0.6	1.0	0.6	6.3	100.0	100.0	100.0	100.0	0.2	0.3	0.4	2.7
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

URBAN AREA						TOTAL AREA					
1968/1969			1968/1969			1968/1969			1968/1969		
Percentages of		Cumulative % of		Percentages of		Cumulative % of		Percentages of		Cumulative % of	
H	P	E	I	H	P	E	I	H	P	E	I
0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.3	1.0	0.4	0.7	0.2
5.6	3.1	4.2	1.6	5.8	3.2	4.3	1.9	12.7	8.2	9.3	4.7
17.5	12.6	14.2	7.4	23.3	15.5	18.5	9.3	25.6	20.8	22.5	14.7
20.0	17.9	18.4	11.4	43.3	33.7	36.9	21.0	20.9	20.8	20.4	16.7
15.2	15.0	14.8	11.5	58.5	48.7	51.7	32.5	14.3	15.7	15.6	14.6
11.4	12.5	12.1	10.5	69.9	61.2	63.8	43.0	8.5	9.9	9.2	10.6
14.1	17.1	16.1	16.2	84.0	78.3	79.9	59.2	9.2	12.6	11.8	14.4
5.2	6.8	6.4	7.8	89.2	85.1	86.3	67.0	3.5	5.0	4.9	7.1
6.0	8.4	8.0	12.1	95.2	93.5	94.3	79.1	2.8	4.3	3.8	7.5
1.9	2.8	2.6	5.5	97.1	96.3	96.9	84.6	0.7	1.2	1.0	2.2
1.3	1.9	1.5	5.1	98.4	98.2	98.4	89.7	0.4	0.6	0.4	2.2
0.4	0.5	0.4	2.3	99.2	98.7	98.8	92.0	0.1	0.1	0.1	0.8
0.8	1.3	1.2	8.0	100.0	100.0	100.0	100.0	0.3	0.4	0.3	3.8
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>1</sup>apparent error, should be 89.7

## APPENDIX E (Continued)

## — Rural Area : Size Distribution of Household Income — 1963/64

Household Monthly Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	37.57	3.2	2.1	1.1
50 — 100 ..	77.85	19.4	3.8	1.2
100 — 150 ..	124.52	25.4	5.2	1.4
150 — 200 ..	173.33	18.7	5.7	1.6
200 — 250 ..	221.75	11.2	6.2	1.7
250 — 300 ..	272.04	8.5	6.8	2.0
300 — 400 ..	344.50	6.4	7.2	2.1
400 — 500 ..	450.73	3.2	7.7	2.1
500 — 700 ..	600.70	2.5	9.3	2.5
700 — 900 ..	803.11	0.9	9.4	2.4
900 & above ..	1153.83	0.6	8.6	2.3
All Groups ..	193.24	100.0	5.5	1.6

## — Urban Area : Size Distribution of Household Income — 1963/64

Household Monthly Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	42.05	1.2	2.0	1.2
50 — 100 ..	78.92	12.6	3.4	1.2
100 — 150 ..	123.44	23.4	4.9	1.3
150 — 200 ..	170.44	20.2	5.9	1.5
200 — 250 ..	219.54	13.0	6.8	1.7
250 — 300 ..	269.66	7.7	7.1	1.8
300 — 400 ..	338.70	9.4	7.0	1.9
400 — 500 ..	439.05	4.5	8.2	2.2
500 — 700 ..	575.71	3.9	7.4	2.0
700 — 900 ..	779.26	2.1	8.8	1.8
900 & above ..	1114.88	2.0	8.5	2.1
All Groups ..	253.88	100.0	5.9	1.6

## — Total Area : Size Distribution of Household Income — 1963/64

Household Monthly Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	38.02	2.8	2.1	1.1
50 — 100 ..	78.02	17.9	3.7	1.2
100 — 150 ..	124.30	25.0	5.1	1.4
150 — 200 ..	172.65	19.0	5.7	1.6
200 — 250 ..	221.20	11.6	6.3	1.7
250 — 300 ..	271.53	8.3	6.9	1.9
300 — 400 ..	342.78	7.0	7.2	2.0
400 — 500 ..	447.38	3.5	7.8	2.2
500 — 700 ..	593.30	2.8	8.7	2.3
700 — 900 ..	793.37	1.2	9.2	2.2
900 & above ..	1134.31	0.9	8.6	2.2
All Groups ..	202.63	100.0	5.6	1.6

## APPENDIX E (Continued)

*Rural Area : Size Distribution of Household Income — 1966/67*

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	41.20	0.8	3.1	1.1
50 — 100 ..	80.37	16.7	3.7	1.2
100 — 150 ..	123.45	26.4	4.7	1.4
150 — 200 ..	171.92	20.9	5.5	1.7
200 — 250 ..	221.69	13.6	6.2	1.9
250 — 300 ..	269.54	7.1	6.9	2.2
300 — 400 ..	343.02	7.7	7.7	2.3
400 — 500 ..	439.07	3.4	8.7	2.5
500 — 750 ..	597.10	2.5	8.9	2.5
750 — 1000 ..	844.05	0.7	10.6	3.3
1000 — 1500 ..	1158.67	0.1	5.7	1.7
1500 — 2000 ..	1714.22	0.1	8.0	2.0
2000 & above ..	4393.33	(a)	11.0	1.0
All Groups ..	198.36	100.0	5.6	1.7

(a) Less than 0.05

*— Urban Area : Size Distribution of Household Income — 1966/67*

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	34.44	0.2	2.3	1.0
50 — 100 ..	81.82	8.1	3.3	1.2
100 — 150 ..	123.26	19.3	4.2	1.3
150 — 200 ..	171.95	20.7	4.9	1.4
200 — 250 ..	220.79	14.9	5.9	1.6
250 — 300 ..	272.21	9.7	6.1	1.7
300 — 400 ..	341.87	11.4	6.9	1.8
400 — 500 ..	444.79	5.7	7.8	2.0
500 — 750 ..	586.85	5.7	8.0	2.1
750 — 1000 ..	841.71	2.0	8.8	2.0
1000 — 1500 ..	1155.40	1.2	8.4	2.1
1500 — 2000 ..	1624.13	0.5	8.1	1.9
2000 & above ..	3161.16	0.6	9.8	1.7
All Groups ..	280.50	100.0	5.6	1.6

*— Total Area : Size Distribution of Household Income — 1966/67*

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	40.69	0.7	3.1	1.1
50 — 100 ..	80.57	14.6	3.7	1.2
100 — 150 ..	123.42	24.6	4.6	1.4
150 — 200 ..	171.93	20.8	5.4	1.7
200 — 250 ..	221.46	13.9	6.1	1.8
250 — 300 ..	270.37	7.7	6.7	2.1
300 — 400 ..	343.65	8.6	7.4	2.2
400 — 500 ..	441.10	4.0	8.4	2.3
500 — 750 ..	592.68	3.3	8.5	2.3
750 — 1000 ..	842.87	1.0	9.7	2.7
1000 — 1500 ..	1156.12	0.4	7.8	2.0
1500 — 2000 ..	1660.60	0.2	8.1	1.9
2000 & above ..	3463.13	0.2	10.0	1.6
All Groups ..	218.71	100.0	5.6	1.7



## APPENDIX E (Continued)

## — Rural Area : Size Distribution of Household Income — 1968/69

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	40.03	1.3	20.1	1.2
50 — 100 ..	79.68	15.0	3.5	1.2
100 — 150 ..	124.85	28.3	4.5	1.5
150 — 200 ..	172.96	21.1	5.5	1.7
200 — 250 ..	221.70	14.0	6.1	2.0
250 — 300 ..	270.76	7.5	6.4	1.9
300 — 400 ..	339.11	7.6	7.8	2.4
400 — 500 ..	438.50 <sup>2</sup>	2.9	8.1	2.7
500 — 750 ..	576.02	1.8	8.6	2.5
750 — 1000 ..	833.88	0.3	11.8	3.0
1000 — 1500 ..	1319.00	0.1	7.0	1.7
1500 — 2000 ..	—	—	—	—
2000 & above. ..	2352.00	0.1	7.5	1.0
All Groups ..	189.87	100.0	5.4	1.7

## — Urban Area : Size Distribution of Household Income — 1968/69

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	40.00	0.2	3.3	1.3
50 — 100 ..	82.81	5.6	3.1	1.1
100 — 150 ..	123.40	17.6	4.0	1.2
150 — 200 ..	171.91	20.4	4.9	1.4
200 — 250 ..	221.19	15.2	5.5	1.5
250 — 300 ..	270.47	11.4	6.1	1.6
300 — 400 ..	337.47	14.1	6.7	1.7
400 — 500 ..	439.62	5.2	7.3	1.9
500 — 750 ..	592.13	6.0	7.9	2.0
750 — 1000 ..	851.50	1.9	8.4	2.1
1000 — 1500 ..	1160.12	1.3	8.2	1.7
1500 — 2000 ..	1689.65	0.4	7.5	1.4
2000 & above ..	2934.37	0.8	8.7	2.3
All Groups ..	293.43	100.0	5.6	1.5

## — Total Area : Size Distribution of Household Income — 1968/69

Monthly Household Income Groups (Rs.)	Average Income (Rs.)	Percentage of Households	Population per Household	Earners per Household
Less than 50 ..	40.03	1.0	2.2	1.2
50 — 100 ..	80.01	12.7	3.5	1.2
100 — 150 ..	124.61	25.6	4.4	1.5
150 — 200 ..	172.71	20.9	5.4	1.6
200 — 250 ..	221.57	14.3	6.0	1.8
250 — 300 ..	270.66	9.9	6.3	1.8
300 — 400 ..	338.50	8.5	7.4	2.2
400 — 500 ..	438.91	9.2	7.8	2.4
500 — 750 ..	576.65	3.5	8.2	2.3
750 — 1000 ..	845.72	2.8	9.5	2.4
1000 — 1500 ..	1193.22	0.4	7.9	1.7
1500 — 2000 ..	1689.65	0.1	7.5	1.4
2000 & above ..	2804.96	0.3	8.4	2.0
All Groups ..	215.06	100.0	5.4	1.7

<sup>1</sup>apparent error, should be 2.1

<sup>2</sup>apparent error, should be 560.22

Appendix F Distribution of Household, Population, Earners, and Income by Household Income  
Quartiles, Pakistan, Urban and Rural Combined, 1963/64

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	2.8	0.9	1		0.5			1.6	
50 - 100	20.7	11.4	15	15	7.6	10	10	14.2	18
100 - 150	45.7	33.4	38	23	22.7	26	16	35.6	22
150 - 200	64.7	53.1	65	27	38.8	50	23	54.7	26
200 - 250	76.3	66.7		35	51.4		50	67.4	34
250 - 300	84.6	76.6		100	62.5			77.2	100
300 - 400	91.6	86.2			74.3			86.8	
400 - 500	95.1	91.5			82.0			92.0	
500 -	97.9	96.0			90.2			96.4	
-	99.1	98.2			94.9			98.2	
	100	100			100			100	

Appendix F(Continued)  
 Pakistan, Urban and Rural Combined, 1966/67

Average Monthly Household Income Groups (Rs.)	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent Distribution of Earners	Per Cent of Earners in Household Quartiles
0 - 50	0.7	0.4			0.1			0.3	
50 - 100	15.3	10.0	18	18	5.5	11	11	8.1	15
100 - 150	39.9	30.1	40	22	19.4	27	16	25.7	24
150 - 200	60.7	50.1		26	35.8		23	45.9	26
200 - 250	74.6	65.4	66	<u>34</u>	49.9	50	<u>50</u>	60.7	<u>32</u>
250 - 300	82.3	74.7		100	59.4		100	71.2	101
300 - 400	90.9	86.1			72.8			83.8	
400 - 500	94.9	92.1			80.8			90.1	
500 -	98.2	97.1			89.7			96.0	
-	99.2	98.8			93.6			98.3	
-	99.6	99.4			95.7			99.2	
-	99.8	99.7			97.3			96.6	
	100	100			100			100	

Appendix F (Continued)  
Pakistan, Urban and Rural, Combined, 1968/69

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent of Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent of Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	1.0	0.4			0.2			0.7	
50 - 100	13.7	8.6	18	18	4.9	11	11	10.3	20
100 - 150	39.3	29.4	40	22	19.6	28	17	32.5	23
150 - 200	60.2	50.2	66	26	36.6		23	52.9	26
200 - 250	74.5	65.9		34	50.9	51	49	68.5	31
250 - 300	83.0	75.8			61.5			77.7	
300 - 400	92.9	88.4			75.9			89.5	
400 - 500	95.7	93.4			83.0			94.4	
500 -	98.5	97.7			90.5			98.2	
-	99.2	98.9			93.2			99.2	
-	99.6	99.5			95.4			99.6	
-	99.7	99.6			96.2			99.7	
	100	100			100			100	



Appendix F (Continued)  
Pakistan, Rural, 1963/64

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	3.2	1.2			0.6			2.2	
50 - 100	22.6	14.5	17	17	8.4	10	10	17.4	20
100 - 150	48.0	38.3	40	24	24.7	27	17	40.3	22
150 - 200	66.7	57.6	67	27	41.4	51	24	58.8	25
200 - 250	77.9	70.1		<u>33</u>	54.2		<u>49</u>	70.6	<u>32</u>
250 - 300	86.4	80.7		101	66.1		100	81.2	99
300 - 400	92.8	89.0			77.5			89.6	
400 - 500	96.0	93.4			84.9			93.9	
500 -	98.5	97.6			92.6			97.8	
-	99.4	99.1			96.3			99.1	
	100	100			100			100	

Appendix F(Continued)  
Pakistan, Rural, 1966/67

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent of Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent of Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	0.8	0.5			0.2			0.5	
50 - 100	17.5	11.7	18	18	7.0	12	12	12.3	19
100 - 150	43.9	33.8	38	20	23.4	29	17	34.2	22
150 - 200	64.8	54.4	66	28	41.5	53	24	55.2	26
200 - 250	78.4	69.7		<u>34</u>	56.7		<u>47</u>	70.5	<u>33</u>
250 - 300	85.5	78.5		100	66.3		100	79.7	100
300 - 400	93.2	89.1			79.6			90.2	
400 - 500	96.6	94.4			87.1			94.8	
500 -	99.1	98.4			94.5			98.5	
-	99.8	99.6			97.3			99.8	
-	99.9	99.7			98.0			99.9	
-	99.9	99.9			99.0			100	
-	100	100			100			100	

Appendix F(Continued)  
Pakistan, Rural, 1968/69

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	1.3	0.5			0.3			0.9	
50 - 100	16.3	10.4	18	18	6.6	12	12	11.6	19
100 - 150	44.6	34.3	40	22	25.2	30	18	36.6	23
150 - 200	65.7	56.1	67	27	44.4	56	26	57.5	26
200 - 250	79.7	72.0		<u>33</u>	60.6		<u>44</u>	73.3	<u>32</u>
250 - 300	87.2	81.0		100	71.4		100	81.6	100
300 - 400	94.8	92.0			84.9			92.2	
400 - 500	97.7	96.3			91.5			96.6	
500 -	99.5	99.2			96.8			99.3	
-	99.8	99.8			98.0			99.8	
-	99.9	99.9			98.8			99.9	
-	99.9	99.9			99.0			99.9	
-	100	100			100			100	

Appendix F(Continued)  
Pakistan, Urban, 1966/67

Average Monthly Household Income Groups	Cumulative Per Cent of Households	Cumulative Per Cent of Population	Inter-polation Points	Per Cent of Population in Household Quartiles	Cumulative Per Cent Distribution of Income	Inter-polation Points	Per Cent of Income in Household Quartiles	Cumulative Per Cent Distribution of Earners	Per Cent of Earners in Household Quartiles
(Rs.)									
0 - 50	0.2	0.1			0.0			0.1	
50 - 100	8.3	4.9	17	17	2.4	10	10	6.5	20
100 - 150	27.6	19.2	39	22	10.9	25	15	22.5	23
150 - 200	48.3	37.4	66	27	23.6	47	22	41.0	26
200 - 250	63.2	52.9		34	35.3		53	56.2	31
250 - 300	72.9	63.5			44.7			66.7	
300 - 400	84.3	77.5		100	58.6		100	79.7	100
400 - 500	90.0	85.3			67.6			86.9	
500 -	95.7	93.3			79.5			94.5	
-	97.7	96.5			85.6			97.1	
	98.9	98.3			90.7			98.8	
	99.4	99.0			93.7			99.4	
	100.	100			100			100	

## APPENDIX G

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Rural Pakistan, 1963/64

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	2.1		37.57	17.89		
50 - 100	3.8	0.8095	77.85	20.5	0.1459	5.5483
100 - 150	5.2	0.3684	124.52	23.95	0.1683	2.1889
150 - 200	5.7	0.0962	173.33	30.41	0.2697	0.3567
200 - 250	6.2	0.0877	221.75	35.77	0.1763	0.4974
250 - 300	6.8	0.0968	272.04	40.01	0.1185	0.8169
300 - 400	7.2	0.0588	344.50	46.46	0.1612	0.3648
400 - 500	7.7	0.0694	450.73	58.54	0.2600	0.2669
500 - 700	9.3	0.2078	600.70	64.59	0.1033	2.0116
700 - 900	9.4	0.0108	803.11	85.44	0.3228	0.0335
900 - Plus	8.6	-0.0851	1153.83	134.16	0.5702	-0.1492
<b>All Groups</b>	<b>5.5</b>		<b>193.24</b>			

## APPENDIX G (Continued)

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Rural Pakistan, 1966/67

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	3.1		41.20	13.3		
50 - 100	3.7	0.1935	80.37	21.7	0.6316	0.3064
100 - 150	4.7	0.2703	123.45	26.3	0.2120	1.2754
150 - 200	5.5	0.1702	171.92	31.3	0.1901	0.8953
200 - 250	6.2	0.1273	221.69	35.8	0.1438	0.8854
250 - 300	6.9	0.1129	269.54	39.1	0.9218	1.2248
300 - 400	7.7	0.1159	343.02	44.5	0.1381	0.8392
400 - 500	8.7	0.1299	439.07	50.5	0.1348	0.9634
500 - 750	8.9	0.0230	597.10	67.1	0.3287	0.0700
750 - 1000	10.6	0.1910	844.05	79.6	0.1863	1.0253
1000 - 1500	5.7	-0.4623	1158.67	203.3	1.5540	-0.2975
1500 - 2000	8.0	0.4035	1714.22	214.3	0.0541	7.4574
2000 - Plus	11.0	0.375	4393.33	399.4	0.8619	0.4351
All Groups	5.6		198.36	35.4		

## APPENDIX G (Continued)

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Rural Pakistan, 1968/69

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	2.1		40.03	19.1		
50 - 100	3.5	0.6667	79.68	22.8	0.1937	0.2906
100 - 150	4.5	0.2857	124.85	27.7	0.2149	1.3294
150 - 200	5.5	0.2222	172.96	31.4	0.1336	1.6637
200 - 250	6.1	0.1091	221.70	36.3	0.1561	0.6991
250 - 300	6.4	0.0492	270.76	42.3	0.1653	0.2975
300 - 400	7.8	0.2188	339.11	43.5	0.0284	7.7109
400 - 500	8.1	0.3846	438.50	54.1	0.2437	0.1578
500 - 750	8.6	0.0617	260.22	30.3	-0.4399	-0.1403
750 - 1000	11.8	0.3721	833.88	70.7	1.3333	0.2791
1000 - 1500	7.0	-0.3636	1319.00	188.4	1.6648	-0.2184
1500 - 2000	-		-			
2000 - Plus	7.5		2352.00			
All Groups	5.4		189.87			

## APPENDIX G (Continued)

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Urban Pakistan, 1963/64

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	2.0		42.05	21.0		
50 - 100	3.4	0.7000	78.92	23.2	0.8768	0.7983
100 - 150	4.9	0.4412	123.44	25.2	0.0862	5.1176
150 - 200	5.9	0.2041	170.44	28.9	0.1468	1.3900
200 - 250	6.8	0.1525	219.54	32.3	0.1176	1.2966
250 - 300	7.1	0.0441	269.66	38.0	0.1765	0.2500
300 - 400	7.0	0.9859	338.70	48.4	0.2737	3.600
400 - 500	8.2	0.1714	439.05	53.5	0.1054	1.6269
500 - 700	7.4	-0.0976	575.71	77.8	0.4542	-0.2148
700 - 900	8.8	0.1892	779.26	88.6	0.1388	1.3630
900 - P.M.s	8.5	-0.0341	1114.88	131.2	0.4808	-0.0709
All Groups	5.9		253.88			



## APPENDIX G (Continued)

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Urban Pakistan, 1966/67

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	2.3		34.44	15.0		
50 - 100	3.3	0.4348	81.82	24.8	0.6533	0.6655
100 - 150	4.2	0.2727	123.26	29.3	0.1815	1.5030
150 - 200	4.9	0.1667	171.95	35.1	0.1980	0.8420
200 - 250	5.9	0.2041	220.79	37.4	0.0655	3.1145
250 - 300	6.1	0.3390	272.21	44.6	0.1925	0.1761
300 - 400	6.9	0.1311	341.87	49.5	0.1099	1.1937
400 - 500	7.8	0.1304	444.79	57.0	0.1515	0.8609
500 - 750	8.0	0.0256	586.85	73.4	0.2787	0.0920
750 - 1000	8.8	0.1000	841.71	95.6	0.3025	0.3306
1000 - 1500	8.4	-0.0455	1155.40	137.5	0.4383	-0.1037
1500 - 2000	8.1	-0.0357	1624.13	200.5	0.4582	-0.7795
2000 - Plus	9.8	0.2099	3161.16	322.6	0.6090	0.3447
All Groups	5.6		280.50	50.1		

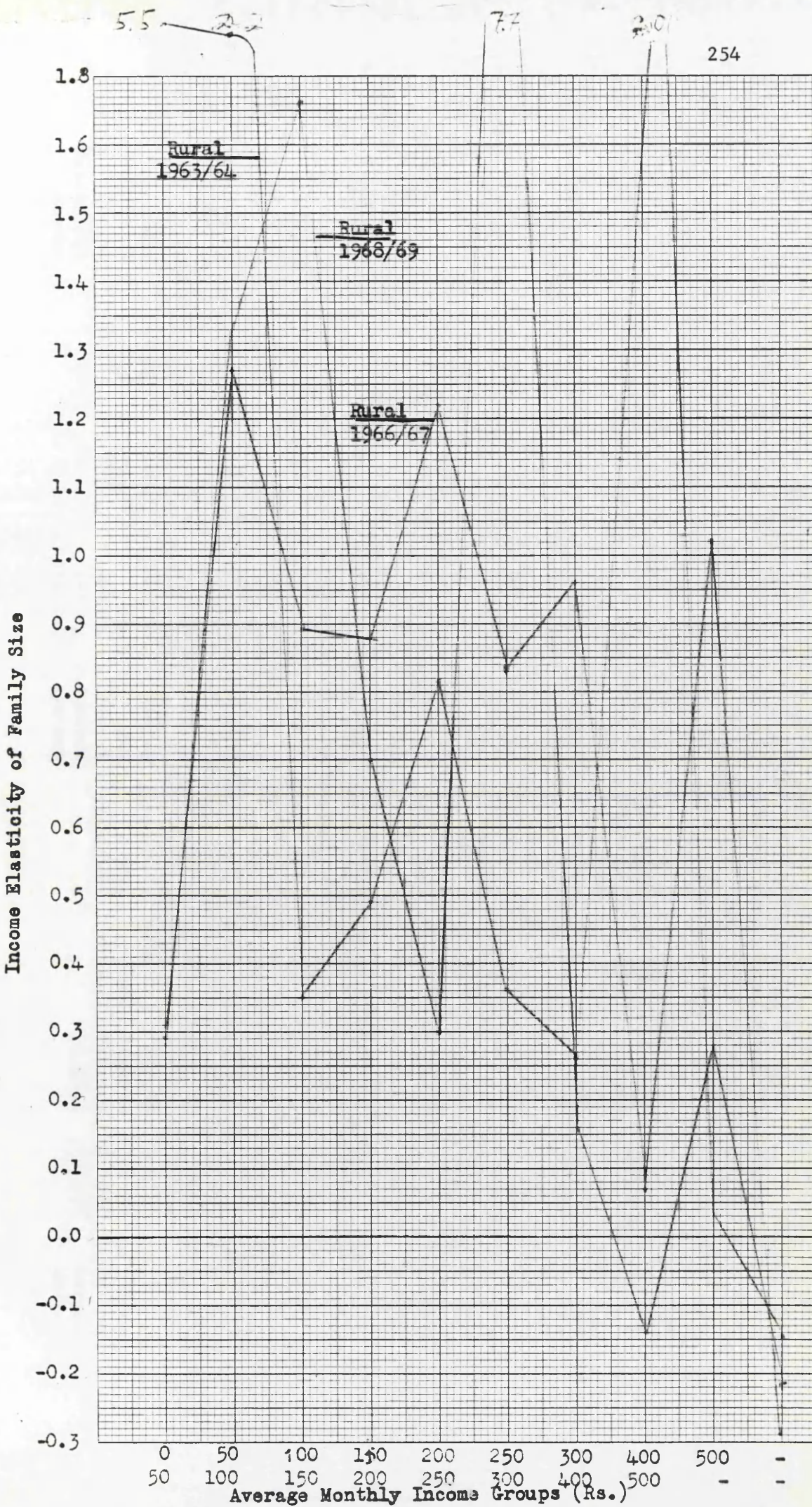
## APPENDIX G (Continued)

The Calculation of Income Elasticity of Household Size  $\eta_i$   
Using Period (Arc) Data, Urban Pakistan, 1968/69

Monthly Household Income Groups (Rs.)	Persons Per Household $X_i$	$\frac{X_{n+1}}{X_n} - 1$	Average Monthly Household Income (Rs.)	Monthly Household Income Per Person $Y_i$	$\frac{Y_{n+1}}{Y_n} - 1$	Income Elasticity of Household Size $\eta_i$
0 - 50	3.3		40.00	12.1		
50 - 100	3.1	-0.0606	82.81	26.7	1.2066	-0.0502
100 - 150	4.0	0.2903	123.40	30.9	0.1573	0.1845
150 - 200	4.9	0.225	171.91	35.1	0.1359	1.6553
200 - 250	5.5	0.1224	221.19	40.2	0.1453	0.8427
250 - 300	6.1	0.1091	270.47	44.3	0.1020	1.0696
300 - 400	6.7	0.0984	337.47	50.4	0.1377	0.7143
400 - 500	7.3	0.0896	439.62	60.2	0.1944	0.4606
500 - 750	7.9	0.0822	592.13	75.0	0.2458	0.3343
750 - 1000	8.4	0.0633	851.50	101.4	0.352	0.1798
1000 - 1500	8.2	-0.0238	1160.12	141.5	0.3955	-0.0602
1500 - 2000	7.5	-0.0854	1689.65	225.3	0.5922	-0.1441
2000 - Plus	8.7	0.1600	2934.37	337.7	0.4971	0.3219
<b>All Groups</b>	<b>5.6</b>		<b>293.43</b>	<b>52.4</b>		

APPENDIX H

Income Elasticity of Family Size Calculated from Period Data  
 By Average Monthly Income Groups (Rs.) Pakistan, Rural  
 1963/64, 1966/67, 1968/69



Appendix I  
The Calculation of the Income Elasticity of Family Size  $\eta_i$   
from Time Series Data, Rural Pakistan, 1966/67 to 1968/69<sup>1</sup>

Average Monthly Household Income Groups (Rs.)	1966/67 Average Monthly Income (Rs.)	1968/69 Average Monthly Income (Rs.)	Persons Per Household $X_{1966}$	Persons Per Household $X_{1968}$	Monthly Household Income Per Person $Y_{1966}$	Monthly Household Income Per Person $Y_{1968}$	$\frac{Y_{1968}}{Y_{1966}} - 1$	$\frac{X_{1968}}{X_{1966}} - 1$	Income Elasticity of Household Size
Less 50	41.20	40.03	3.1	2.1	13.29	19.06	0.434	-0.323	-0.744
50-100	80.37	79.68	3.7	3.5	21.72	22.77	0.049	-0.055	-1.122
100-150	123.45	124.85	4.7	4.5	26.27	27.74	0.056	-0.043	-0.768
150-200	171.92	172.96	5.5	5.5	31.26	31.45	0.006	0.0	0.0
200-250	221.69	221.70	6.2	6.1	35.76	36.34	0.017	-0.017	-1.0
250-300	269.54	270.76	6.9	6.4	39.06	42.39	0.086	-0.072	-0.838
300-400	343.02	339.11	7.7	7.8	44.55	43.48	-0.025	0.013	-0.52
400-500	439.07	438.50	8.7	8.1	50.47	54.14	0.073	-0.069	-0.945
500-	597.10	560.22	8.9 <sup>1</sup>	8.6	67.09 <sup>1</sup>	65.14	-0.030		
-	844.05	833.88	10.6	11.8	79.63	70.67			
-	1158.67	1319.00	5.7	7.0	203.28	188.43			
	1714.22	-	8.0	-	214.28	-			
	4393.33	2352.00	11.0	7.5	399.34	313.6			
All Groups	198.36	189.87	5.6	5.4	35.42	35.16			

## Appendix I

The Calculation of the Income Elasticity of Family Size  $\lambda_i$   
from Time Series Data, Rural Pakistan, 1963/64 to 1966/67

Average Monthly Household Income Groups (Rs.)	1963/64	1966/67	1963	1966	Monthly Household Income Per Person		Monthly Household Income Per Person		$\frac{Y_{1966} - 1}{Y_{1963}}$	$\frac{X_{1966} - 1}{X_{1963}}$	Income Elasticity of Household Size $\lambda_i$
	Average Monthly Income (Rs.)	Average Monthly Income (Rs.)	Persons Per Household X	Persons Per Household X	Per Person Y	Per Person Y	Per Person Y	Per Person Y			
Less 50	37.57	41.20	2.1	3.1	17.89	13.29	-0.258	0.476	-1.845		
50-100	77.85	80.37	3.8	3.7	20.5	21.72	0.095	-0.026	-0.274		
100-150	124.52	123.45	5.2	4.7	23.95	26.27	0.097	-0.097	-1.00		
150-200	173.33	171.92	5.7	5.5	30.41	31.26	0.028	-0.036	-1.286		
200-250	221.75	221.69	6.2	6.2	35.77	35.76	0.00	0.0	0.0		
250-300	272.04	269.54	6.8	6.9	40.01	39.06	-0.024	0.015	-0.625		
300-400	344.50	343.02	7.2	7.7	46.46	44.55	-0.041	0.069	-1.688		
400-500	450.73	439.07	7.7	8.7	58.54	50.47	-0.138	0.130	-0.943		
500-	600.70	597.10	9.3	8.9	64.59	67.09	0.039	-0.044			
-	803.11	844.05	9.4	10.6	85.44	79.63	-0.069	0.128			
-	1153.83	1158.67	8.6	5.7	134.16	203.28					
		1714.22		8.0		214.28					
		4393.33		11.0		399.39					
All Groups	193.24	198.36	5.5	5.6	35.13	35.42					

Appendix I

The Calculation of the Income Elasticity of Family Size  $\eta_i$  from Time Series Data, Urban Pakistan, 1963/64 to 1968/69

Average Monthly Household Income Groups (Rs.)	1963/64 Average Monthly Income (Rs.)	1968/69 Average Monthly Income (Rs.)	Persons Per Household $X_{1963}$	Persons Per Household $X_{1968}$	Monthly Household Income Per Person $Y_{1963}$	Monthly Household Income Per Person $Y_{1968}$	$\frac{Y_{1968}}{Y_{1963}} - 1$	$\frac{X_{1968}}{X_{1963}} - 1$	Income Elasticity of Household Size
Less 50	42.05	40.00	2.0	3.3	21.03	12.12	-0.424	0.650	-1.540
50-100	78.92	82.81	3.4	3.1	23.21	26.71	0.151	-0.089	-0.590
100-150	123.44	123.40	4.9	4.0	25.19	30.85	0.225	-0.184	-0.818
150-200	170.44	171.91	5.9	4.9	28.89	35.01	0.212	-0.169	-0.797
200-250	219.54	221.19	6.8	5.5	32.29	40.22	0.246	-0.191	-0.776
250-300	269.66	270.47	7.1	6.1	37.98	44.34	0.167	-0.141	-0.845
300-400	338.70	337.47	7.0	6.7	48.39	50.37	0.041	-0.043	-1.050
400-500	439.05	439.62	8.2	7.3	53.54	60.23	0.125	-0.108	-0.864
500-	575.71	592.13	7.4	7.9	77.75	74.95	-0.036	0.068	-1.877
-	779.26	851.50	8.8	8.4	88.55	101.37	0.145	-0.046	-0.313
-	1114.88	1160.12	8.5	8.2	131.76	141.48	0.074	-0.036	-0.477
		1689.65		7.5		225.79			
		2934.37		8.7		337.78			
All Groups	253.88	293.43	5.9	5.6	43.07	52.40			

Appendix I  
The Calculation of the Income Elasticity of Family Size  $\eta_1$   
from Time Series Data, Urban Pakistan, 1963/64 to 1966/67

Average Monthly Household Income Groups (Rs.)	1963/64 Average Monthly Income (Rs.)	1966/67 Average Monthly Income (Rs.)	Persons Per Household $X_{1963}$	Persons Per Household $X_{1966}$	Monthly Household Income Per Person $Y_{1963}$	Monthly Household Income Per Person $Y_{1966}$	$\frac{Y_{1966}}{Y_{1963}} - 1$	$\frac{X_{1966}}{X_{1963}} - 1$	Income Elasticity of Household Size
Less 50	42.05	34.44	2.0	2.3	21.03	14.97	-0.289	0.15	-0.519
50-100	78.92	81.82	3.4	3.3	23.21	24.79	0.069	-0.029	-0.421
100-150	123.44	123.26	4.9	4.2	25.19	29.35	0.165	-0.143	-0.867
150-200	170.44	171.95	5.9	4.9	28.89	35.09	0.215	-0.169	-0.787
200-250	219.54	220.79	6.8	5.9	32.29	37.42	0.159	-0.132	-0.830
250-300	269.66	272.21	7.1	6.1	37.98	44.62	0.175	-0.141	-0.806
300-400	338.70	341.87	7.0	6.9	48.39	49.55	0.024	-0.015	-0.625
400-500	439.05	444.79	8.2	7.8	53.54	57.02	0.065	-0.049	-0.754
500-	575.71	586.85	7.4	8.0	77.75	73.36 <sup>1</sup>	-0.056	0.081	-1.448
-	779.26	841.71	8.8	8.8	88.55	95.65	0.082	0.0	
-	1114.88	1155.40	8.5	8.4	131.76	137.55	0.044		
		1624.13		8.1		200.51			
		3161.16		9.8		322.57			
All Groups	253.88	280.50	5.9	5.6	43.07	50.09			

Appendix I  
The Calculation of the Income Elasticity of Family Size  $\eta_i$   
from Time Series Data, Urban Pakistan, 1966/67 to 1968/69

Average Monthly Household Income Groups (Rs.)	1966/67 Average Monthly Income (Rs.)	1968/69 Average Monthly Income (Rs.)	Persons Per Household $X_{1966}$	Persons Per Household $X_{1968}$	Monthly Household Income Per Person $Y_{1966}$	Monthly Household Income Per Person $Y_{1968}$	$\frac{Y_{1968}}{Y_{1966}} - 1$	$\frac{X_{1968}}{X_{1966}} - 1$	Income Elasticity of Household Size
Less 50	34.44	40.00	2.3	3.3	14.97	12.12	-0.191	0.435	-2.276
50-100	81.82	82.81	3.3	3.1	24.79	26.71	0.077	-0.061	-0.792
100-150	123.26	123.40	4.2	4.0	29.35	30.85	0.0511	-0.048	-0.940
150-200	171.95	171.91	4.9	4.9	35.09	35.01	-0.002	0.0	-
200-250	220.79	221.19	5.9	5.5	37.42	40.22	0.075	-0.068	-0.907
250-300	272.21	270.47	6.1	6.1	44.62	44.34	-0.006	0.0	-
300-400	341.87	337.47	6.9	6.7	49.55	50.37	0.017	-0.029	-1.706
400-500	444.79	439.62	7.8	7.3	57.02	60.23	0.057	-0.064	-1.124
500-	586.85	592.13	8.0	7.9	73.36 <sup>1</sup>	74.95			
-	841.71	851.50	8.8	8.4	95.65	101.37			
-	1155.40	1160.12	8.4	8.2	137.55	141.48			
	1624.13	1689.65	8.1	7.5	200.51	225.79			
	3161.16	2934.37	9.8	8.7	322.57	337.78			
	280.50	293.43	5.6	5.6	50.09	52.40			