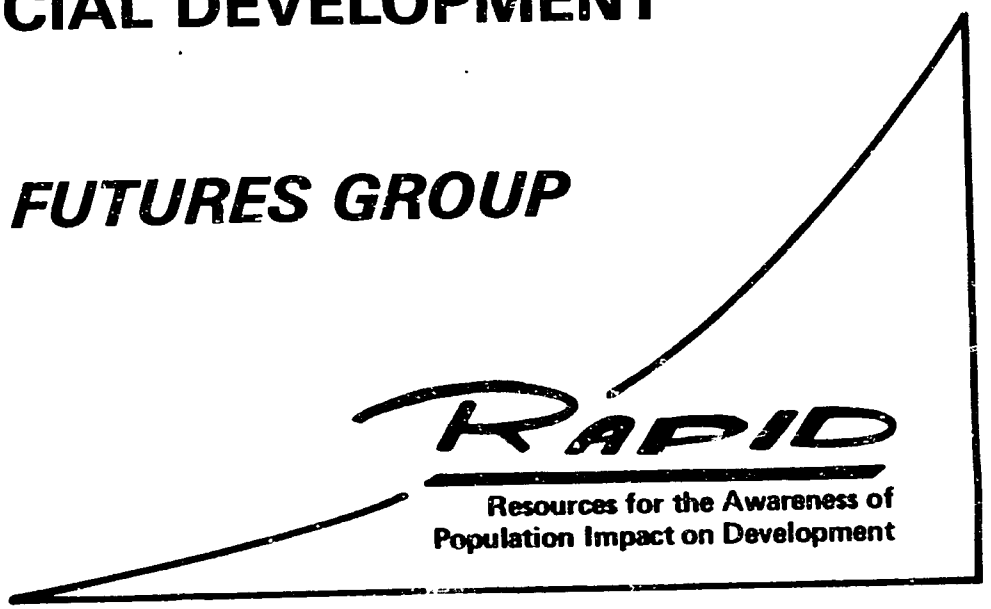
Jordan

THE EFFECTS OF POPULATION ON ECONOMIC AND SOCIAL DEVELOPMENT

THE FUTURES GROUP



PREFACE

The Futures Group, under contract to the United States Agency for International Development (A.I.D.), is undertaking analyses for a number of countries regarding the effects of population factors on the efforts of these countries to achieve their economic and social goals. These analyses are being carried out for several countries that have specific development plans and are seriously determined to make substantial economic and social progress. In each case, these analyses are offered to national leaders for consideration, and the country's own experts are encouraged to perform comparable research.

INTRODUCTION

The World Population Plan of Action, adopted by 136 countries including Jordan and the United States at the World Population Conference in Bucharest in 1974, recognized as a principle that "population and development are interrelated: population variables influence development variables and are also influenced by them" (Paragraph 14-C). The Plan of Action also declares that "population measures should be integrated into comprehensive social and economic plans and programmes and this integration should be reflected in the goals, instrumentalities, and organizations for planning within the countries" (Paragraph 95).

Population is, of course, only one element to be considered in the development process. However, it has a very special importance since the ultimate purpose of economic development is not simply to increase the total goods and services produced--the gross national product (GNP)--but to increase the standard of living and quality of life of the individual, including the value of goods and services available per person.

GNP per capita can be raised by increasing the rate of production of goods and services or by slowing the increase of population--or, most effectively, by doing both. Where there is a rapid increase in population and government attention is given only to increasing the output of goods and services, the increase in GNP per capita may be limited or even nonexistent, and attainment of goals for improving the quality of life of the individual citizen may be difficult and long delayed. However, where attention also is given to slowing population growth, the effort to reach development goals for the welfare of the individual will generally be more successful.

King Hussein's signing of the World Leader's Declaration on Population in 1966 attests to his concern with the problems associated with rapid population growth. These problems are also clearly recognized in the Jordanian Government's 1975 report entitled Country Statement Concerning Population Change and Development:

> Despite the marked increase in recent years in per capita gross national product and the ambitious goals of the 3-year program (1973-1975), an important consideration is whether, in the face of the present and future prospects of population growth in Jordan, increases in GNP may be continued to realize a decent level of living to the common man, and to achieve the high aspirations of the Three Year Plan.... (T)he population element must be related to such goals as better education, full employment, and improvement of general well-being of the population, including the health of mothers and children.

Jordan's carefully organized development program has specific objectives. It is important to consider several questions concerning how these objectives may be altered by population factors. For example, what demographic factors can affect Jordan's goals for

trained manpower and employment?
water requirements and availability?
food needs and agricultural production?
urban housing?
education for all children?
the health of the population?

For each of these questions it is also relevant to consider how much difference a program to slow population growth would make in raising the social, economic, and health conditions of the population and in enabling families to attain their ideal size.

Population Dynamics

Birth Rates, Death Rates, Migration, and Population Growth

Age Distribution and Child Dependency

The Momentum of Population Growth

Population Growth Under Different Fertility Assumptions

BIRTH RATES, DEATH RATES, MIGRATION AND POPULATION GROWTH

The recent Census of Population and Housing reported that the population of the East Bank was 2,152,000 people in 1979. This is an increase of 1.25 million people, or 139 percent since the last census in 1961. The rapid increase has resulted from a high rate of natural increase and large-scale migration both into and out of the country.

Fertility

The total fertility rate (the average number of births per woman during her reproductive years) is quite high in Jordan. The 1976 Jordan Fertility Survey reported a fertility rate of about 7½. Although fertility has apparently declined from about 9 in the early 1960s, it is still the second or third highest rate in the world. It is over 9 among women in rural areas and 6.5 to 7.0 for those in cities and towns. Due to these high fertility rates, the birth rate (the number of births per 1,000 population) has remained very high, between 45 and 50 for the last 20 years.

Mortality

The death rate (the number of deaths per 1,000 population) has been steadily declining due to improved sanitation and health care. It has dropped from about 19 in 1961 to about 9 today. Life expectancy at birth has increased from about 49 years in 1961 to 61 years for males and 64 years for females today.

Migration

Population change in Jordan has been marked by large flows of people into and out of the country. Between 1961 and 1979 migration into the East Bank from the West Bank added about 700,000 to the population. At the same time the outflow of Jordanian workers to the Gulf states resulted in about 500,000 people leaving the East Bank during this period. In addition the influx of foreign workers, from Egypt, Syria and other countries, to take jobs vacated by workers going abroad has added about 180,000 people to the population of the East Bank. It appears that these flows are about balanced today; the number of migrants entering the East Bank is approximately the same as the number of workers and their dependents leaving each year.

Population Growth

The high birth rate combined with steadily declining death rate has resulted in an increase in the rate of natural growth of the population. It was growing at about 2½ percent in 1950, over 3 percent by 1961, and over 3½ percent today. Migration has added another 1 percent or so to the population during 1961 to 1979, so that the population increased by an average annual rate of 4.8 percent. A continued decline in the death rate as health conditions improve could push the natural growth rate over 4 percent per year in the future if birth rates remain high. This alone would cause the population to double in less than 18 years. Increased migration from the West Bank or return of workers from the Gulf states could accelerate this growth even more.

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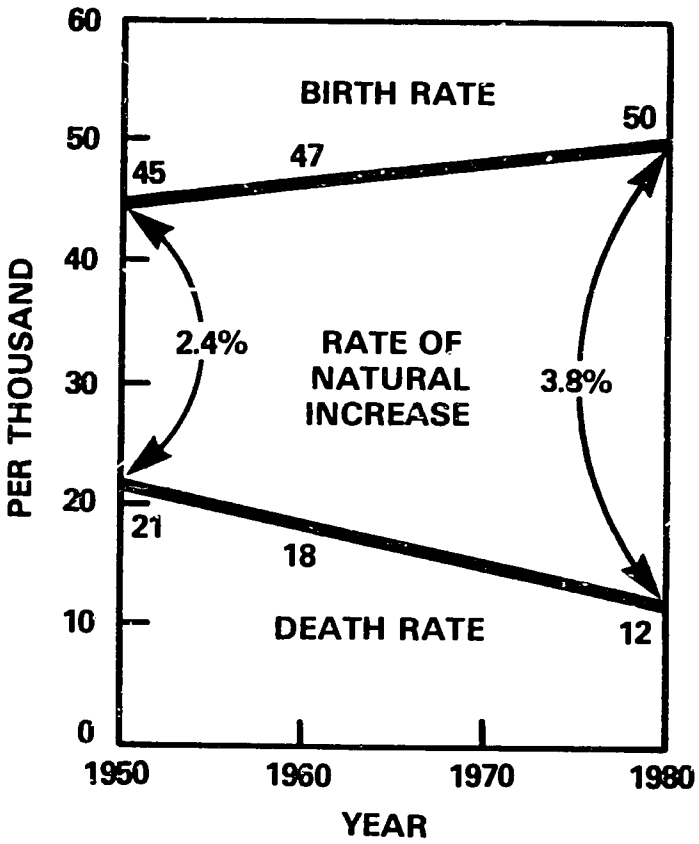
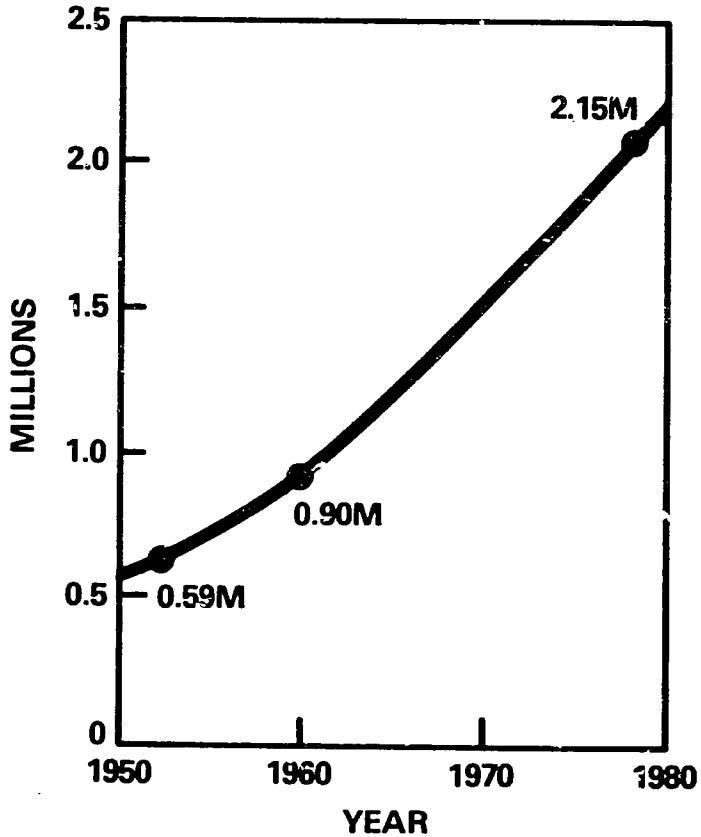
Birth Rates, Death Rates and Rates of Natural Increase



Historical Population Growth on the East Bank



AGE DISTRIBUTION AND CHILD DEPENDENCY

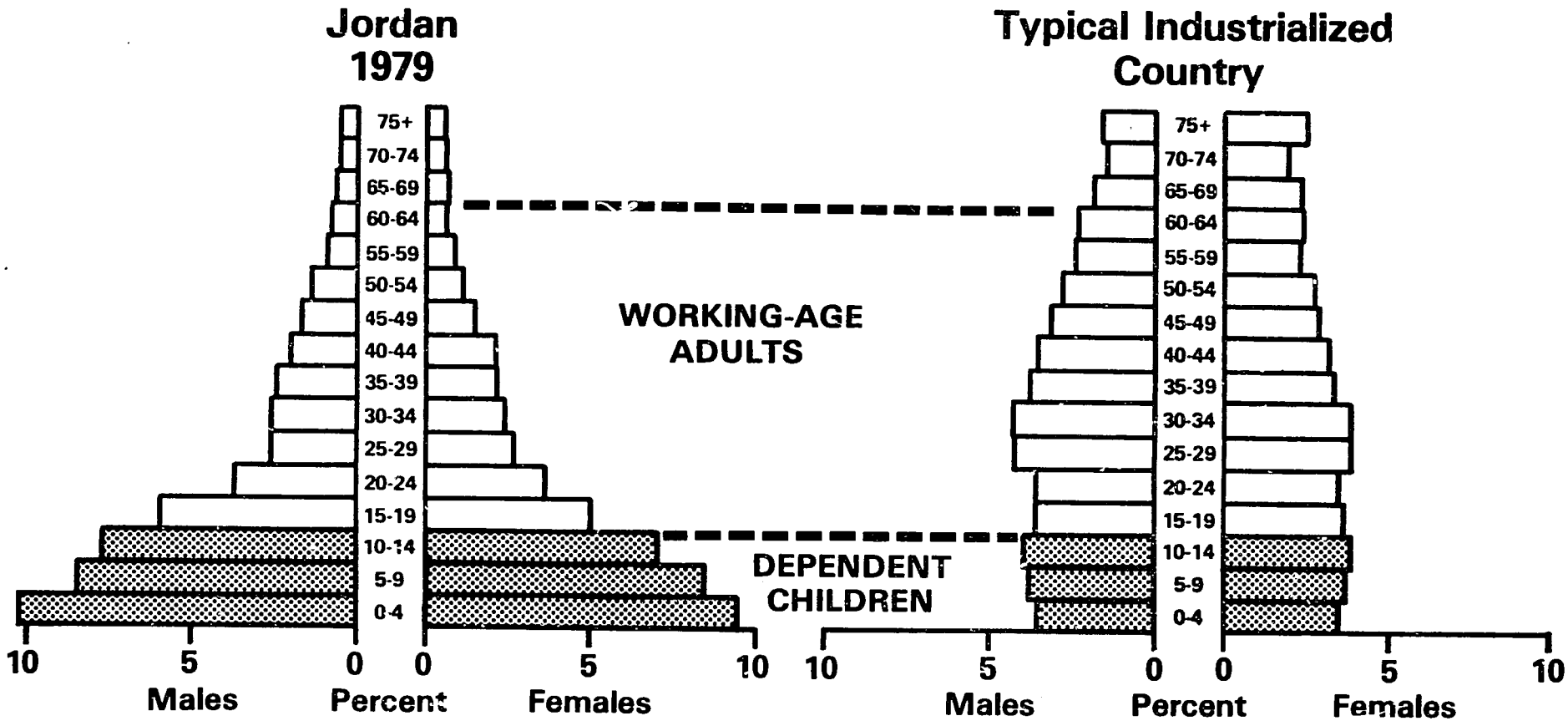
Due to rapid growth in the past, Jordan has a large percentage of children in its population. Approximately 52 percent of the populace are under the age of 15. Consequently, Jordan has a very high child dependency ratio (the ratio of children under 15 to adults in the economically productive ages, 15-64). There is slightly less than one adult of working age to support every child under 15. By contrast, in a typical industrial country there are 2-3 working-age adults for every dependent child.

Fertility levels will largely determine the child dependency rates in the future.

> If fertility remains near its present levels, the child dependency ratio will remain at about 1 adult for every child.
>
> If fertility declines substantially, reaching 4 by 2000, the child dependency ratio will imrpove to about 1½ adults per child by 2000 and to about 2 adults per child by 2025.

The importance of these ratios varies according to the sector of society. Rural families often view a large number of children as an asset since they can begin to contribute to work in the fields at an early age. In most situations, though, children probably do not increase production by as much as they consume until they reach the age of 10-15. However, 60 percent of Jordan's population now live in urban areas, and in the urban sector, children must be supported by the family until they complete their education and secure employment. Thus, as a nation develops socially and economically, a high child dependency ratio strains the resources of individual households. High dependency ratios may also affect social and economic development programs. With a large, dependent population, a disproportionate share of public and private resources must be devoted to the needs of the young. Hence, a significant reduction in the child dependency ratio can release substantial sums for investment in other development sectors.

Age Distribution and Child Dependency



For each dependent child in Jordan there is less than 1 working age adult.

For each dependent child in most industrialized countries there are 2 to 3 working age adults per dependent child.

THE MOMENTUM OF POPULATION GROWTH

Should fertility decline from the present average of approximately 7.8 children per woman to a replacement level of slightly more than 2 children per woman, the population will nonetheless continue to grow for several decades. Limiting family size to two children means that eventually the population will reach a zero growth rate; however, a long delay exists between the time women begin averaging two children and population growth stops.

The lag of about 40 years is due to the age composition of the population. Where fertility has been high, as in the case of Jordan, the population is composed of a proportionately large number of young people and a proportionately small number of older persons. Consequently, the number of young women entering their reproductive years exceeds the number moving out of their reproductive years. Even if young couples limit themselves to two offspring, more births will occur than deaths for about 40 years, and the population will continue to grow until the disproportion in the number of young people disappears.

This irresistible momentum is important because it means that the population of Jordan will be much larger in the future than it is today no matter what happens to the birth rate. For example, were Jordan to attain replacement level fertility or about a 2-child family average by the year 2000--an unlikely occurrence--the population would still grow from 3.5 million in that year to more than 4.4 million over the next several decades because of this built-in population momentum.

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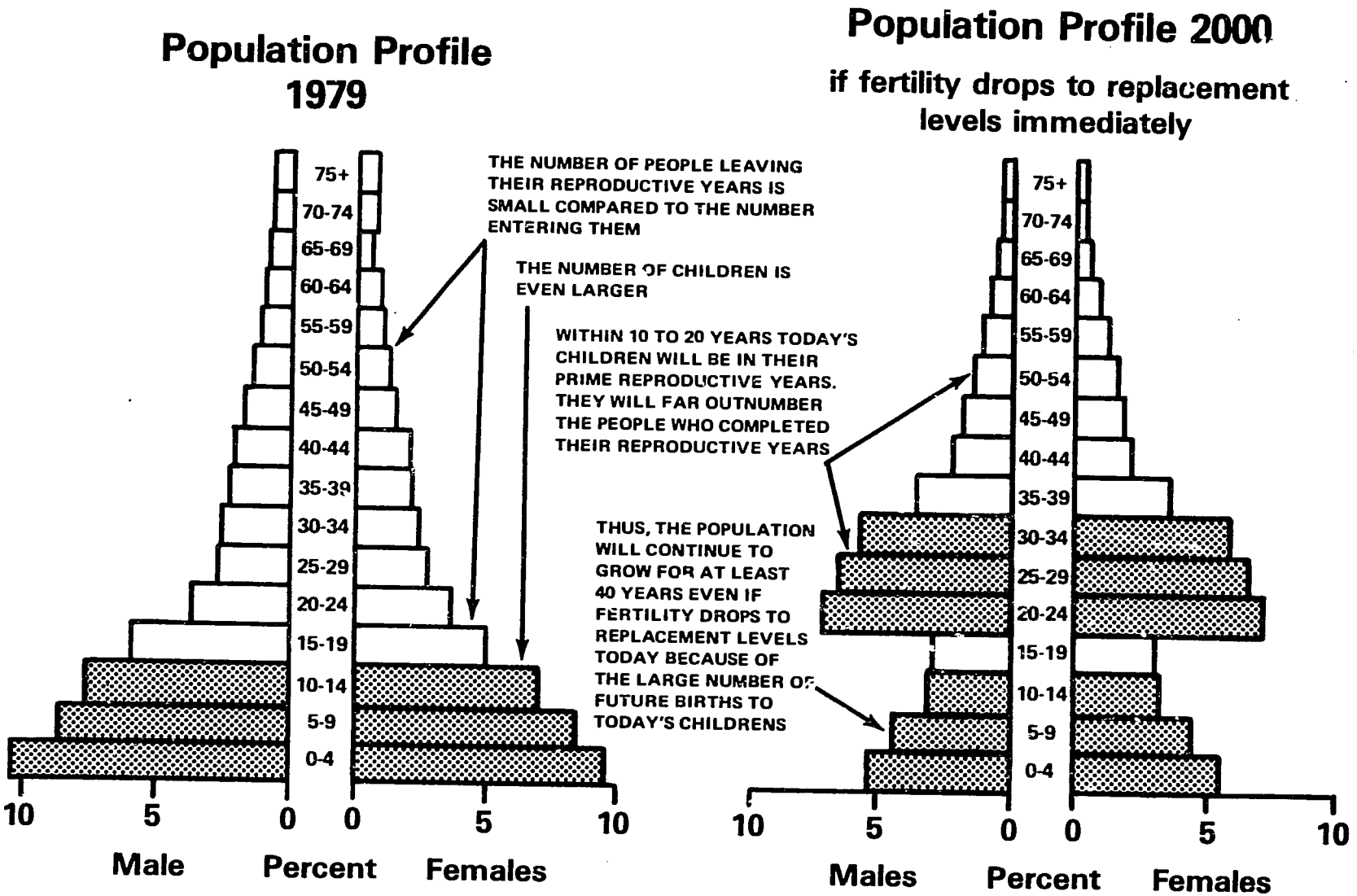
Momentum of Population Growth



POPULATION GROWTH UNDER DIFFERENT FERTILITY ASSUMPTIONS

Although the built-in momentum means that the population of Jordan will grow substantially in coming years, the amount of growth depends on future fertility levels. Three population projections based on alternative fertility assumptions demonstrate this fact. All three projections assume

- an increase in life expectancy to 69 by 2000 and 72 by 2025
- continued outflow of workers at the rate of 10,000 per year
- a participation rate for Jordanian workers abroad of 0.52
- continued in-migration from the West Bank of 20,000 per year today declining gradually to 0 by 2010.

Projection A, high fertility, assumes that fertility remains at very high levels, declining only slowly to 7.0 by 2000 and to 6.5 by 2025. With this assumption, the population would grow to 5.1 million by 2000, 7.5 million by 2010 and 13 million by 2025. The annual growth rate would be over 4 percent during this period.

Projection B, 4-child average, assumes that fertility declines rapidly to 4 children per family by 2000 and to 3 children per family by 2025. In this projection the population grows by 90 percent by 2000 reaching 4.1 million. It continues growing to 5.1 million by 2010 and to 6.8 million by 2025. The annual growth rate would drop to 2.6 percent by 2000 and 1.7 percent by 2025.

Projection C, 3-child average, assumes that fertility declines very rapidly from 7.8 today to 3 by 2000 and 2 by 2010. The population would grow to 3.8 million by 2000, 4.3 million by 2010 and 4.9 million by 2025. By 2025, the natural growth rate of the population would still be above 1 percent per year.

These projections all assume that 10,000 new workers each year find employment outside Jordan. Such an outcome is by no means assured. The increasing use of workers from Pakistan, South Korea and other Asian countries and the

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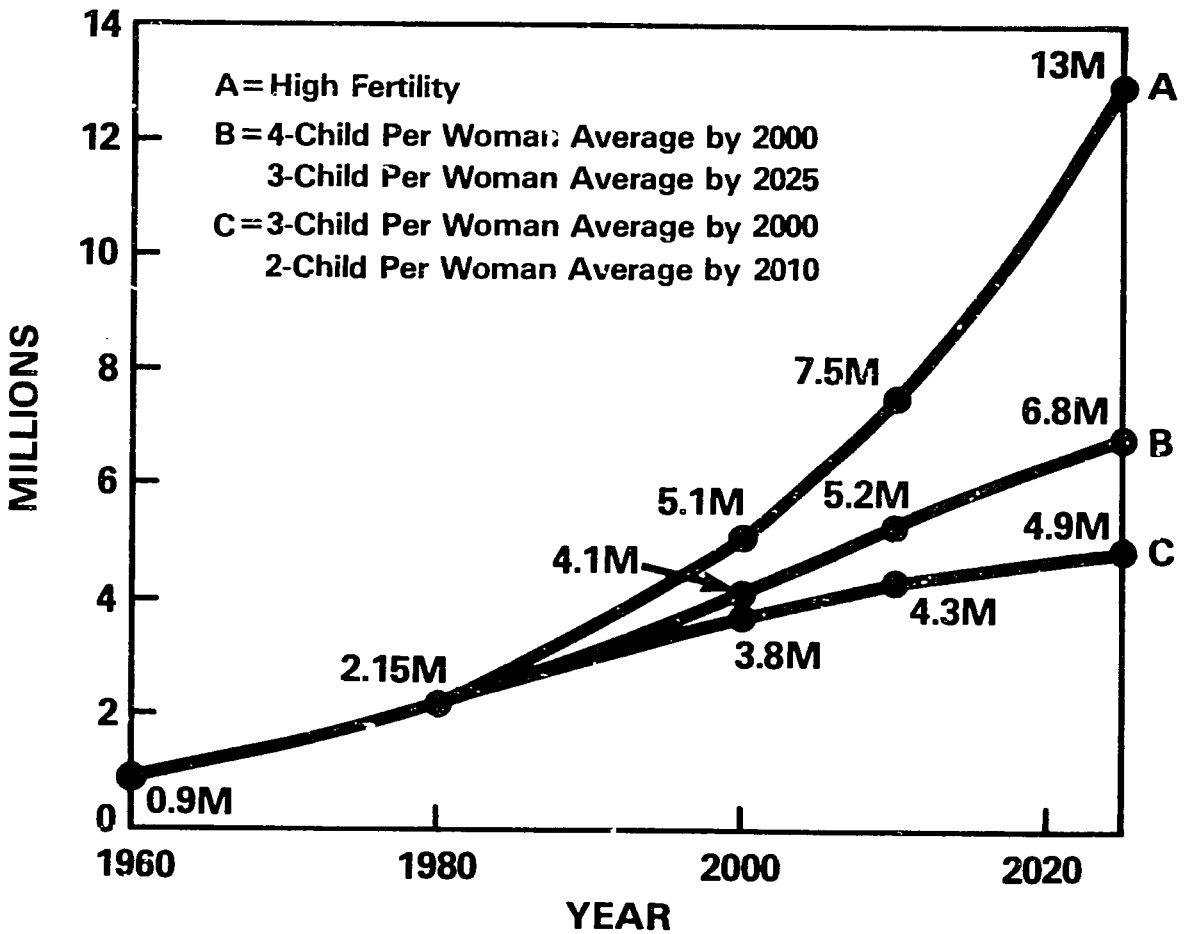
Population Growth on the East Bank, 1960-2025 Under Different Fertility Assumptions



likely slowdown in construction in the Gulf states make it possible that there may actually be a net return of Jordanian workers in the future. If Jordanian workers start to return after 1990, population growth will be much higher. It would be about 10 percent higher by 2000, reaching 5.6 million in the high fertility case, and 20 to 30 percent higher by 2025, reaching 6.3 million in the low fertility case (3-child family) and 16 million with high fertility. The rate of growth to 2000 would be over 4.6 percent with continued high fertility.

The Effects of Jordan's Population on National Objectives for:

Labor Force and Remittances

Water Availability and Requirements

Agricultural Production and Food Needs

Urban Housing

Education

Health

LABOR FORCE AND REMITTANCES

Labor Force Size

Rapid population growth in the past has resulted in a high rate of labor force growth and has produced the conditions for continued rapid growth in the future. The labor force is currently growing at over 4½ percent per year even with the continued outflow of workers to the Gulf. The large size of the young population ensures that the labor force will continue to grow rapidly in the future.

> With a continued outflow of workers the male labor force will grow 920,000-950,000 by 2000 under any of the fertility assumptions. A decline in fertility today will not make a substantial difference since the children who will enter the labor force in the next 15-20 years are already born. By 2010, the male labor force would reach 1.45 million with high fertility and about 1.2 million, 20 percent less, with reduced fertility.

The size of the female labor force will be affected by fertility much more quickly. The female participation rate has been increasing lately because of the strong demand for workers but still not more than 15 percent of females aged 15-64 are in the labor force. A contributing factor to this low participation rate is the high fertility rate. When each female bears and raises 7-8 children, very little time is left for participation in the labor force. Reduced fertility would result in more time available for work and some, although by no means all, people would take advantage of it.

> With continued high fertility, the female labor force would increase from about 80,000 today to about 340,000 by 2010. With the 4-child per family projection, it would increase to 490,000 by 2010, and with the 3-child projection to 550,000.

The net result would be that the labor force will increase to 1.7-1.8 million by 2010 under any of the three projections. (With a return of workers abroad this figure would be even higher, about 2.1 million by 2010). Declining fertility would not substantially affect the size of the labor force until well after 2010.

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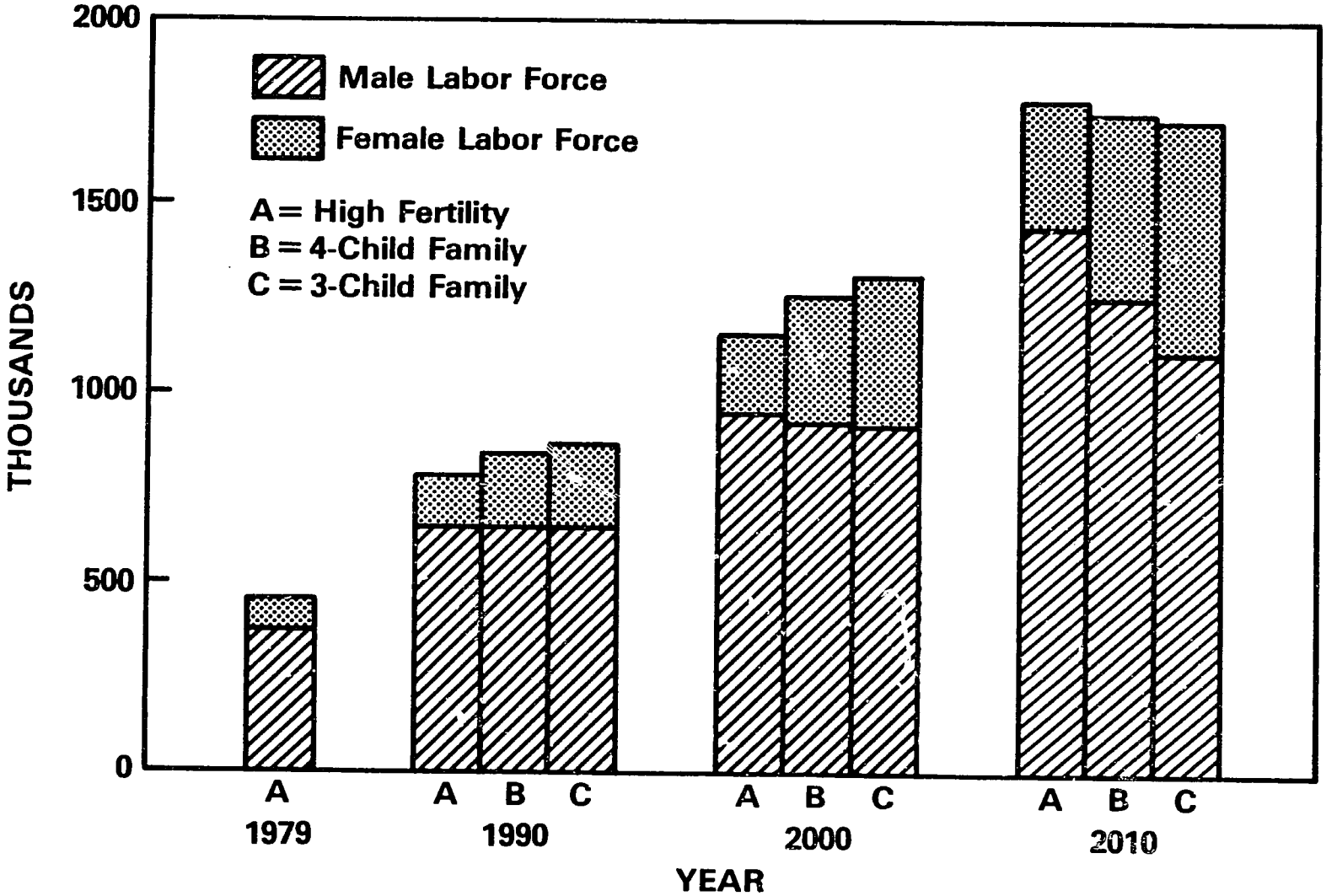
Males and Females in the Labor Force



Male participation rates are assumed to remain constant. Female participation rates increase with declining fertility.

Labor Force and Dependency

During a period of declining fertility, the changing age structure of the population produces an economic bonus by increasing opportunities for saving. When fertility declines, the percentage of the population composed of young people, the dependent population, begins to decrease immediately. This creates opportunities for saving at both the household and governmental levels. Within the household, a smaller number of children means that expenditures required to raise those children (food, clothing, education, and medical needs) may be less. Governmental expenditures for schools, health care, nutrition programs, and other maternal and child services may also be less because of a smaller child population. Of course, a large proportion of this potential savings will be used for increased consumption, purchasing additional goods or improving the quality of services such as education, nutrition and health care. Nonetheless, although the effect will be an increase in per capita consumption, the capacity for both public and private savings is likely to be greater.

One indicator of the potential for increased savings and improvements in standards of living is a comparison of the size of the labor force to the number of children dependent on that labor force for support. Today, there is one person in the labor force for each 2.5 children under 15 that must be supported.

With continued high fertility, there will be 2.1 dependents per worker by 2000 and 2010.

With a reduction in fertility to 4 children per family by 2000, there would be only 1.3 dependents per worker by 2000 and 1.1 by 2010.

With a reduction in fertility to 3 children per family by 2000, there would be only 1.0 dependent per worker by 2000 and 0.7 by 2010.

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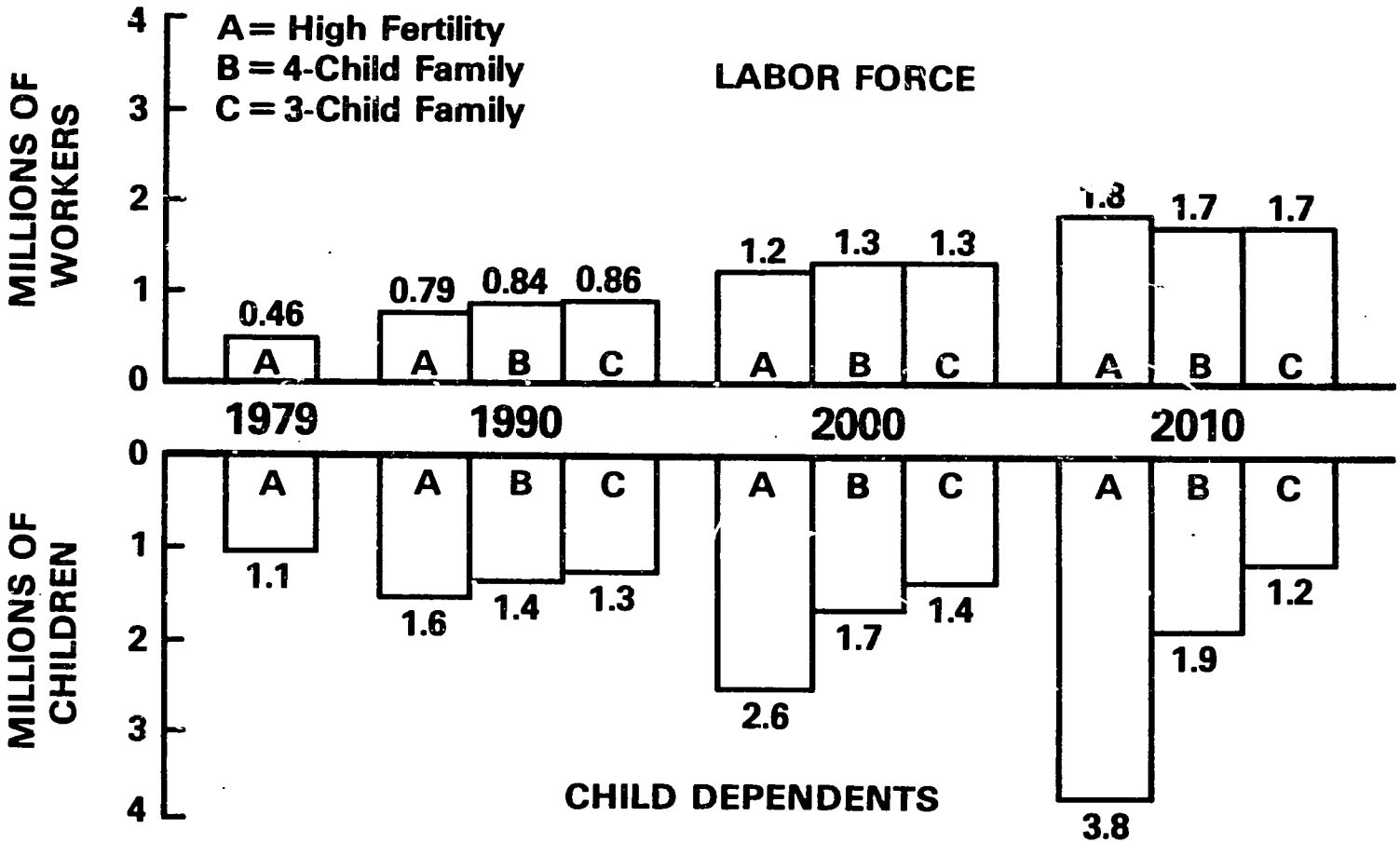
Labor Force and Child Dependents



Remittances

The number of workers going abroad each year will have a direct effect on the amount of remittances received. In 1979, there were about 240,000 Jordanian workers abroad and total remittances were about JD 180 million, 33 percent of GDP.

In the future, the level of remittances will depend on the number of workers abroad and the remittance per worker. The rate of increase in remittance per worker in the past is not known because of the uncertainty about the number of workers abroad, but it will almost certainly be increasing slowly in the future for at least two reasons. First, most of the unskilled jobs in the Gulf are now going to workers from Pakistan, South Korea and other Asians rather than to Arab workers. The unskilled workers are the most likely to remit the wages since few of them take their families with them. The professional workers earn higher salaries, but they have a greater tendency to take their families with them and thus remit a much smaller portion of their earnings.

Second, if large numbers of Jordanian workers continue to find employment abroad, then a large portion of the work force will have been working out of the country for 10 to 20 years by the year 2000. Many of these workers will settle permanently in the countries were they are employed, and for others the ties with Jordan will be weakened. This has already happened among Jordanian workers in Kuwait. The level of remittance among these workers will probably be declining rather than increasing.

Thus, the importance of remittances will probably decline in the future. If remittances per worker increase at 2 percent per year in real terms and GDP increases at 11 percent, then remittances would be only 14 percent of GDP by 2000. With a return of workers abroad, it would decline to less than 9 percent.

Although the total amount of remittances will not be affected by population growth for the next 15 to 20 years (since the size of the labor force will not be affected) the amount of remittance per dependent will be affected dramatically.

Each worker abroad, on the average, supports one dependent abroad and 2 dependents in Jordan. Thus, the JD 180 million of remittances in 1979 amounted to JD 375 per dependent in Jordan.

With continued high fertility, there would be 1.7 East Bank dependents per worker abroad and remittances per dependent would rise to JD 690 by 2000.

With a reduction in fertility to 4 children per family by 2000, there would be 1.2 East Bank dependents per worker abroad and remittances of JD 960 per dependent in 2000.

With a reduction in fertility to 3 children per family by 2000, there would be 1.0 dependent per worker and remittances of JD 1100 per dependent by 2000, 60 percent larger than with high fertility.

WATER AVAILABILITY AND REQUIREMENTS

Providing adequate water for agriculture, industrial and domestic use in Jordan will become increasingly difficult as the population grows. Even today it is estimated that the supply of water for municipal use in Amman meets less than half of potential demand.

It has been estimated that the utilization of all water resources (flood waters, rivers, springs and underground water) available in Northern Jordan would allow the water supply to grow from 460 million cubic meters today to 700 million cubic meters.

Under planned increases in per capita water supply for domestic and commercial use and for total industrial use, there will be large increases in municipal use. Today, municipal use accounts for about 20 percent of all water use.

> With continued high fertility, this will expand to 40 percent of all water available by 2000 and to almost 20 percent by 2010.
>
> With the 4-child family average, municipal use would expand to 33 percent by 2000 and 50 percent by 2010.
>
> With the 3-child family average, municipal use would be only 31 percent of available supply by 2000 and 40 percent by 2010.

Agricultural demand for water was estimated in the Water Master Plan to rise from 370 million cubic meters today to 690 million cubic meters by 2000 and to 720 million cubic meters by 2010. If water is supplied first to meet municipal demand there will be a large deficit in water available for agriculture.

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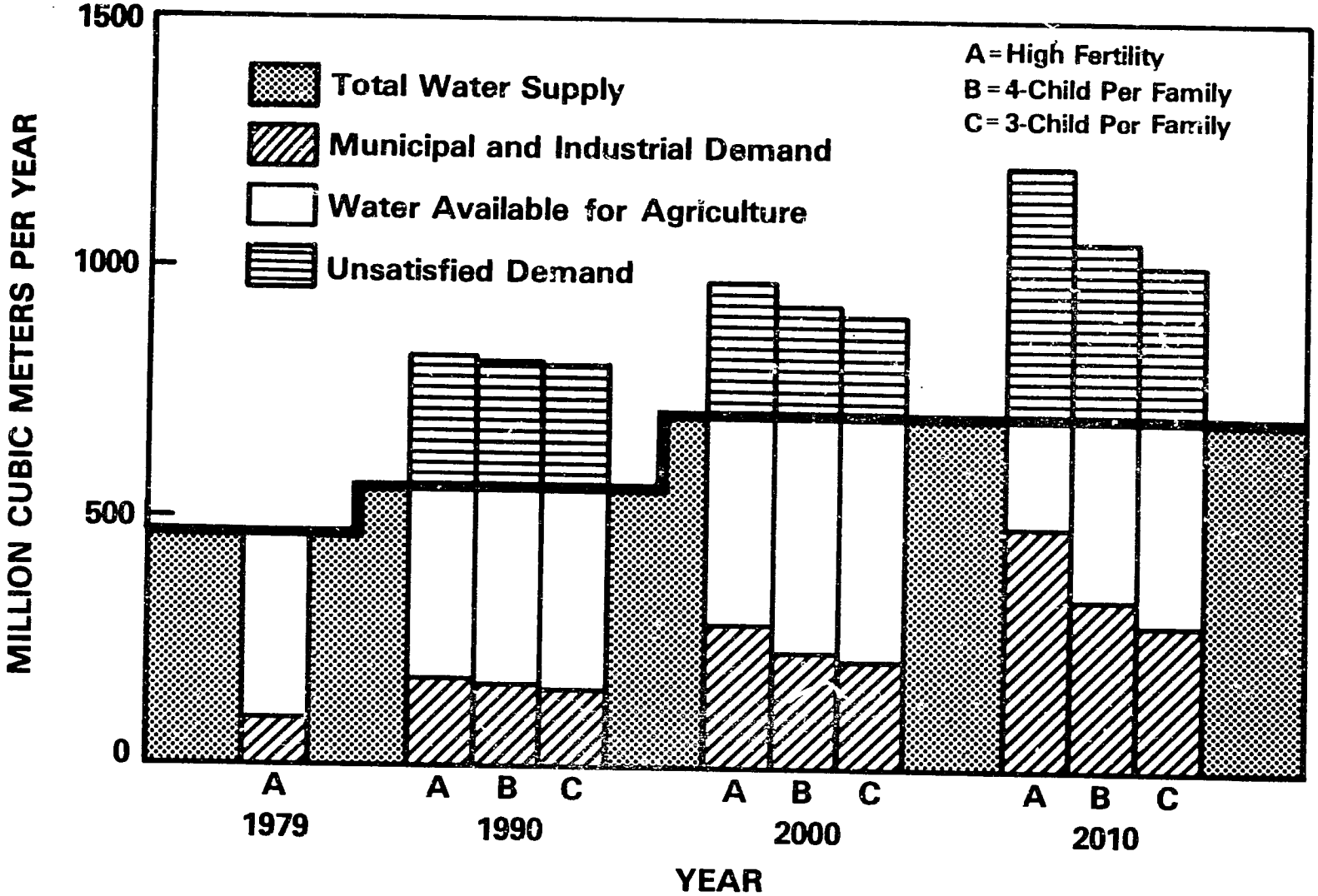
Water Availability and Requirements



With continued high fertility the deficit will be 40 percent by 2000 and 70 percent by 2010.

With the 4-child family, by 2000 the agricultural water deficit will be 32 percent by 2000 and 50 percent by 2010.

With the 3-child family, by 2000 the deficit will be only 29 percent by 2000 and 43 percent by 2010.

Since demand for agricultural goods is likely to be less with a smaller population, the agricultural water deficits could be even less with reduced fertility. This is examined in the next section.

AGRICULTURAL PRODUCTION AND FOOD NEEDS

Output in the agricultural sector fluctuates from year to year because of the dependence on rain-fed agriculture in dry areas where the rainfall is inconsistent from year to year. On average, however, domestic agriculture accounts for about two-thirds of consumption. The irrigated area is small as a percentage of total area planted (only about 10 percent) but because of much higher yields per dunum it produces about half of the output. Future increases in agricultural output are expected to come from improved yields per dunum, expanding the area under rain-fed agriculture and expanding the amount of irrigated land (mainly in the Jordan Valley).

Future increases in production will be limited to some extent by the availability of water for agriculture. The rapidly growing population will be requiring increasing amounts of water for municipal use leaving less available for agriculture. Slower population growth would require less water for municipal use, making more available for increasing agricultural production through increases in the amount of land that is irrigated.

If water is supplied to the municipal sector first, output per dunum increases at 2 percent per year and water requirements for irrigated dunum decrease at 0.9 percent per year then:

> With continued high fertility, agricultural production would expand to JD 140 million by 2000 and would decrease to JD 130 million by 2010.
>
> With the achievement of a 4-child family average by 2000, agricultural production would be JD 145 million by 2000 and JD 160 million by 2010.
>
> With a 3-child family average by 2000, production would increase to JD 150 million by 2000 and JD 170 million by 2010.

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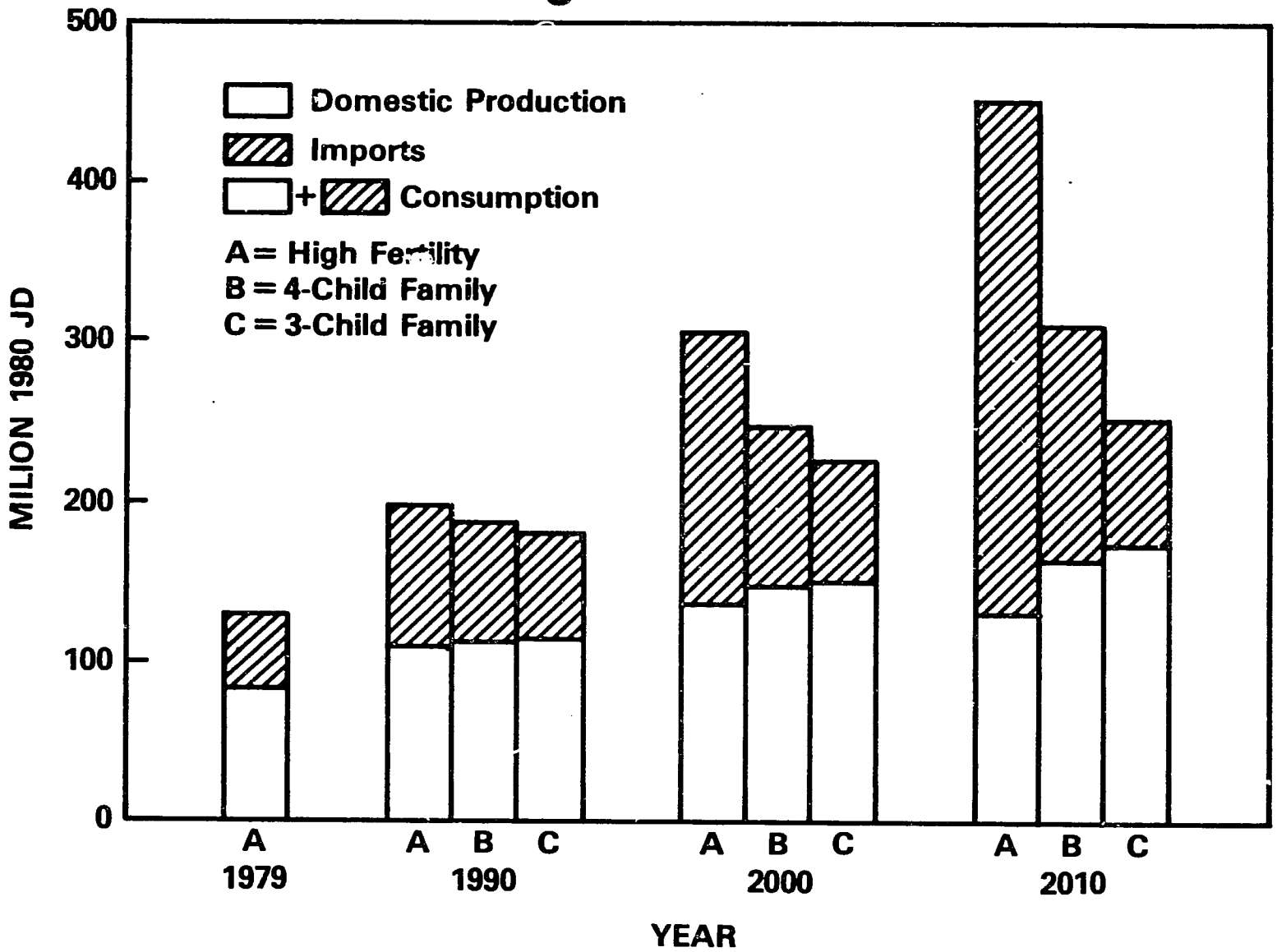
Production, Consumption and Imports of Agricultural Goods



Domestic consumption of agricultural goods will depend directly on the size of the population. If consumption per capita remains constant at today's levels, then:

> With high fertility, consumption would reach JD 300 million by 2000 and JD 450 million by 2010. Imports required to make up the deficit between supply and demand would represent 70 percent of demand by 2010, constituting a large drain on the balance of payments.
>
> With fertility reduced to a 4-child family average, consumption would reach JD 245 million by 2000 and JD 310 million by 2010. Imports would be 48 percent of demand in 2010.
>
> With fertility reduced to a 3-child family average by 2000, demand would reach JD 220 million by 2000 and JD 260 by 2010. Imports would be only 30 percent of demand, about the same as today.

Thus a reduction in population growth would act on agriculture in several ways. By reducing the growth of water requirements in the municipal sector, more water would be available for agriculture, leading to higher production with slow population growth than with rapid population growth. At the same time, the smaller population requires less food than a larger one. The combination of increased production and reduced demand means that imports of food could be significantly lower with reduced fertility than with continued high fertility.

URBAN HOUSING

The population of the East Bank is 60 percent urban and this portion is growing rapidly. There are about 200,000 urban households today. This number will be growing at about 5 percent in the future reaching 540,000 by 2000. This rapid growth will place large demands on the housing industry to produce the additional 340,000 urban housing units needed over the next 20 years.

Growth in the number of households will be unaffected by fertility for the next 20 years as children already born enter their family formation years between now and 2000. The size of the household will depend on fertility, however. Today, the average household contains 6.7 people.

With continued high fertility, the average household size will decrease to 6.1 by 2000 and 2010.

With the 4-child family average, it will decrease to 5.0 by 2000 and 4.6 by 2010.

With the 3-child family average, it will decrease to 4.6 by 2000, and 3.9 by 2010.

The cost of new housing construction will depend both on the number of new households and on the size of the household. Although housing for a 3-person household would not be half the cost of housing for a 6-person household, it would be less. Assuming that one-half of new housing costs are dependent on household size and that the minimum cost for new housing is currently JD 6000 for a 6.7-person household, then:

With high fertility, new urban housing costs will be JD 820 million from 1980 to 1990, JD 1100 million from 1990 to 2000, and JD 1600 million from 2000 to 2010.

With fertility reduced to a 4-child family average by 2000, new urban housing costs would be about the same as with high fertility for 1980 to 1990, 10 percent less during 1990 to 2000 and over 30 percent less for the period 2000 to 2010. During this last period both the number of new households and average household size will be less than with high fertility.

With fertility reduction to a 3-child family average by 2000, new urban housing costs would be 12 percent less than with high fertility during 1990 to 2000 and 44 percent less from 2000 to 2010.

In addition to construction costs, there are also infrastructure costs required to provide services to new households. These costs include expenditures for streets, water piping, electric cables, sewerage systems, schools, local government buildings, market areas, and recreation areas. Currently, these costs amount to about JD 980 per new household. Assuming these costs are directly related to the number of households and household size, the additional infrastructure costs of new urban housing would be:

JD 180 million from 1990 to 2000 and JD 280 million from 2000 to 2010 with continued high fertility.

JD 100 million from 1990 to 2000 and JD 120 million from 2000 to 2010 with the 4-child per family projection, 44 and 50 percent less than with high fertility.

JD 80 million from 1990 to 2000 and JD 60 million from 2000 to 2010 with the 3-child per family projection, 55 and 75 percent less than with high fertility.

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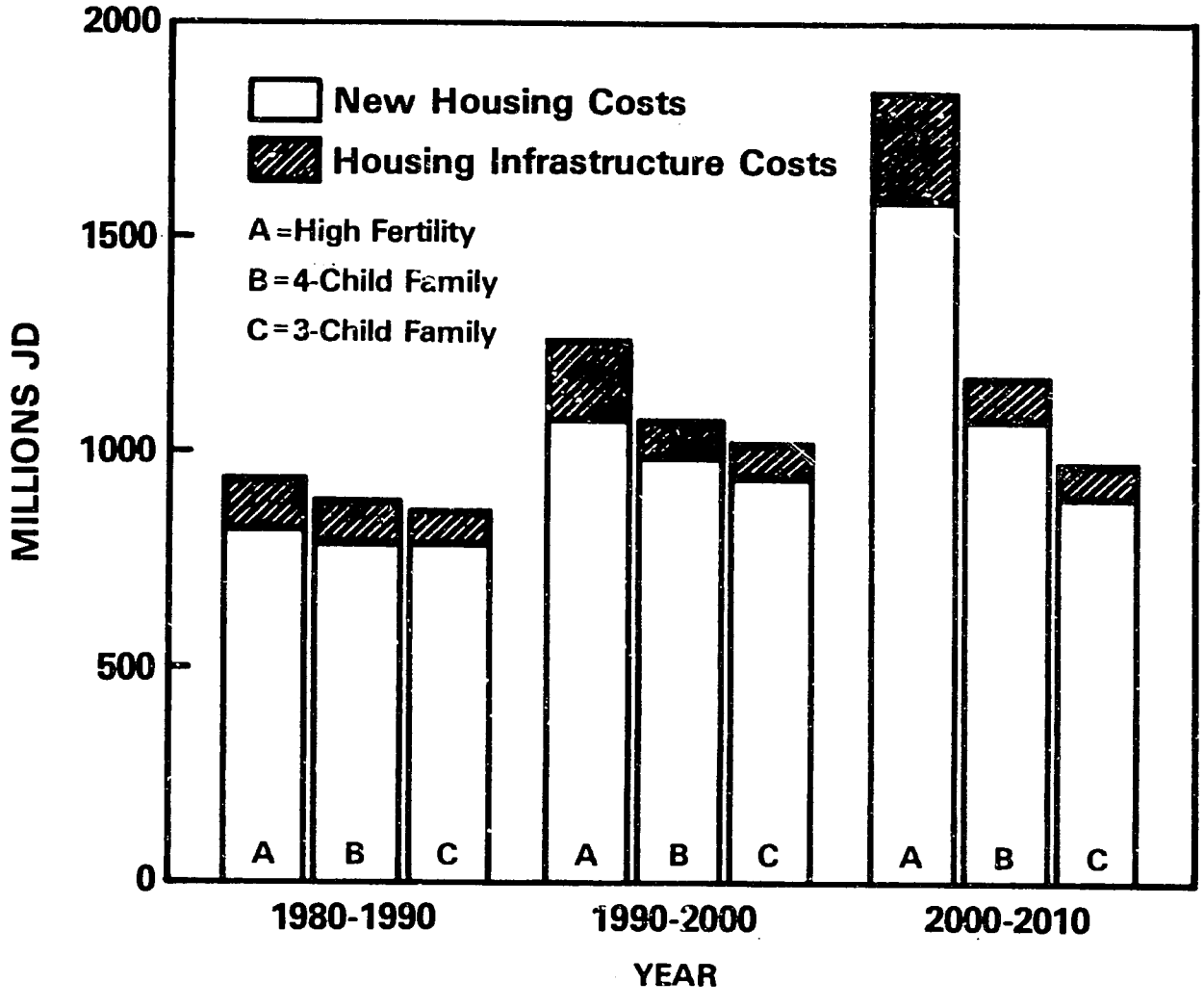
Urban Housing Costs



EDUCATION

The 1979 Census reported a 35 percent illiteracy rate for the Jordanian population over the age of 15. This high rate is mostly due to illiteracy among the older segments of the population. Illiteracy is over 60 percent for those over 45 but is only about 8 percent for those aged 15-19. Female illiteracy is twice as high as male illiteracy.

Illiteracy will decline rapidly in the future because of the high enrollment rates for today's young people. Virtually all elementary school-age children are in school and almost 80 percent of preparatory-age children are in school. In order to maintain these enrollment rates, however, large increases in the size of the educational system will be required if fertility remains high.

> With high fertility, the number of children of primary and preparatory school-age will increase from about 700,000 today to 1.3 million by 2000 and 2.0 million by 2010. Such a rapid increase will place great burdens on the government to provide the required teachers, school rooms and supplies.

A reduction in fertility would mean a large reduction in the size of the educational system required in order to still educate all children of school age.

> With fertility reduced to 4 children per family by 2000, there would be 970,000 primary and preparatory-age children by 2000, 40 percent more than today, but 25 percent less than with high fertility. By 2010, there would be 1.1 million school-age children, 45 percent less than with high fertility.

The savings resulting from reduced fertility could be used to improve the quality of education at the primary level or improve enrollment rates for secondary and vocational training. This would allow a more rapid increase in the skill level of the labor force, providing a better-qualified work force for work at home and abroad.

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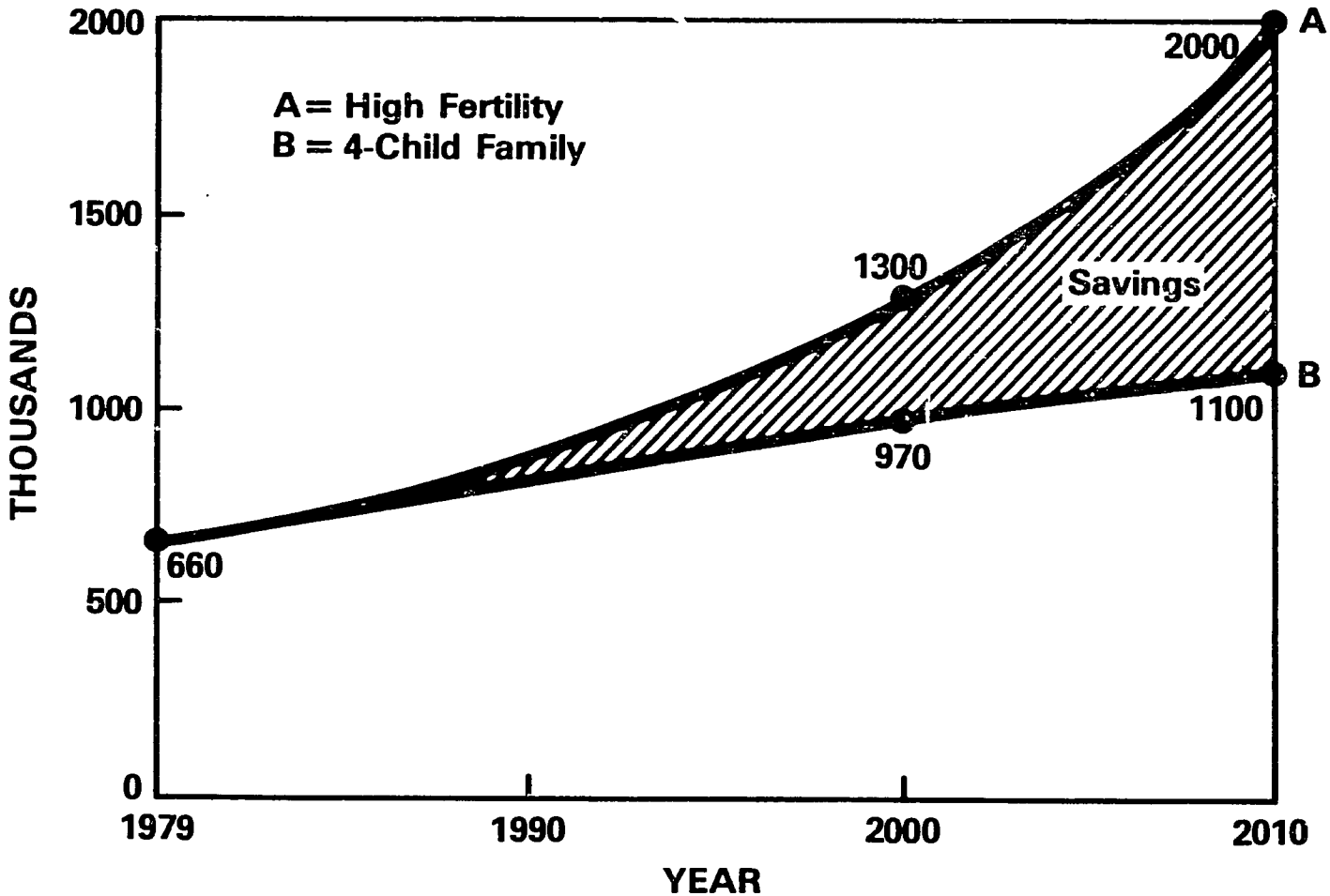
Children of School Age
(Primary and Preparatory Level)



HEALTH

The health of the population is affected in a number of ways by the rate of population growth. At the national level, a rapidly growing population means increased requirements for all kinds of health-related services, including health centers, hospitals, city clinics, village clinics, maternity and child-care centers, physicians and nurses.

> Just to maintain the current level of service in the future, with continued high fertility, will require a 120 percent increase in all services by 2000. This means an additional 84 health centers; 3,300 hospital beds; 100 city clinics; 330 village clinics; 68 maternity and child clinics; 1,400 physicians and 550 nurses.

With reduced fertility these requirements would be 20-25 percent lower by 2000 and 30-40 percent less by 2010. These savings could be used to improve the coverage or quality of health services.

In addition to increases in medical personnel, facilities and cost, continuing high fertility affects each Jordanian family at a personal level. A high rate of fertility has detrimental effects on the health of mothers and children. Frequent pregnancies, with only short periods of time between each pregnancy, are particularly stressful for mothers depleting maternal nutrition and increasing susceptibility to disease and complications during pregnancy. The maternal mortality rate in Jordan is more than 500 times higher than the rate for a typical developed country. This high rate is due to the stresses of bearing many children and the dangers experienced by women who seek illegal abortions.

The health of the children is also adversely affected by high fertility rates. A large number of closely spaced pregnancies weakens the mother, reducing her ability to nurture each new child. Mothers who begin childbearing at a young age or continue at late ages are often susceptible to problems during pregnancy and childbirth.

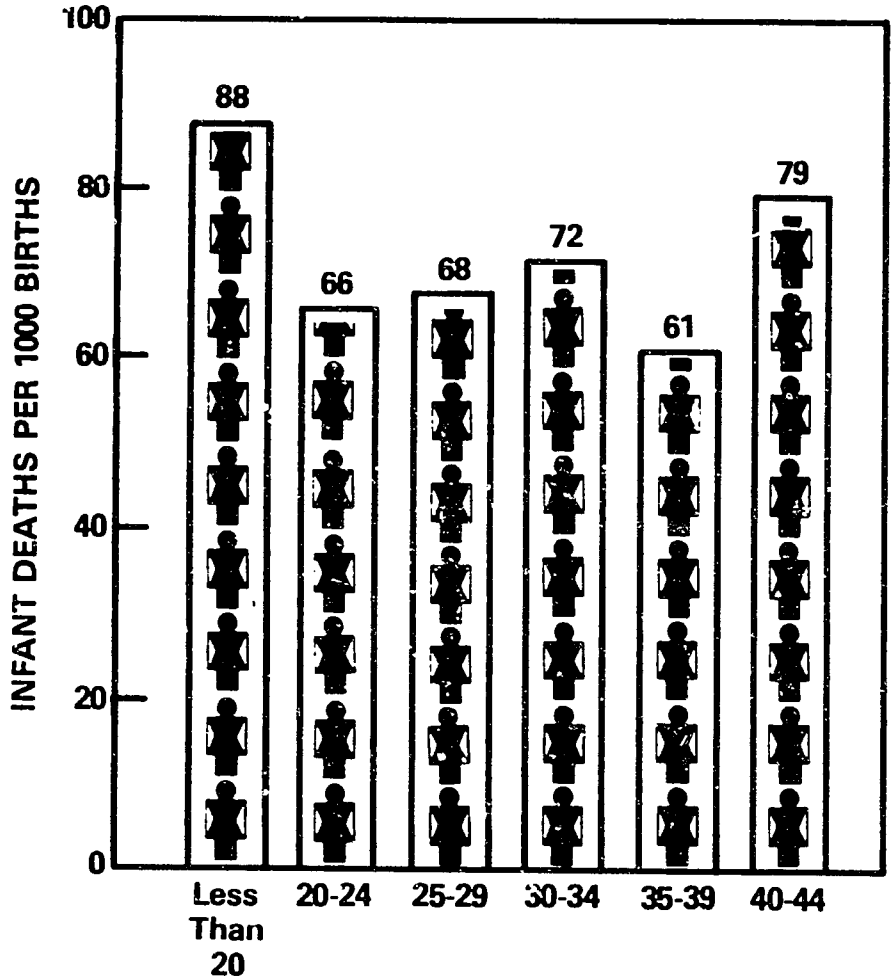
According to the 1976 Jordan Fertility Survey, the infant mortality rate is about 35 percent higher for children born to mothers under the age of 20 than it is for mothers aged 20 to 39. For children born to mothers over the age of 40 the infant mortality rate is also high.

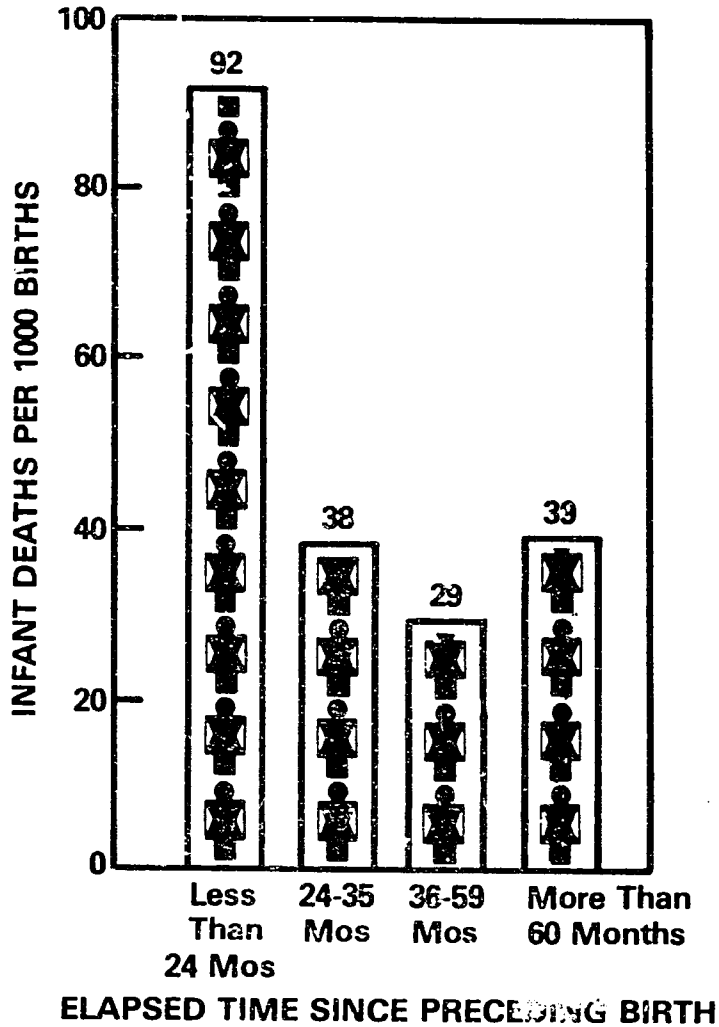
Closely spaced pregnancies also weaken the mother's ability to care for each child and reduce the time of breast-feeding for each child.

For children born less than 24 months after the birth of a previous child, the infant mortality rate is 92 deaths per 1,000 infants. With birth intervals of more than 24 months, the infant mortality rate drops by 60 percent to 29-39 per thousand.

JORDAN

The Effect on Infant Mortality Rate of the Age of the Mother at the Time of Childbirth and the Time Between Births





Effects of Population Programs

- Effects of a Delay in Reducing Fertility
- The Determinants of Fertility

DEMOGRAPHIC, ECONOMIC, AND SOCIAL DETERMINANTS

The preceding analysis suggests that continued high fertility will hinder development efforts in Jordan. The rate of progress toward achieving social equity and a satisfactory level of living in Jordan may be slowed without a concurrent decrease in fertility. The experience of both more developed and less developed countries which have undergone significant fertility declines suggests that a wide variety of factors determine the birth rate of a country. Demographic, social and economic determinants all play a role, but it is possible to identify certain phenomena which historically have had a major effect on reducing fertility. Two of these phenomena are social and economic development and the increased knowledge and practice of family planning methods.

Social and economic development are integrally related to the transition from a rapid population growth society to a slow growth society, as the more developed countries have now. Gains in health, education, and economic well-being inevitably change people's family size aspirations, but the process can be long and delayed unless the Government takes a strong initiative. Because development is hindered by rapid population growth, the most effective way to achieve both reduced fertility and socioeconomic development is to integrate population policy with every development program. In this way the closely correlated problems of poverty and rapid population growth are approached simultaneously and pervasively.

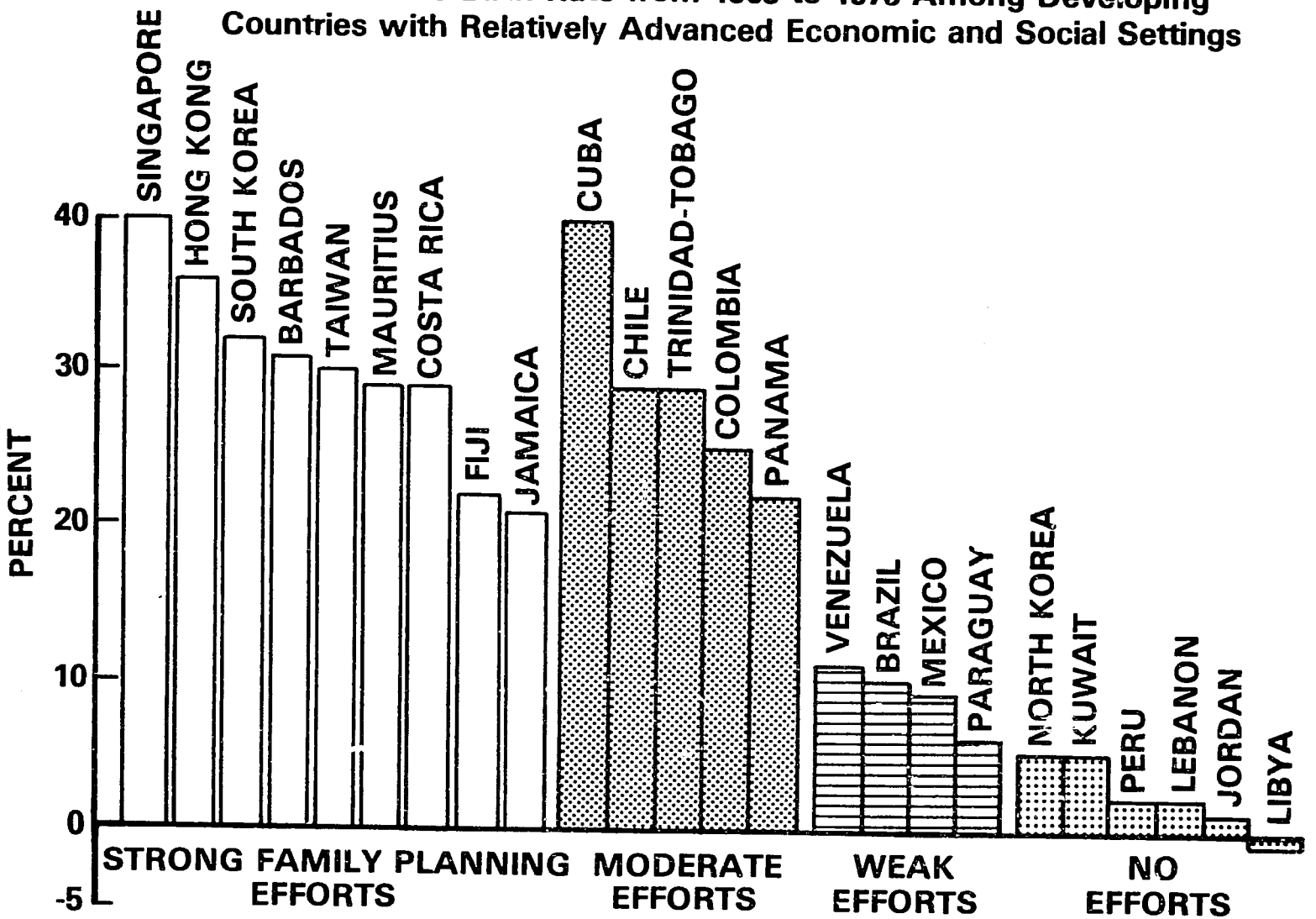
Given a concerted effort by the Government of Jordan to develop a society where the incentive to adequately space the births of children is high, the birth rate will come down as people attempt to maximize their economic and psychic welfare. A child-spacing program which makes the knowledge and practice of contraceptives widely available

can be a major contributor to declining fertility. A recent study by W. Parker Mauldin and Bernard Berelson showed that among developing nations with relatively advanced social and economic conditions, birth rates declined an average of 27 percent between 1965 and 1975 in countries with moderate or strong population/family planning programs, and only 7 percent in countries with no population/family planning efforts. The same pattern prevailed among countries with a relatively less advanced social and economic setting: birth rates declined an average of 17 percent where there was a strong to moderate family planning program. Where there was a weak or no program effort, the average birth rate decline was only 0.9 percent--in some countries there may actually have been a rise in the birth rate.

Mauldin's and Berelson's findings are part of an emerging consensus among policymakers and scholars that a strong development effort and a commitment to spacing the births of children must be pursued concurrently.

Effects of Population/Family Planning Efforts on Birth Rates

Decline in the Birth Rate from 1965 to 1975 Among Developing Countries with Relatively Advanced Economic and Social Settings



EFFECTS OF A DELAY IN REDUCING FERTILITY

The rapid growth of the Jordanian population has produced a large young population. This means that even a few years delay in starting a program to reduce fertility will significantly increase the future size of the population. Assuming that a program to reduce the fertility rate to 3 within 20 years were implemented, the effects of delaying the start of such a program by just 5 or 10 years are as follows:

If the program begins in 1985, the population would grow to 7.2 million by 2030.

If the program were delayed just 5 years, the population in 2030 would be 8.4 million, 1.2 million higher.

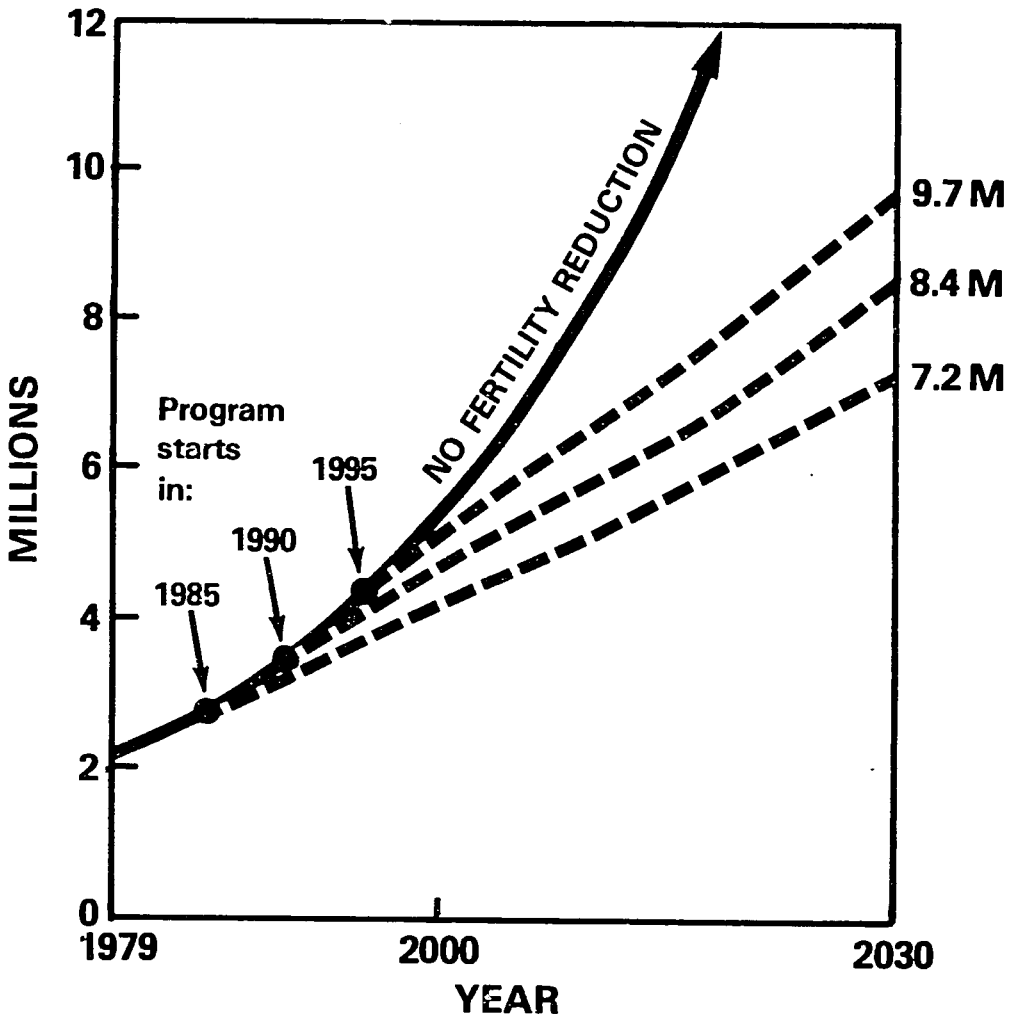
If the program were delayed 10 years, the population in 2030 would be 9.7 million, 2.5 million higher.

Each 5-year delay in starting fertility reduction programs would add about 15 percent to the population within 40 years.

JORDAN

Effects of Delay in Starting a Program to Reduce Fertility

Program to reach a 3-Child Family Average in 20 years



CONCLUSION

Jordan's population growth has been affected by many factors, including large numbers of Jordanians living abroad. Nevertheless, the fertility rate, which is among the highest in the world, is the major determinant of the growth rate and will continue to be in the future. The current high rate of growth places a tremendous burden on the resources of the country to keep up with this growth by providing ever larger amounts of water, food, housing and social services. The effects of high fertility on the health of the population, especially infants and mothers, are severe.

A reduction in the fertility rate would have important short-term and long-term effects. It would have an immediate effect on the health of mothers and children and would begin to affect requirements for the educational system in just 6 years. Dependency ratios would also be affected immediately. Long-term effects include those on the use of scarce water resources, agricultural production and consumption and housing.

Due to the built-in momentum of population growth, any delay in starting a program to reduce fertility will lead to even greater burdens in the future. The population of Jordan might grow to 5 to 6 million in the next 40 years if a fertility reduction program is started now. If one is not started, however, it could grow to over 12 million in 40 years and it would still be growing rapidly, probably doubling again before growth could be stopped.

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