

ZIMBABWE

POPULATION FACTORS AND DEVELOPMENT

Prepared under the direction of the Central Statistical Office

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TABLE OF CONTENTS

PREFACE	ii
INTRODUCTION	1
NATIONAL DEVELOPMENT GOALS OF ZIMBABWE	3
POPULATION DYNAMICS	5
Birth Rates, Death Rates and Population Growth	6
Age Distribution and Child Dependency	12
Inevitable Growth: Replacement Level Fertility and Population Momentum	16
Population Growth Under Different Fertility Assumptions	20
POPULATION FACTORS AND NATIONAL DEVELOPMENT	22
Education	23
Health	36
Gross Domestic Product and Gross Domestic Product Per Capita	52
School Leavers and Modern Sector Jobs	56
Labour Force and Child Dependency	60
Agricultural Development	63
Wood Resources	77
Urban Growth and Housing	81
THE EFFECTS OF POPULATION AND DEVELOPMENT PROGRAMS ON FERTILITY DECLINE	92
Social and Economic Development, Population Programs and Fertility Decline	93
Effects of a Delay in Fertility Decline	98
CONCLUSION	101
SELECTED SOURCES	102

PREFACE

The Futures Group and the Population Reference Bureau, under contract to the United States Agency for International Development, are sponsoring analyses for a number of countries regarding the relationship between population factors and the efforts of these countries to achieve their social and economic goals. The overall project is known as RAPID, an acronym for Resources for the Awareness of Population Impacts on Development. In Zimbabwe, the project is being carried out under the direction of the Central Statistical Office.

INTRODUCTION

The population of Zimbabwe is now over 8 million persons and is growing by an estimated 2.7 percent per year. Should birth rates remain near present levels, the population of Zimbabwe is likely to increase to more than 2 1/2 times its present size over the next thirty years. Such rapid growth has made population change very important to the social and economic development effort in Zimbabwe.

Population is only one factor to be considered in the development of a country. Population policies can in no way be regarded as a substitute for increasing agricultural production, conserving land and forest resources, achieving sustained economic growth and creating new jobs, providing more and better health and education services, and planning for the beneficial development of the cities of Zimbabwe. Nonetheless, in a nation such as Zimbabwe where the development effort is built around the goal of meeting basic human needs, population factors can be critical to the ability of the country to achieve its social and economic development objectives.

The purpose of this study, then, is to examine the population dynamics and the social and economic development objectives of Zimbabwe and to explore the impact of varying rates of population growth on national development. Data is taken from national sources,

including the preliminary results of the 1932 census, and from information compiled by international organizations such as the World Bank and the United Nations.

NATIONAL DEVELOPMENT GOALS OF ZIMBABWE

As stated in the Transitional National Development Plan, 1982/83 - 1984-85, the fundamental development goal of Zimbabwe is the "development of a democratic, egalitarian and socialist society, set in a dynamic framework of a developing economy." To achieve this goal, the Government of Zimbabwe has adopted several policies, including efforts to:

- promote rapid economic growth with equitable distribution of income and wealth;
- attain full employment;
- maximize agricultural output;
- enhance food security;
- reduce differentials between the commercial and peasant sectors by accelerating land resettlement;
- increase fuelwood production and develop more efficient means of using wood and wood waste;
- develop water resources to reduce dependence on unreliable rainfall;
- expand educational opportunities but also achieve qualitative improvements and coordinate better with manpower planning;
- emphasize preventive health care and promote healthy lifestyles for the entire population;
- develop an urbanization policy and strategy to ensure orderly growth and the provision of adequate services to the population.

The rapid rate of population growth in Zimbabwe is an important factor to be considered as the nation seeks to achieve its social and economic development goals in the post-independence period. The following questions can thus be asked:

Can Zimbabwe achieve its development goals given a continued high rate of population growth?

How much difference would a drop in the rate of population growth make to the achievement of those goals?

This analysis explores these issues by looking at the effects of different rates of population growth upon the following:

Education

Health

Gross Domestic Product and Gross Domestic Product Per Capita

School Leavers and Modern Sector Jobs

Labour Force and Child Dependency

Agricultural Development

Wood Resources

Urban Growth and Housing

POPULATION DYNAMICS

Birth Rates, Death Rates and Population Growth

Age Distribution and Child Dependency

Inevitable Growth: Replacement Level Fertility and Population Momentum

Effects of a Delay in Fertility Decline

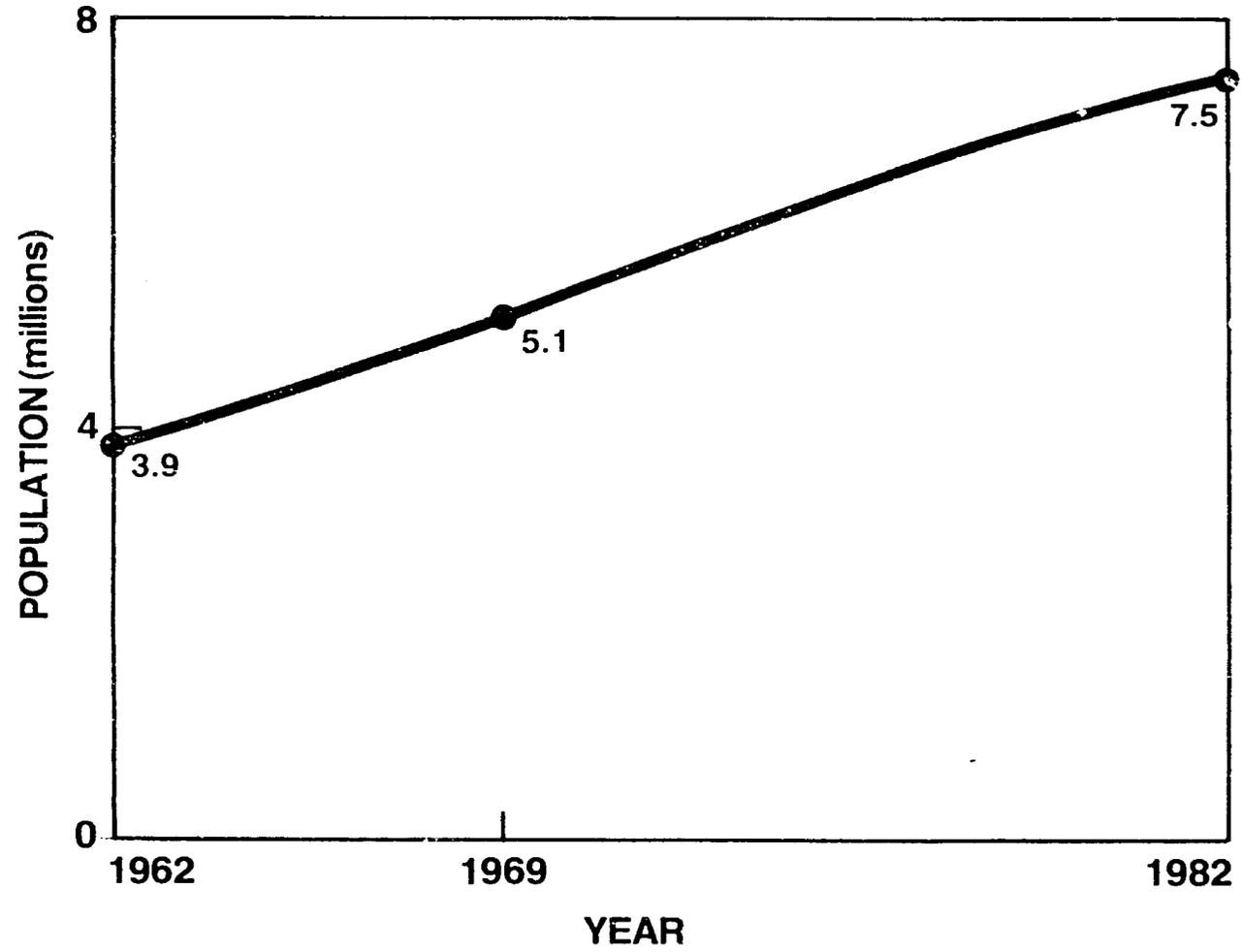
Population Growth Under Different Fertility Assumptions

BIRTH RATES, DEATH RATES AND POPULATION GROWTH

The collection of demographic data in Zimbabwe has, in the past, been inadequate, making it difficult to discern historical trends in birth rates and death rates. The first census was not undertaken until 1962 and age data were only collected in broad groupings which made them of little use in determining fertility and mortality levels. In 1969, a second census did collect precise information on ages and from that enumeration estimates could be made of fertility and mortality rates. The first post-independence census took place in 1982, but only the preliminary results are available at this time.

According to the actual number of persons enumerated at the time of the three censuses, the population of Zimbabwe grew from 3.9 million persons in 1962 to 5.1 million persons in 1969 and 7.5 million in 1982. Between 1969 and 1982 the population expanded at about 3.1 percent per annum.

Historic Growth, 1962-1982



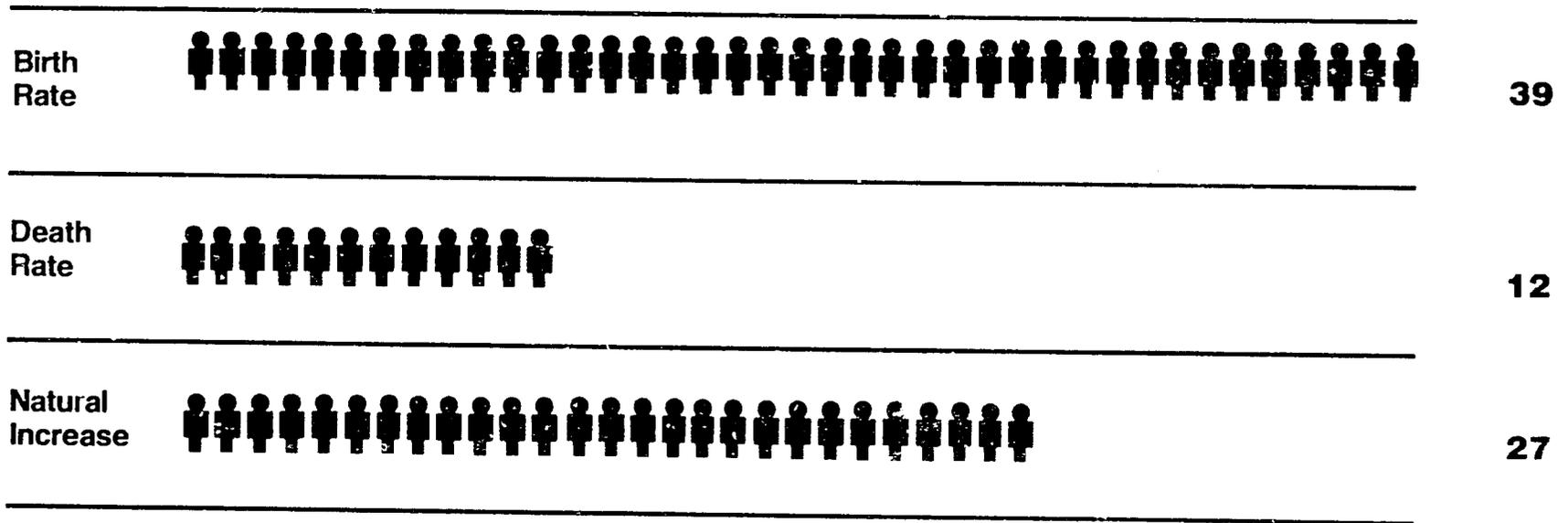
Birth Rates and Death Rates

Preliminary evaluation of the 1982 census suggests a fertility rate, a close proxy for the average number of children per woman, of about 5.7. The corresponding birth rate, the number of births per 1000 persons in the population each year, is approximately 39. No good sense of the historical trend in birth rates may be derived from the data, although some decline may have taken place since 1969.

Census results also indicate a life expectancy at birth in Zimbabwe of about 57 years. The death rate, the annual number of deaths per 1000 population, is about 12. The infant mortality rate, the yearly number of deaths to children under the age of 1 per 1000 births, is estimated to be about 83. The historical trend in mortality is clearly one of improvement. The United Nations, for example, estimated life expectancy at about 42 years around 1950 and the death rate at 22 deaths per thousand population.

A birth rate of 39 and a death rate of 12 result in an annual rate of natural increase of 27 per 1000 population, or 2.7 percent. At that rate of growth, the population would double in size about every 25 years. The actual rate of population growth may be slightly higher as the number of immigrants to Zimbabwe in recent years appears to have been greater than the number of persons leaving the country permanently.

Zimbabwe

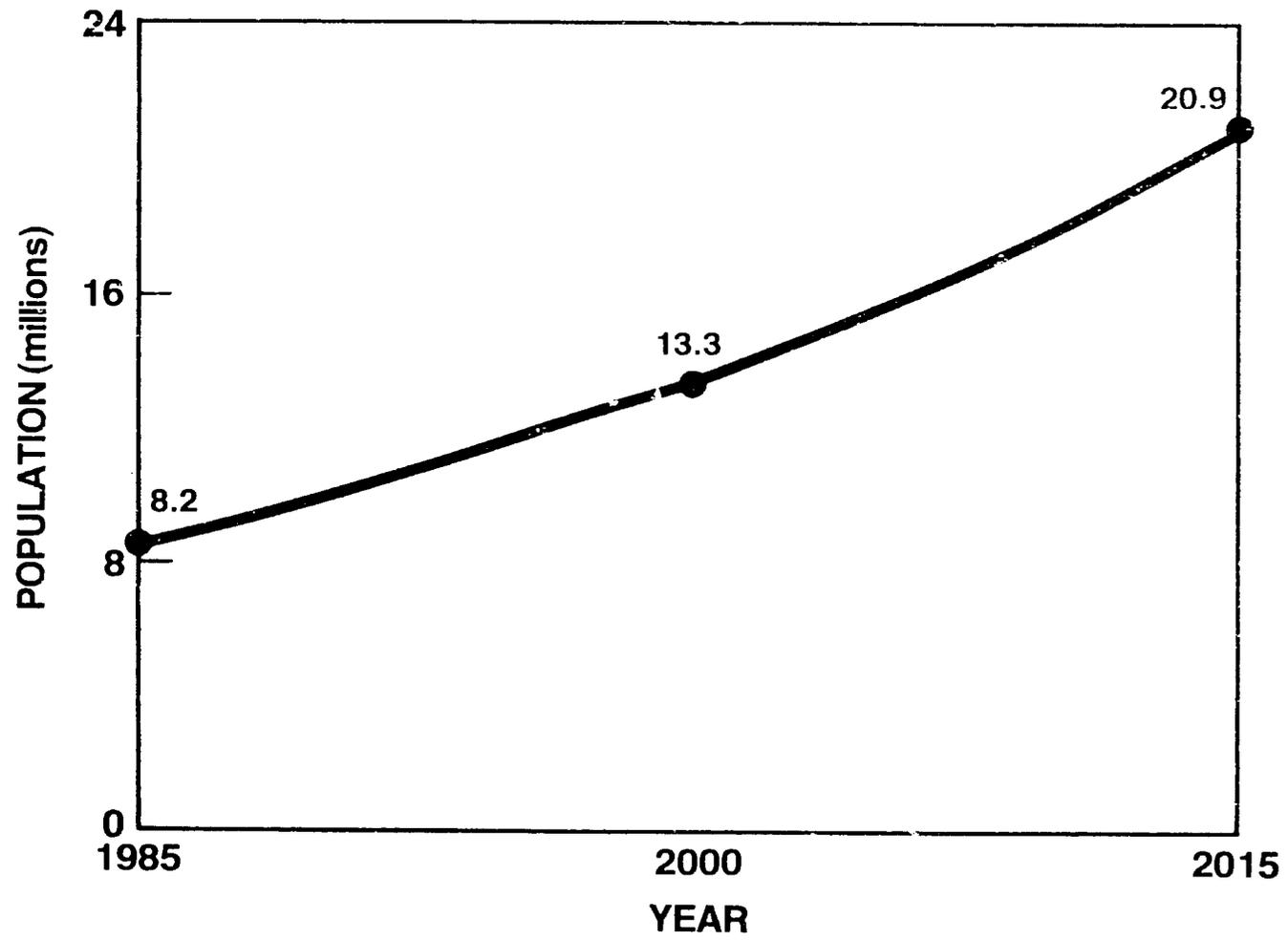


(Number Per Thousand Population)

Future Growth

Given a continuation of that level of fertility and further increases in life expectancy, the 1985 population of about 8.2 million persons would more than triple in size over the ensuing 30 years. During the 15 years between 1985 and 2000, 5.1 million persons would be added to the population of Zimbabwe as total size would reach 13.3 million persons. During the 15 years between 2000 and 2015, the population of Zimbabwe would grow by yet another 7.6 million persons reaching 20.9 million persons. If the fertility rate is higher than 5.7 children per woman, growth is likely to be correspondingly greater.

Population Growth, 1985-2015 (Assuming Continued High Fertility)



AGE DISTRIBUTION AND CHILD DEPENDENCY

As is typical in countries where fertility has been high for a long period of time, Zimbabwe has a very young population. Projections based on preliminary analysis of the 10 percent sample of the 1982 census suggests that in 1985 approximately 45 percent of the population is under the age of 15. Consequently, Zimbabwe has a high child dependency ratio which is the proportion of children under 15 to adults in the economically productive ages, 15 to 64.

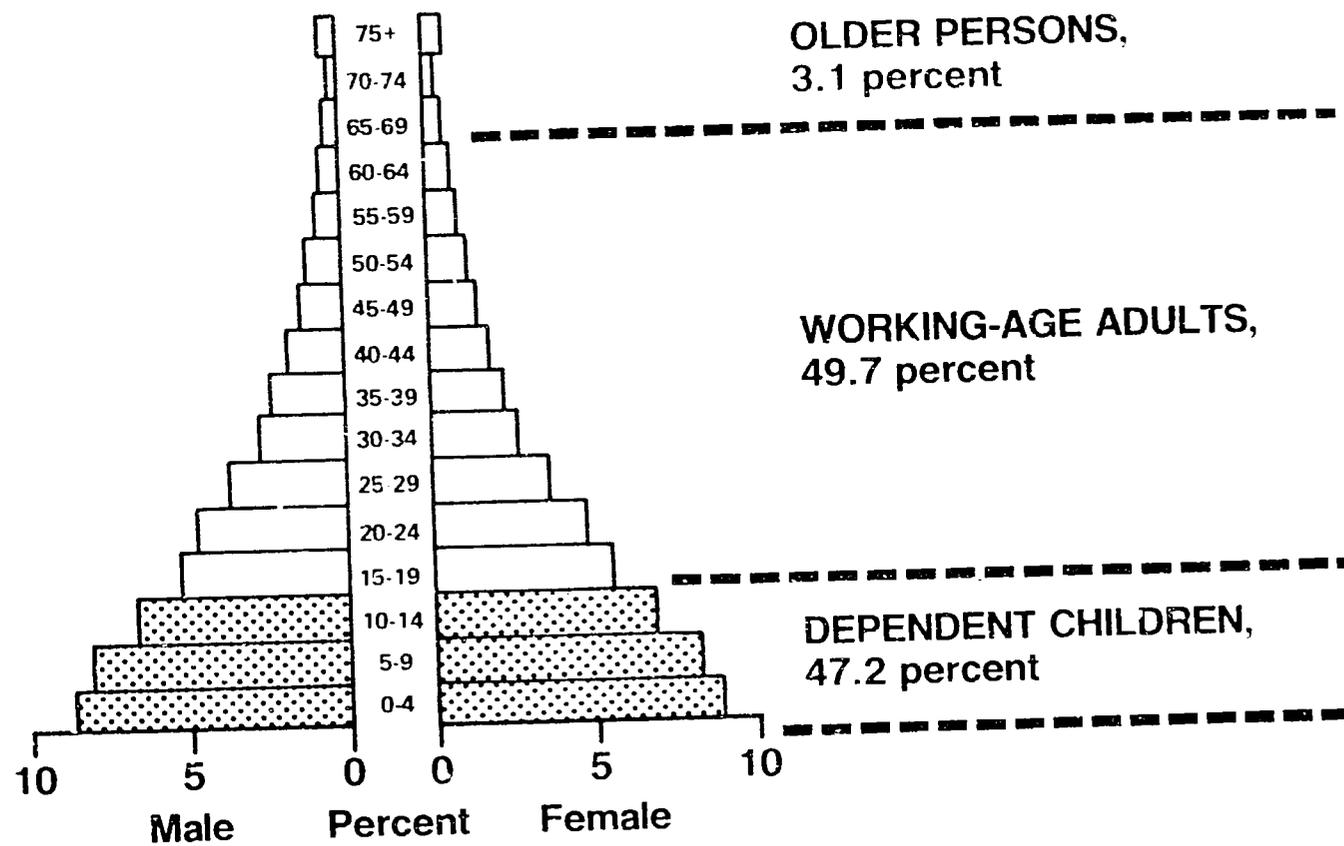
For every 100 adults, there are about 94 children to be supported and educated, or close to one child for each adult.

By contrast, a developed country typically has two or three adults in the economically productive ages for each dependent child. (Such nations do have a larger proportion of dependent elderly persons, although the overall ratio is still much lower than in the developing countries.)

Because labour force participation rates are high in Zimbabwe, the child dependency ratio is also closely descriptive of the more important relationship between the number of child dependents and the number of actual workers in the labour force.

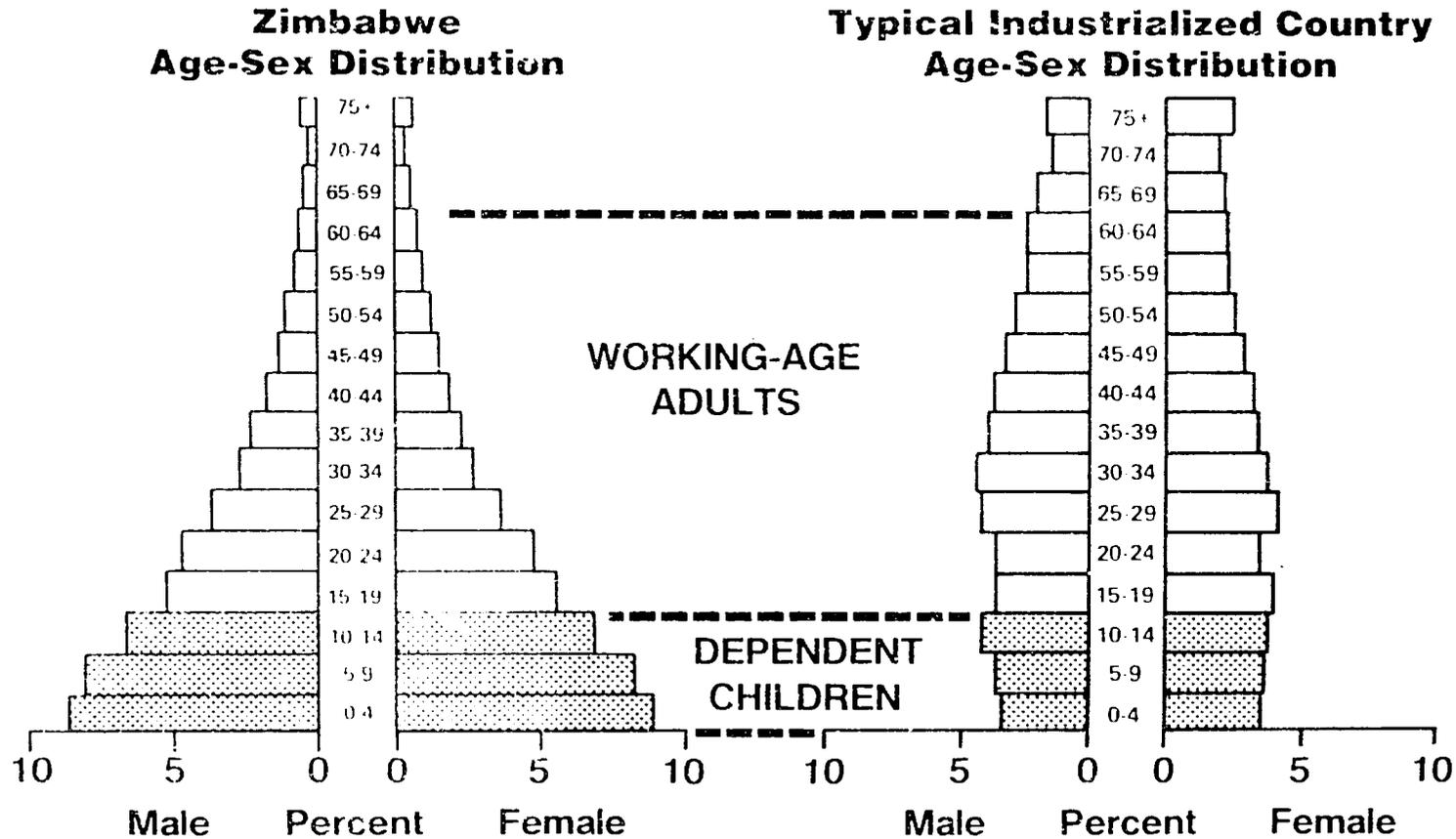
Age Distribution and Child Dependency

Zimbabwe Age Distribution, 1982



In a traditional economy, such as the peasant sector of Zimbabwe, a large number of children may be to the economic advantage of the rural family by increasing the number of available workers, even though in most cases children do not increase production by as much as they consume until they reach the age of 10 to 15. As a nation develops socially and economically - as, for example, Zimbabwe moves closer to universal primary education and full employment - a high dependency ratio may strain the resources of individual households as children must be supported until they complete their education and secure employment. Social and economic development programs may also be affected because, with a large dependent population, a disproportionate share of public and private resources must be devoted to the needs of the young. A significant reduction in the child dependency ratio could potentially release resources for investment in other development programs.

Age Distribution and Child Dependency



**For each dependent child in Zimbabwe there is only one working-age adult.
 For each dependent child in most industrialized countries, there are 2 to 3 working-age adults.**

INEVITABLE GROWTH: REPLACEMENT LEVEL FERTILITY AND POPULATION MOMENTUM

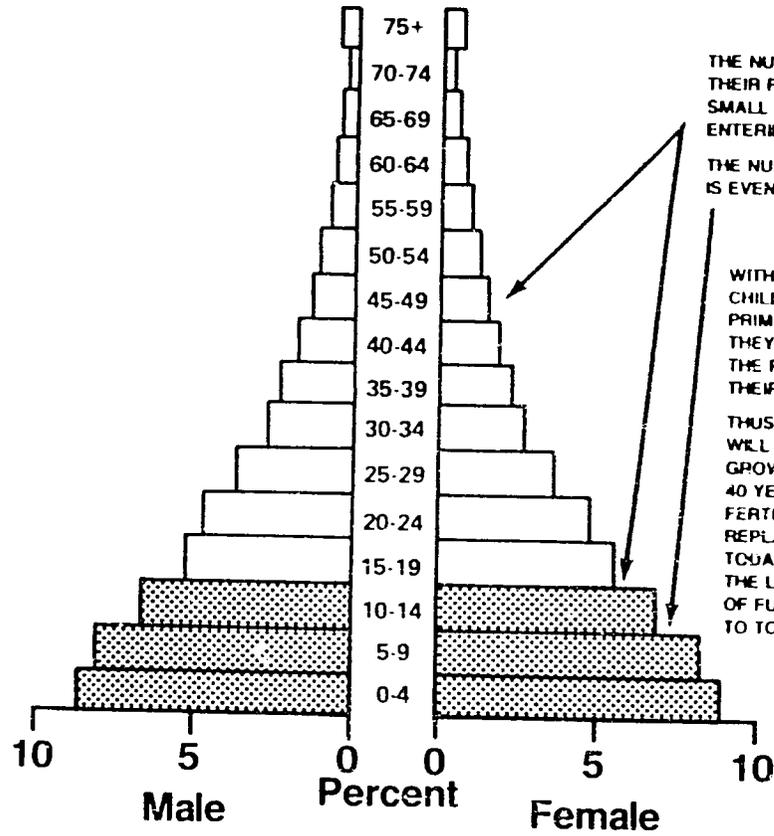
Before the population of Zimbabwe could stop growing, the fertility rate of about 5.7 births per woman would have to drop to slightly over 2 births per woman or what is termed replacement level fertility. During the time interval that would be required for this decline to take place, the population would still be increasing..

Even should fertility decline to replacement levels, the population would nonetheless continue to grow for several decades afterwards. Limiting the number of births to two children per woman means that eventually the population will reach a zero growth rate; however, a long delay exists between the time women began averaging two children and the time population growth stops.

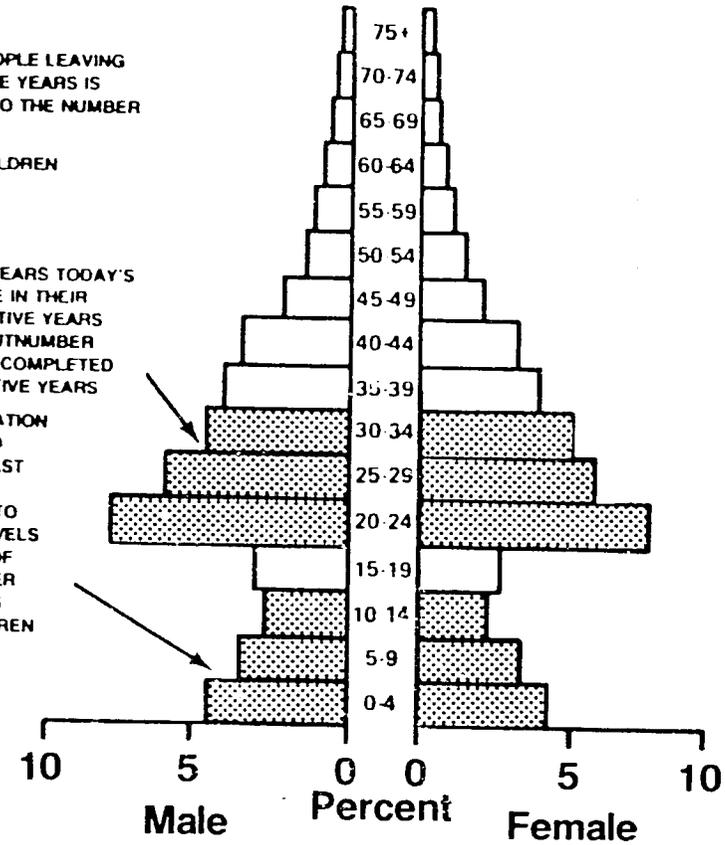
This lag of about 40 to 50 years is due to the age composition of the population. Where fertility has been high, as in Zimbabwe, the population is composed of a proportionately large number of young people and a proportionately smaller number of older persons. Consequently, each year the number of young women entering their reproductive years exceeds the number moving out of their reproductive years. Even if young women have only two children each, there will be so many of them that more births will occur than

Momentum of Population Growth

Population Profile 1985



Population Profile 2005 if Fertility Drops to Replacement Levels Immediately



THE NUMBER OF PEOPLE LEAVING THEIR REPRODUCTIVE YEARS IS SMALL COMPARED TO THE NUMBER ENTERING THEM

THE NUMBER OF CHILDREN IS EVEN LARGER

WITHIN 10 TO 20 YEARS TODAY'S CHILDREN WILL BE IN THEIR PRIME REPRODUCTIVE YEARS THEY WILL FAR OUTNUMBER THE PEOPLE WHO COMPLETED THEIR REPRODUCTIVE YEARS

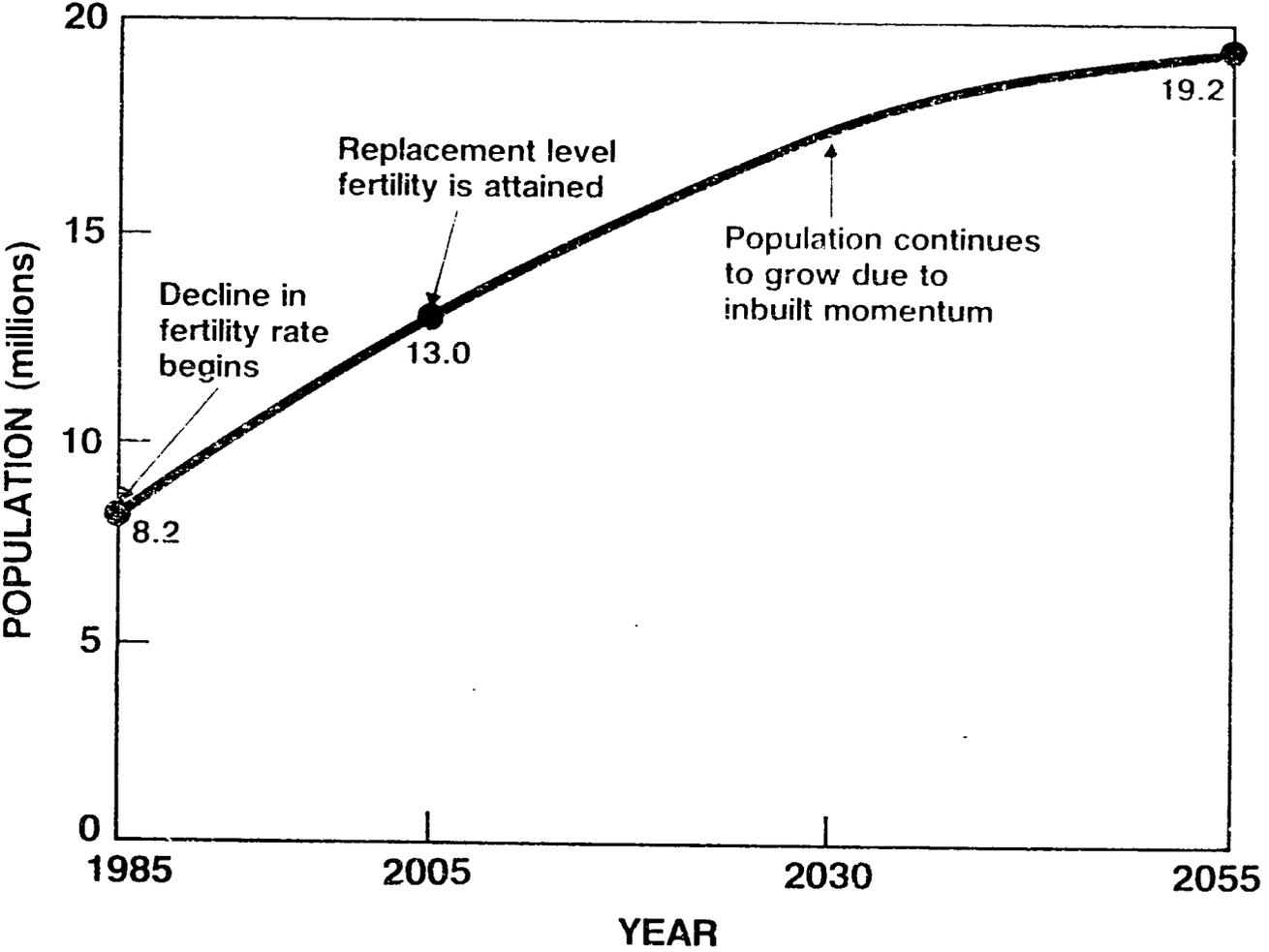
THUS, THE POPULATION WILL CONTINUE TO GROW FOR AT LEAST 40 YEARS EVEN IF FERTILITY DROPS TO REPLACEMENT LEVELS TODAY BECAUSE OF THE LARGE NUMBER OF FUTURE BIRTHS TO TODAY'S CHILDREN

deaths for at least 40 years, and the population will continue to grow until the disproportion in the number of young people disappears. Thus, an irresistible momentum for future growth is built into the age structure of the population.

The graph below illustrates these two ideas. If the fertility rate were to drop to replacement levels over the 20 year period between 1985 and 2005, the population of Zimbabwe would grow from 8.2 million persons in 1985 to 13.0 million in 2005. The population would then grow further to 19.2 million persons due to the inbuilt momentum.

The population of Zimbabwe is going to be much larger in the future than today no matter what happens to the birth rate in coming years. Even in this illustrative case with very dramatic fertility decline, Zimbabwe ends up with a population more than 11 million persons larger than in 1985.

**Momentum of Population Growth
(Assumes a Decline to Slightly Over a
2 Child per Woman Average in 20 Years)**



POPULATION GROWTH UNDER DIFFERENT FERTILITY ASSUMPTIONS

Although growth of the Zimbabwean population is inevitable, the amount of growth depends on future fertility and mortality levels. Three population projections demonstrate this fact. All three incorporate the assumption of an increase in life expectancy at birth to 67 years by 2010. What differs is the fertility level.

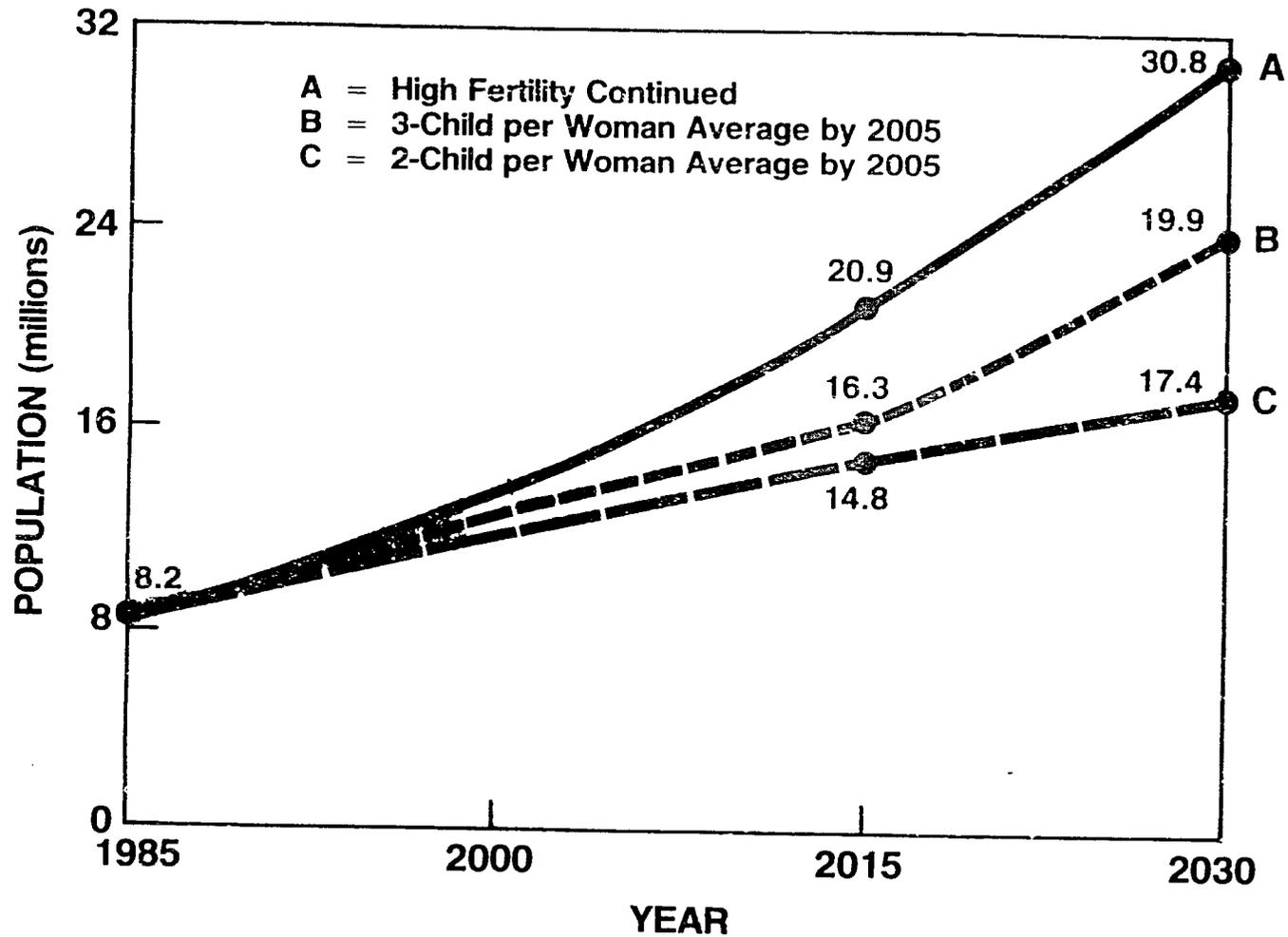
Projection A assumes that fertility declines slowly from its present level of about 5.7 children per woman to 5 children per woman by 2015 and 4 children per woman by 2030. With fertility remaining relatively high, the 1985 population of 8.2 million persons would increase to 13.3 million by the turn of the century. By 2015, the population would be 20.9 million persons, and by 2030 it would be 30.8 million.

Projection B assumes that fertility begins to drop in 1985 and continues to decline gradually so that Zimbabwe would attain a 3-child per woman average by 2005. In this case, the population would grow to 12.3 million persons by 2000; 16.3 million by 2015; and 19.9 million by 2030.

Projection C assumes that fertility begins to decline in 1985, and continues to drop rapidly all the way to replacement levels, or slightly more than a 2-child per woman average by 2005. Nonetheless, the population would still grow from 8.2 million persons in 1985 to 11.9 million in 2000. The population would then grow further to 14.8 million persons in 2015 and 17.4 million in 2030.

These projections will be used throughout the discussion in considering the effects of a different rate of population growth on the ability of Zimbabwe to achieve its social and economic development objectives.

Population Growth Under Different Fertility Assumptions, 1985-2030



POPULATION FACTORS AND NATIONAL DEVELOPMENT

Education

Health

Gross Domestic Product and Gross Domestic Product Per Capita

School Leavers and Modern Sector Jobs

Labour Force and Child Dependency

Agricultural Development

Wood Resources

Urban Growth and Housing

EDUCATION

As noted in the development plan, the education infrastructure inherited at the time of independence was heavily biased towards the former non-African areas. The goal of the Government of Zimbabwe after independence was to reverse this situation and achieve more equity in educational opportunity. The results were impressive. With the introduction of free primary education and the reduction of some secondary school fees, total school enrollments increased by 47 percent in 1980, 39 percent in 1981, and 18 percent in 1982. Whereas 890,000 students were enrolled in the primary and secondary schools of Zimbabwe in 1979, 2,160,000 were enrolled by 1982.

The eventual objective is to achieve universal and compulsory primary education and then to extend requirements to the secondary level so that virtually all children receive at least nine years of schooling. At the same time, policy is now to emphasize quantitative improvements, educational planning and coordination with the manpower and development needs of Zimbabwe.

The rate of population growth will help determine the number of students, the required number of teachers and schools, and the expenditures needed to achieve and sustain these objectives.

Primary School Enrollments

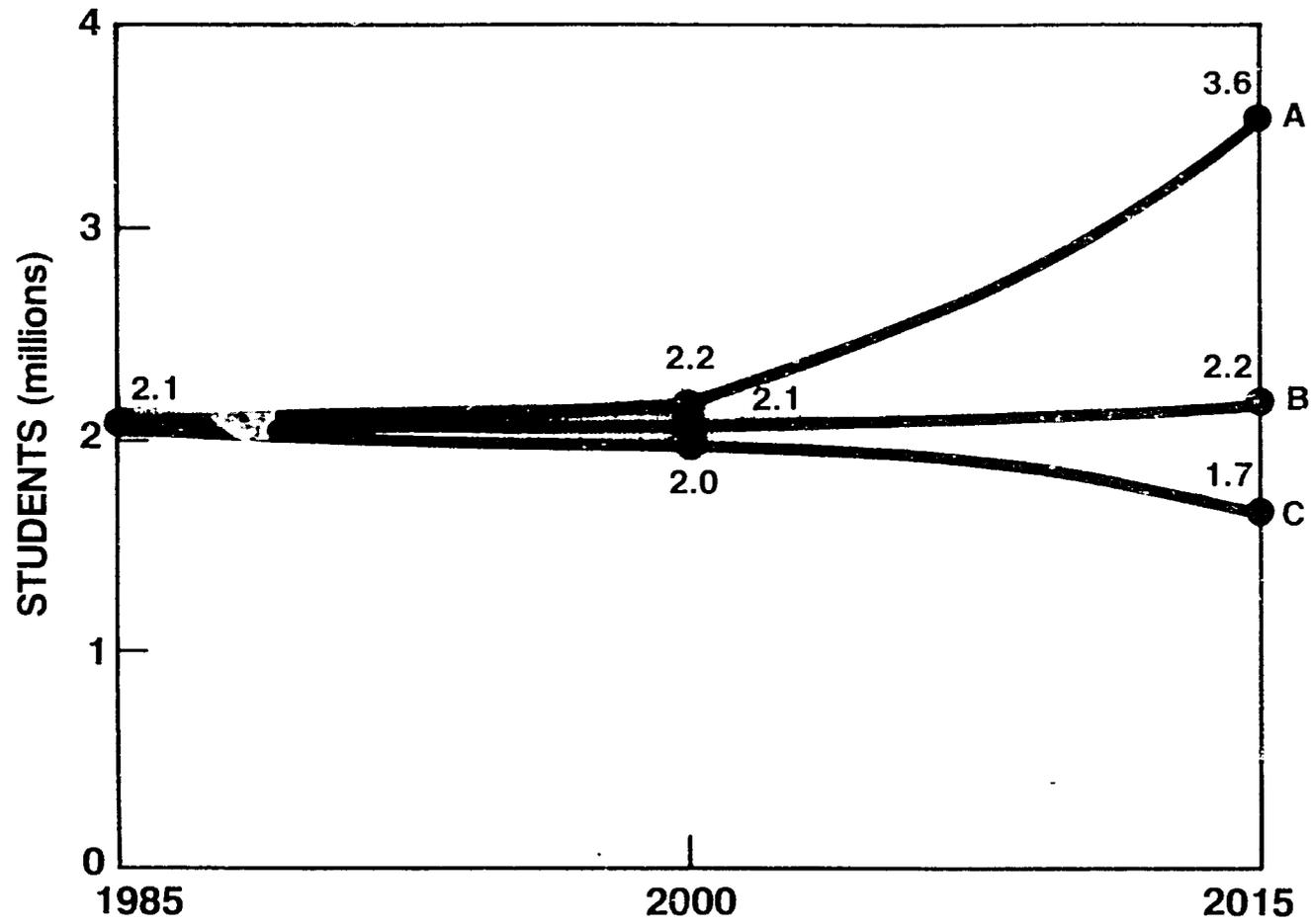
If the number of students actually enrolled in the primary schools in 1980, 1,235,000, is compared with the age group comprising the primary school age population, the number of 7 to 13 year olds, about 85 percent of the primary school age children was actually in the schools. If the same comparison is made for 1983, a number equal to about 130 percent of the school age group was actually in the schools. In part, this can be explained by the fact that in the post-independence expansion of school opportunities large numbers of underage and overage children took advantage of the situation to enter the primary schools for the first time. Some degree of undercount in the census may also account for the discrepancy. In any case, the projections below assume 130 percent of the age group in the primary schools in 1985, dropping to 100 percent by 2000.

Given the continuation of high fertility in Project A, the number of primary students would rise from 2.1 million in 1985 to 3.6 million in 2015.

Given the decline in fertility to a 3-child per woman average by 2005 in Projection B, the number of primary school age students would rise to 2.2 million in 2015, or 1.4 million fewer students than in the first projection.

Given the more rapid decline in fertility to a 2-child per woman average by 2005 in Projection C, the number of primary students would be 1.7 million in 2015, less than half the number who would be enrolled under the conditions in the first projection.

Primary School Enrollments, 1985-2015



- A = High Fertility Continued
- B = 3-Child per Woman Average by 2005
- C = 2-Child per Woman Average by 2005

Primary Teachers

Using the above projections, the number of primary school teachers required can be examined. In 1983, about 51,000 primary teachers worked in Zimbabwe, more than half of whom were untrained. This translates into a ratio of about 40 students per teacher and 83 students per trained teacher.

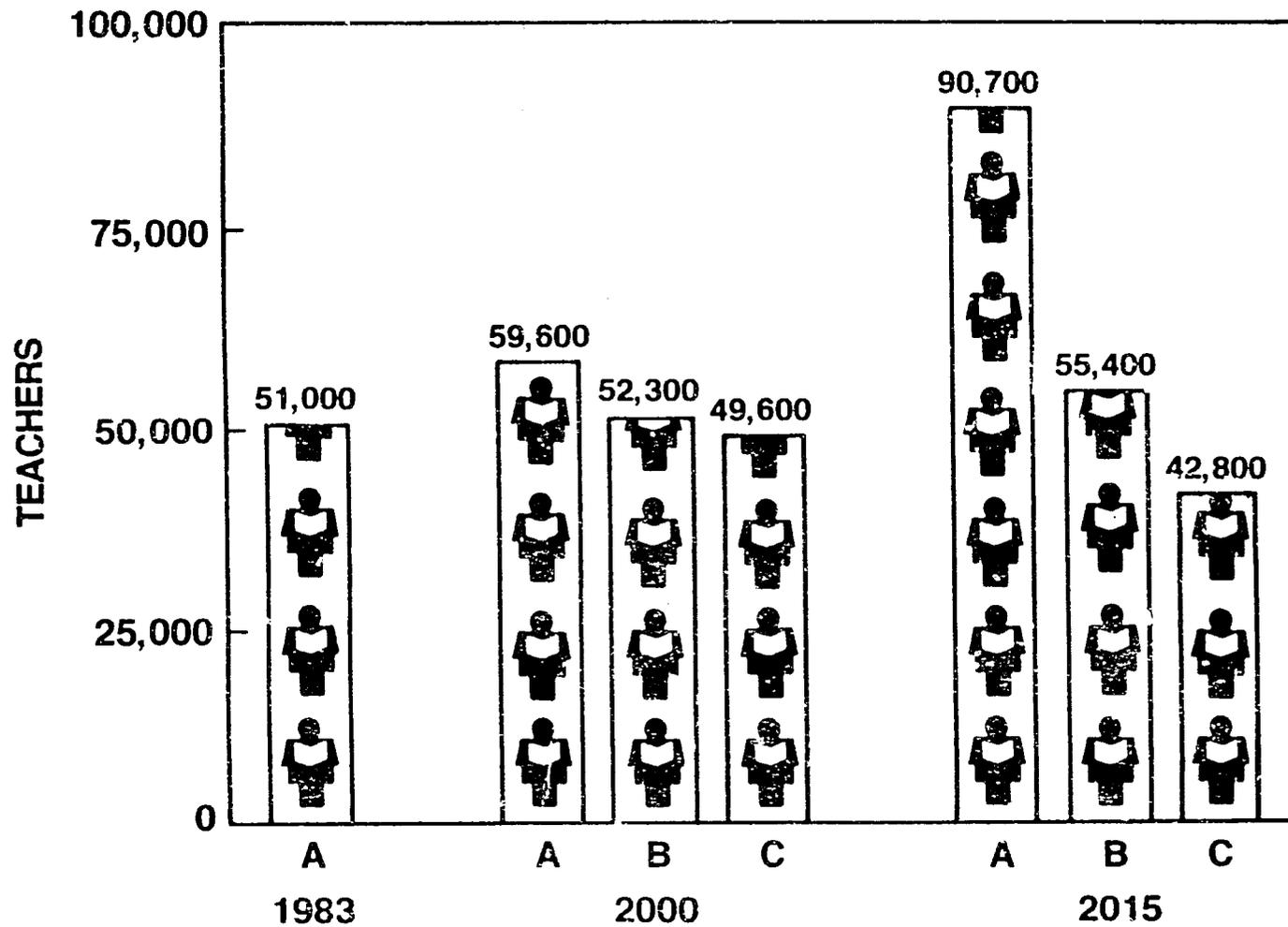
Assuming a continuation of the ratio of 40 students per teacher, the following number of teachers would be required under the two population projections.

With high fertility continued, the number of primary teachers required in Zimbabwe would rise from 51,000 in 1983 to more than 91,000 in 2015.

With a drop to a 3-child per woman average by 2005, the required number of teachers would be about 55,000 in 2015, only about 4,000 more than at present.

With a drop to a 2-child per woman average by 2005, the required number of primary teachers would not be any greater than it is today.

Primary School Teacher Requirements, 1983-2015



- A = High Fertility Continued
- B = 3-Child per Woman Average by 2005
- C = 2-Child per Woman Average by 2005

Primary Schools

By 1983, Zimbabwe had 3,960 primary schools which meant about 515 students for each school. Should that ratio continue:

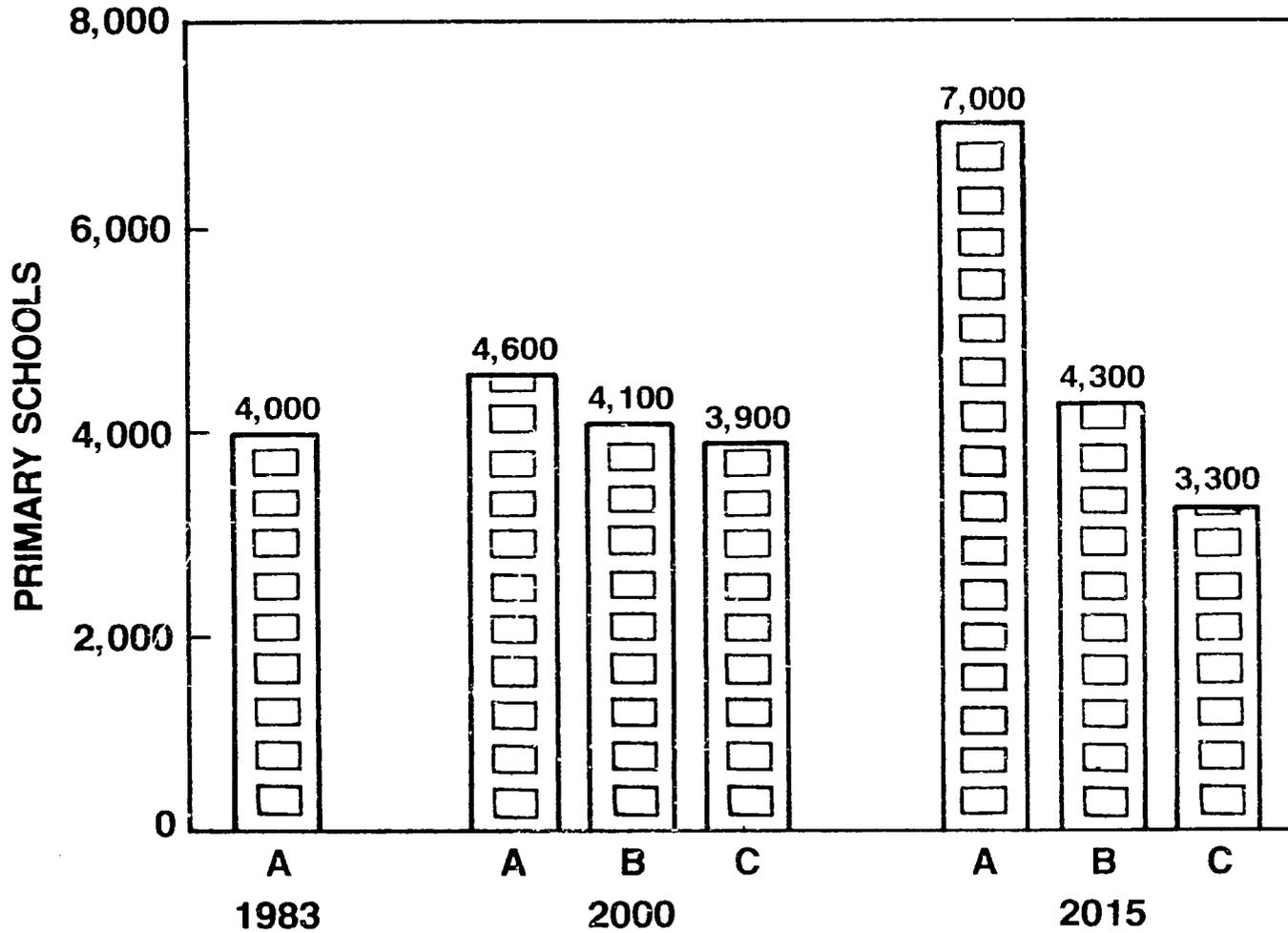
Almost 7,000 primary schools would be needed by 2015 under Projection A.

Closer to 4,300 would be needed in that year with the drop in fertility in Projection B.

Only 3,300 primary schools would be needed in 2015 with the rapid drop in fertility in Projection C.

All the projections take into account not only population trends but also the drop in the enrollment ratio from 130 percent to 100 percent.

Primary School Requirements, 1983-2015



A = High Fertility Continued
B = 3-Child per Woman Average by 2005
C = 2-Child per Woman Average by 2005

Primary School Expenditures

In 1983, primary education was allotted a government budget of \$65,207,000, which averaged out to about \$32 for each student in the country. Simply continuing that level of expenditure would have the following budget implications.

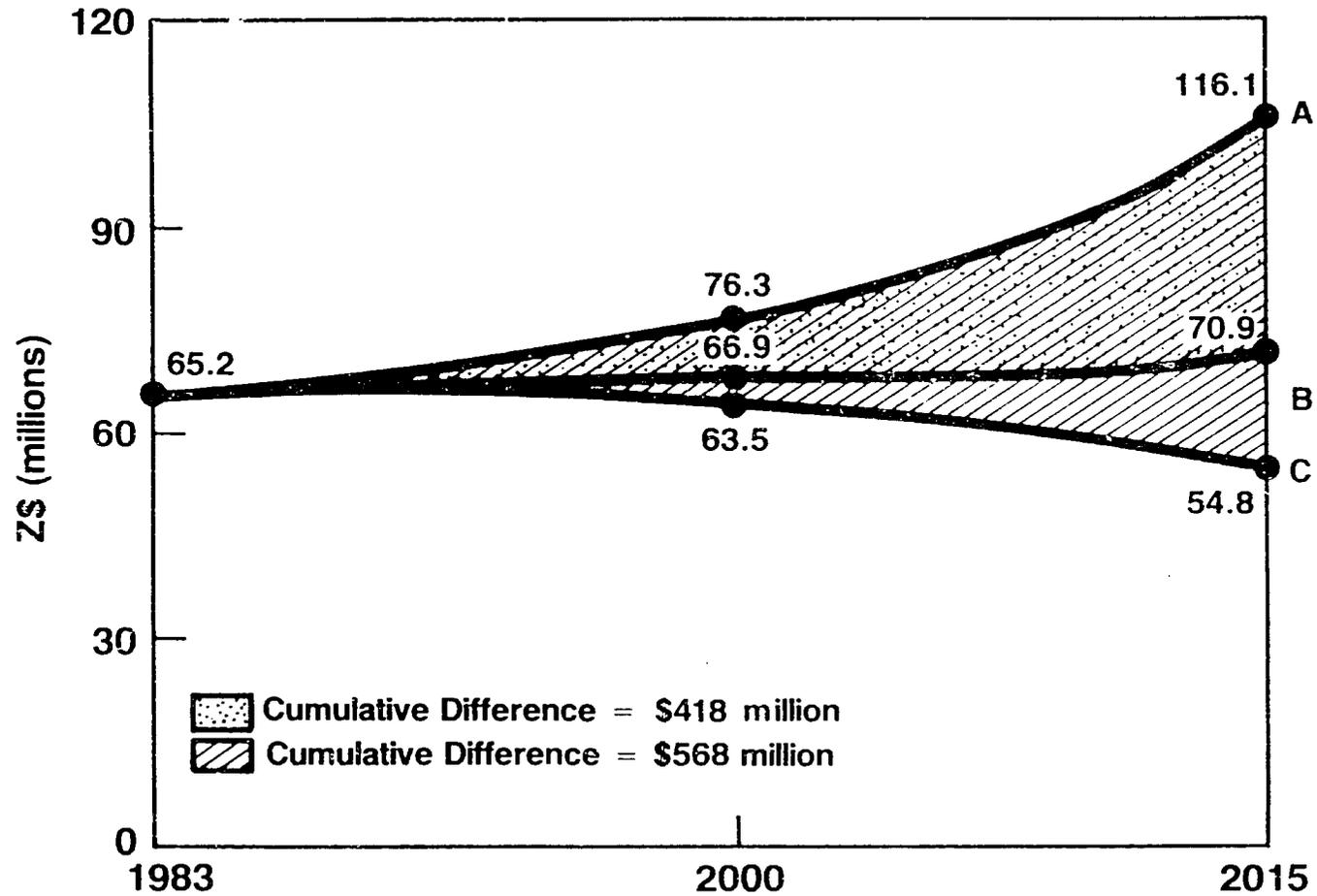
Assuming high fertility continued, the government budget would rise to \$116 million (in 1983 terms) by 2015.

Assuming a drop to a 3-child per woman average by 2005, the government budget for primary education would reach over \$71 million by 2015.

In the third projection, the government budget in 2015 would be \$55 million.

Over the 1985-2015 period, the cumulative difference between Projection A and Projection C would equal \$568 million.

Primary School Expenditures, 1983-2015



- A = High Fertility Continued
- B = 3-Child per Woman Average by 2005
- C = 2-Child per Woman Average by 2005

Secondary Enrollments

In 1980 a number equal to about 10 percent of the 14 to 17 year old age group was enrolled in the first four forms of secondary school in Zimbabwe. By 1983, that percentage had risen to over 40 percent (using estimates of the size of the age group derived from preliminary results of the 1982 census). The projections below use the assumption that about 56 percent of the age group enroll in the first four grades of secondary school by 2000 as Zimbabwe moves closer to a 9 year mandatory program for all students.

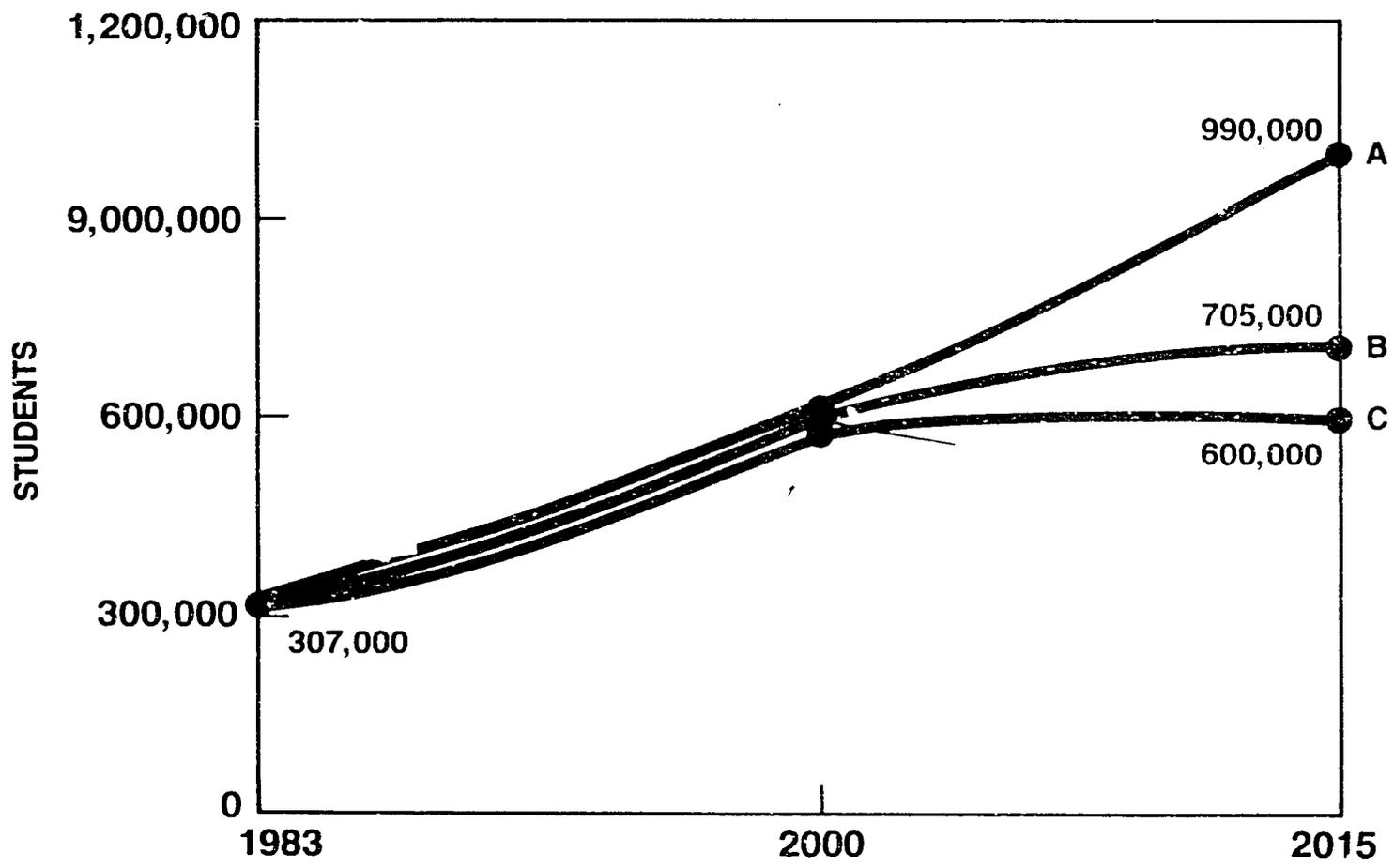
Projection A, high fertility continued, shows that, under these circumstances, secondary enrollments for the first four forms would rise from 307,000 in 1983 to over 611,000 in 2000 and almost 1,000,000 in 2015.

Projection B, declining fertility, indicates that secondary enrollments for Form 1 through Form 4 would increase from 307,000 in 1983 to 585,000 in 2000 and 705,000 in 2015.

Projection C, rapidly declining fertility, shows the corresponding enrollments would rise from 307,000 in 1983 to 575,000 in 2000 and 600,000 in 2015.

The difference between Projection A and Projection C would be about 400,000 secondary students by 2015, a number much higher than total secondary enrollments in Zimbabwe at present.

Secondary Enrollments, 1983-2015 (First Four Years)



- A = High Fertility Continued
- B = 3-Child per Woman Average by 2005
- C = 2-Child per Woman Average by 2005

Secondary Teachers

The required number of secondary schools and teachers would rise proportionately. For example, assuming the 1983 ratio of secondary students to teachers continues into the future:

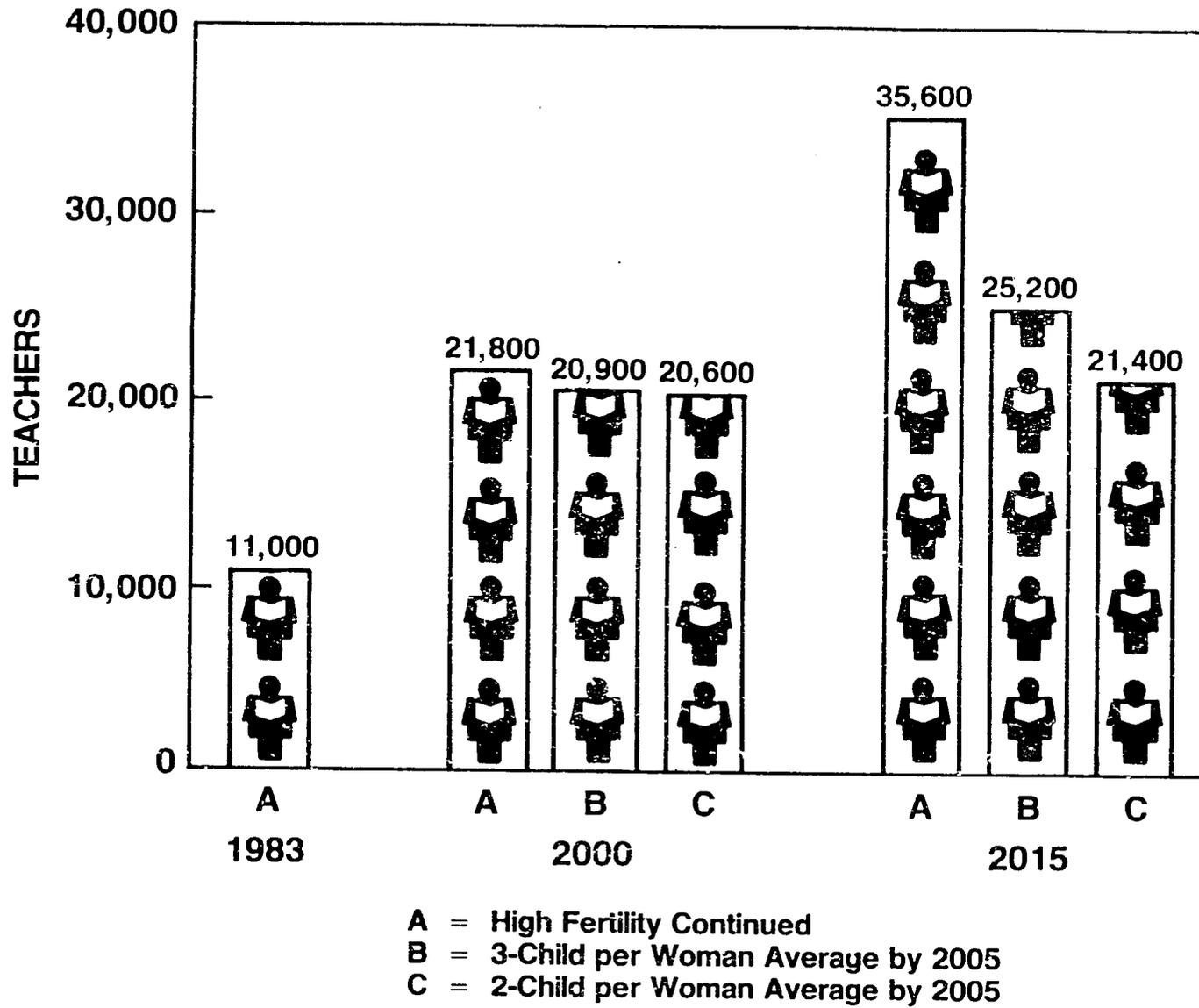
The required number of secondary teachers for Forms 1 through 4 would rise from about 11,000 in 1983 to 21,800 in 2000 and 35,600 in 2015 under Projection A.

By contrast, the required number would be 20,900 in 2000 and 25,200 in 2015 under Projection B.

Finally, the required number of secondary teachers would be 20,600 in 2000 and 21,400 in 2015 under Projection C. By the latter years 14,200 fewer teachers would be required as compared with continued high fertility.

In sum, enactment of a 9 year basic education program and improvement in the quality of educational services in Zimbabwe are goals the attainment of which is partially dependent on the growth of the school age population.

Secondary School Teacher Requirements, 1983-2015



HEALTH

The Government of Zimbabwe considers access to adequate health care to be a basic human right and recognizes the importance of having a healthy population to develop the country. The major goals in the health sector are thus to redress past inequities and make health care accessible to all the population. To achieve these goals, the Government has established a National Health Service, the major focus of which is on health programmes in the rural areas, especially programmes which emphasize preventive health care and the promotion of healthy life styles.

The people of Zimbabwe continue to suffer from the diseases associated with poverty. Nutritional deficiencies are common. Studies indicate that in the rural areas up to 60 percent of the children show evidence of malnutrition. Diseases such as diarrhoea, pneumonia, measles, tetanus, malaria and tuberculosis continue to be widespread. Problems associated with pregnancy, childbirth and the newborn period are also common.

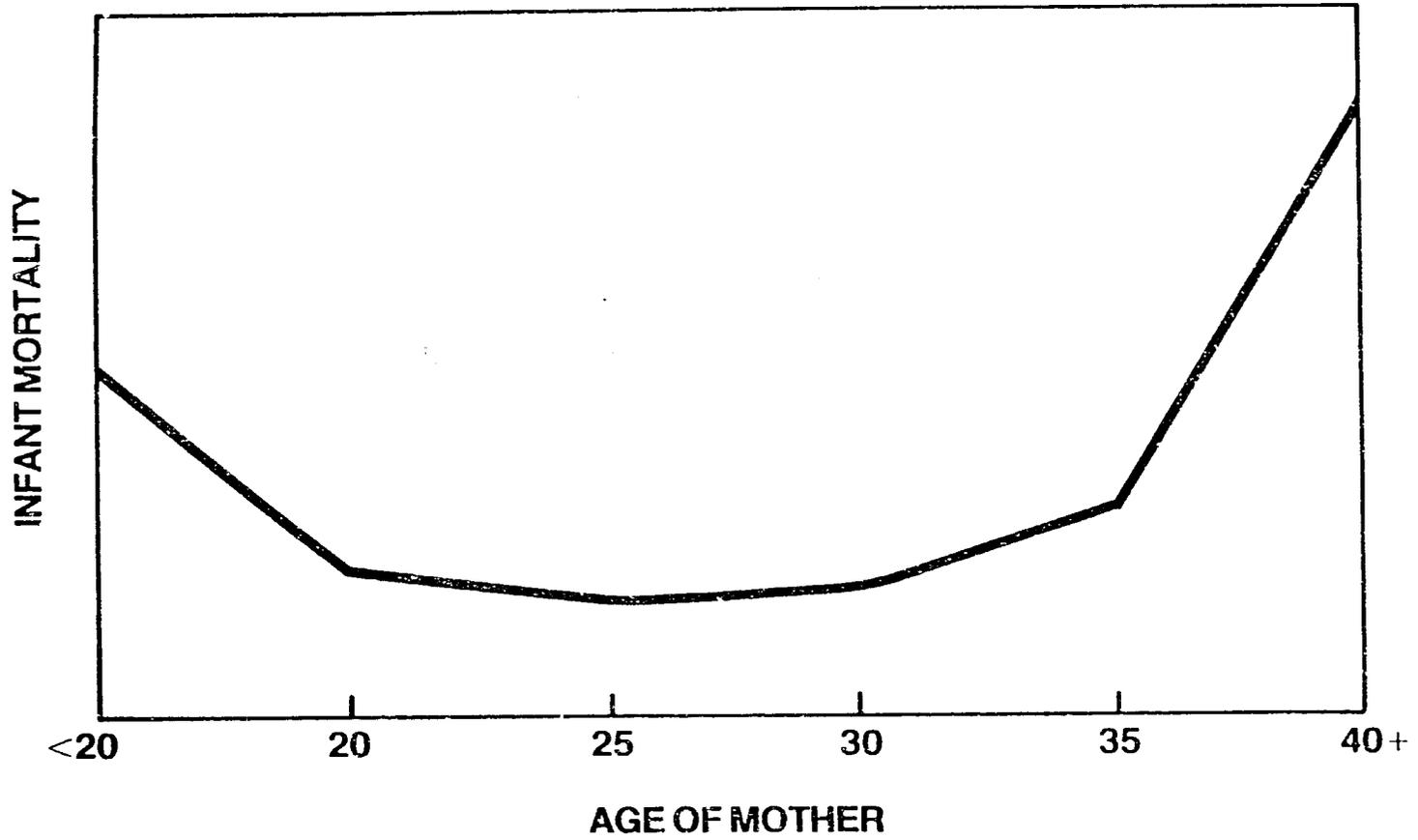
Rapid population growth can affect attainment of goals in the health sector in at least three ways. First, high fertility itself tends to be related to high rates of sickness and death among mothers and children, a relationship which is especially important in a nation such as Zimbabwe where a large proportion of the population is composed of women in the

reproductive ages and young children. Second, the rate of population growth helps determine the number of women in their childbearing years and children under the age of five, the segments of the population at highest health risk and most likely to require health services. Third, the rate of increase also affects the need for facilities, personnel and funds.

Infant Mortality and Age of Mother

As depicted in the graph, the age of the mother at the time of birth is related to the level of infant mortality. While the degree varies from country to country depending on the overall infant mortality rate, the actual shape of the curve tends to remain the same. Pregnancies to women under the age of 20 and over the age of 35, especially if repeated at short intervals, increase the risk to both mother and child. The risk is further aggravated by poor health conditions, malnutrition, or lack of access to medical care. In Zimbabwe, perhaps 35 percent of all births are to women under the age of 20 and over the age of 35. With a lower fertility rate, the opportunity to space children for the better health of both mother and child would be greater.

Infant Mortality and Mother's Age (International Data)



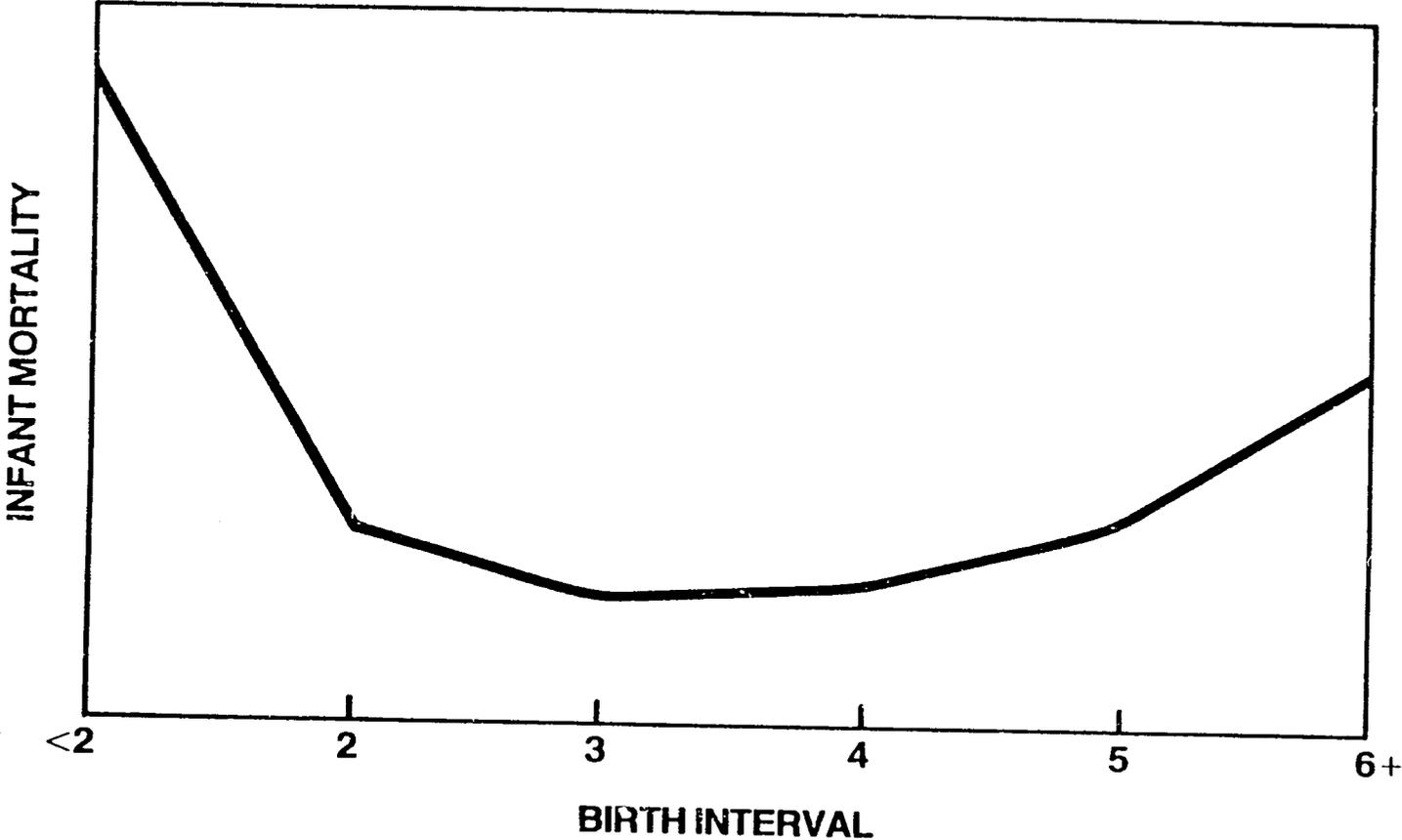
Infant Mortality and the Spacing of Pregnancies

The interval of time between pregnancies can also be very important to the health of the mother and child. In the Planning for Equity in Health report, the observation is made that "too-frequent pregnancies exacerbate maternal malnutrition, which in turn may cause reduction in the volume of breast milk for the baby. A short interval also leads to premature cessation of breast feeding, a major contributor to childhood malnutrition in these circumstances."

The international data used below to describe the relationship between infant mortality and the interval between births supports this contention. Chances of fetal loss, stillbirth, prematurity and early childhood death are very high for intervals of less than 1 year and, to a lesser degree, intervals between 1 and 2 years. Longer intervening periods are needed for the mother to recover from pregnancy and childbirth and to build up strength in preparation for another pregnancy. When mothers are young and birth intervals are short at the same time, the risks to the child are even greater.

With fertility high in many parts of Zimbabwe, birth intervals do tend to be short, thus raising the health risk for both mother and child. Longer birth intervals could potentially be to the health benefit of both women and children.

Infant Mortality and Interval Between Births (International Data)

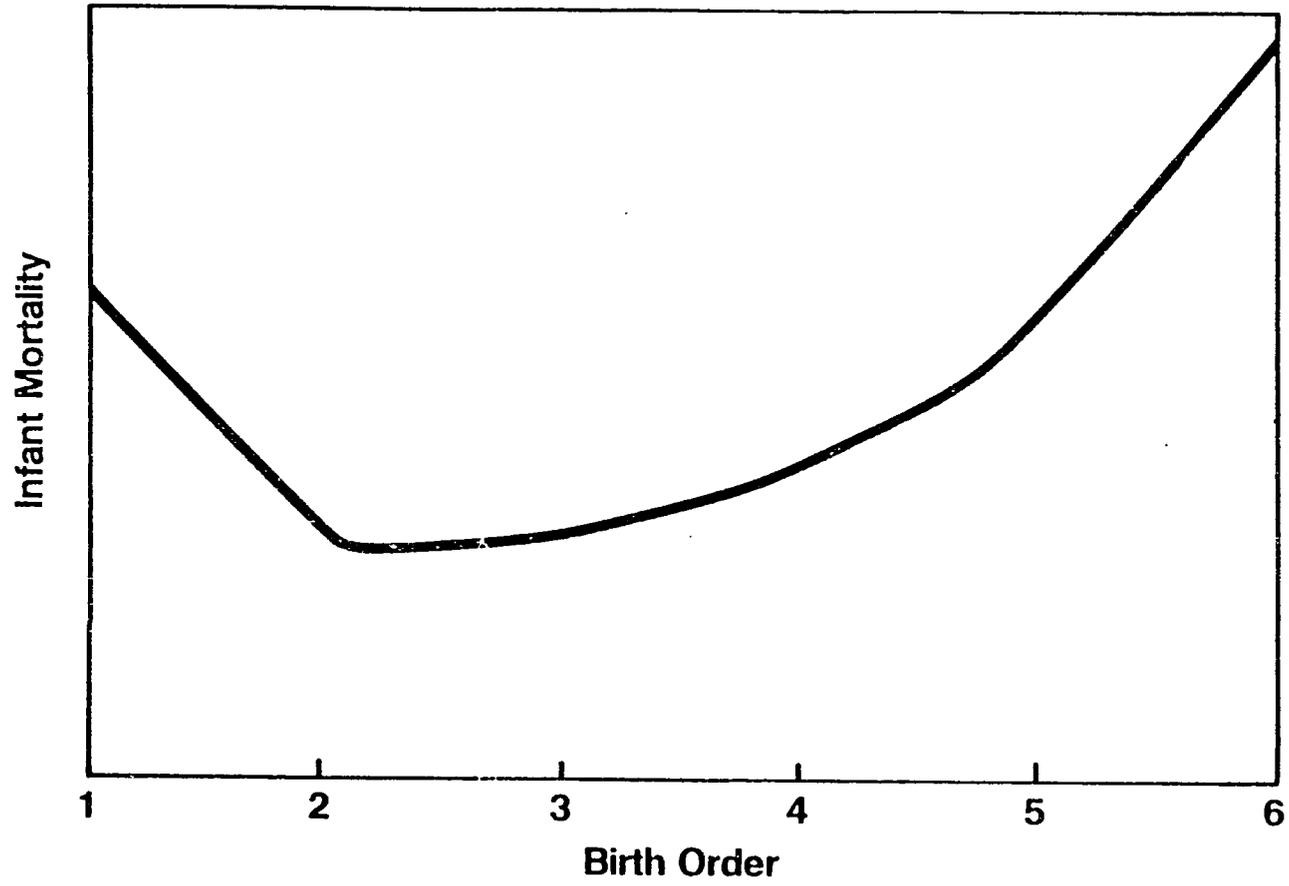


Infant Mortality and the Previous Number of Births

Similarly, as indicated by the graph below, the relative level of infant mortality can be related to the birth order, or the previous number of births. Infant mortality is high for the first birth, a pattern associated with the fact that first births are often to young mothers. Infant mortality is then much lower when the birth is the second, third or fourth to the mother, but rises steeply for the fifth and later births, not uncommon numbers for women in Zimbabwe.

This relationship between high fertility and high rates of sickness and death for young children appears to be especially strong in poorer economic and social settings, and may not be so strong in regions where incomes are much higher.

Infant Mortality and Birth Order (International Data)



Population at Greatest Health Risk

In the Planning for Equity in Health sectoral review and policy statement, two groups of the population are described as most vulnerable to debilitating and death-causing diseases: young children and women of childbearing age. In 1985, these groups totalled 3.3 million persons out of a population of approximately 8.2 million.

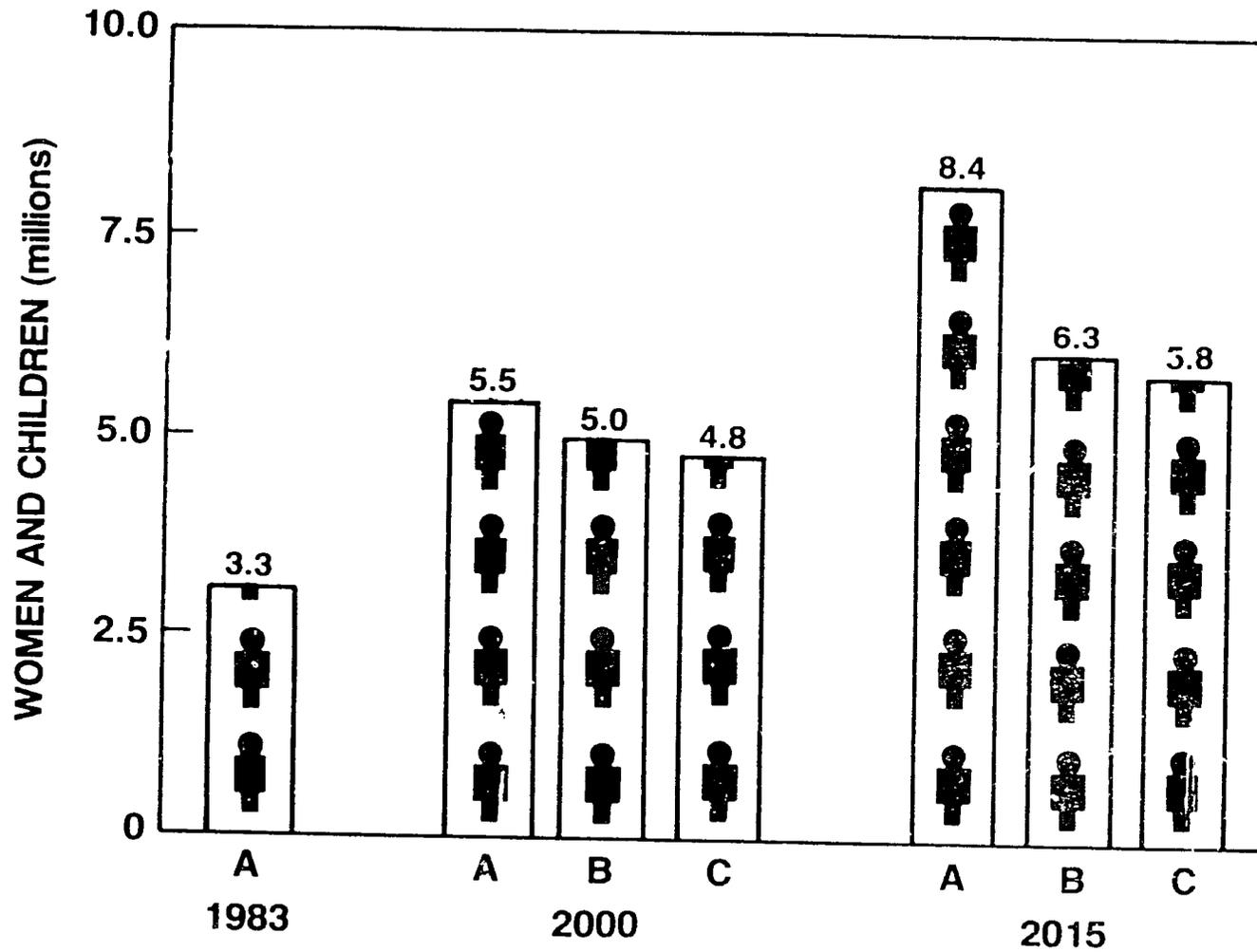
With high fertility continued, the size of these groups would increase further to 5.5 million persons in 2000 and 8.4 million in 2015.

In contrast, with the decline in the fertility rate to a 3-child per woman average by 2005 in Projection B, the size of these groups at greatest risk of disease and death would be 5.0 million persons in 2000 and 6.3 million in 2015.

And with the more rapid decline in fertility to a 2-child per woman average by 2005, the size of these high risk segments of the population would be 4.8 million persons in 2000 and 5.8 million in 2015.

The differences among the three projections are indicative of varying levels of demand for health services in Zimbabwe in the future.

**Population at High Health Risk, 1985-2015
(Women in Reproductive Years and Children Under Five)**



A = High Fertility Continued
 B = 3-Child per Woman Average by 2005
 C = 2-Child per Woman Average by 2005

Health Facilities

To apply the primary health care approach in the rural areas, the most basic unit of the health service has become the rural health centre (RHC), each of which is intended to be staffed by three trained workers. The 450 primary health clinics which existed at the beginning of the plan period were to be upgraded to RHC status, and, in addition, 315 new rural health centres were to be constructed during the three years of the transitional plan. The goal, then, was to have 765 RHCs by the end of the plan period, or one centre for approximately every 8,000 rural residents. The majority of the rural population would then live within 8 km of an RHC. The goal is subsequently to improve upon this minimal level of coverage during the next plan period.

As an illustration of the impact of population growth on the need for additional health services, the following projections assume a need for one new rural health centre for each additional 8,000 persons in the rural areas of Zimbabwe.

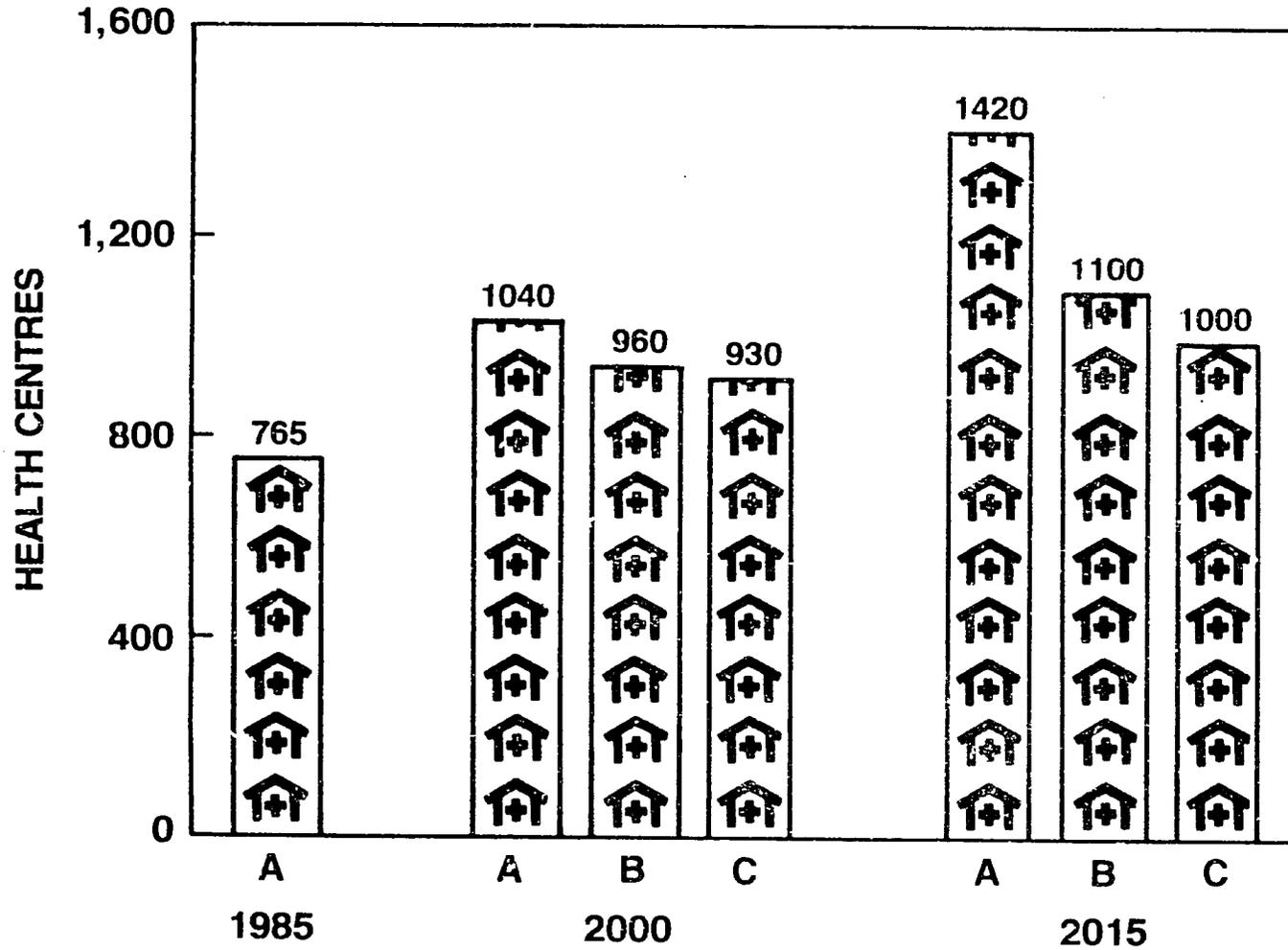
Should fertility remain high, 275 new rural health centres would have to be constructed between 1985 and 2000 and 380 more between 2000 and 2015 to accommodate the growth of the rural population.

Should fertility drop to a 3-child per woman average by 2005, 335 new rural health centres would be needed over the same period of time.

Should fertility decline more quickly as in Projection C, 235 new health centres would be needed over the 30 year period, or 420 fewer than with a continuation of high birth rates.

These projections do not take into account the health facilities which would be required by the population in the rapidly expanding urban centres of Zimbabwe.

Rural Health Centres Required, 1985-2015



- A = High Fertility Continued
- B = 3-Child per Woman Average by 2005
- C = 2-Child per Woman Average by 2005

Health Personnel

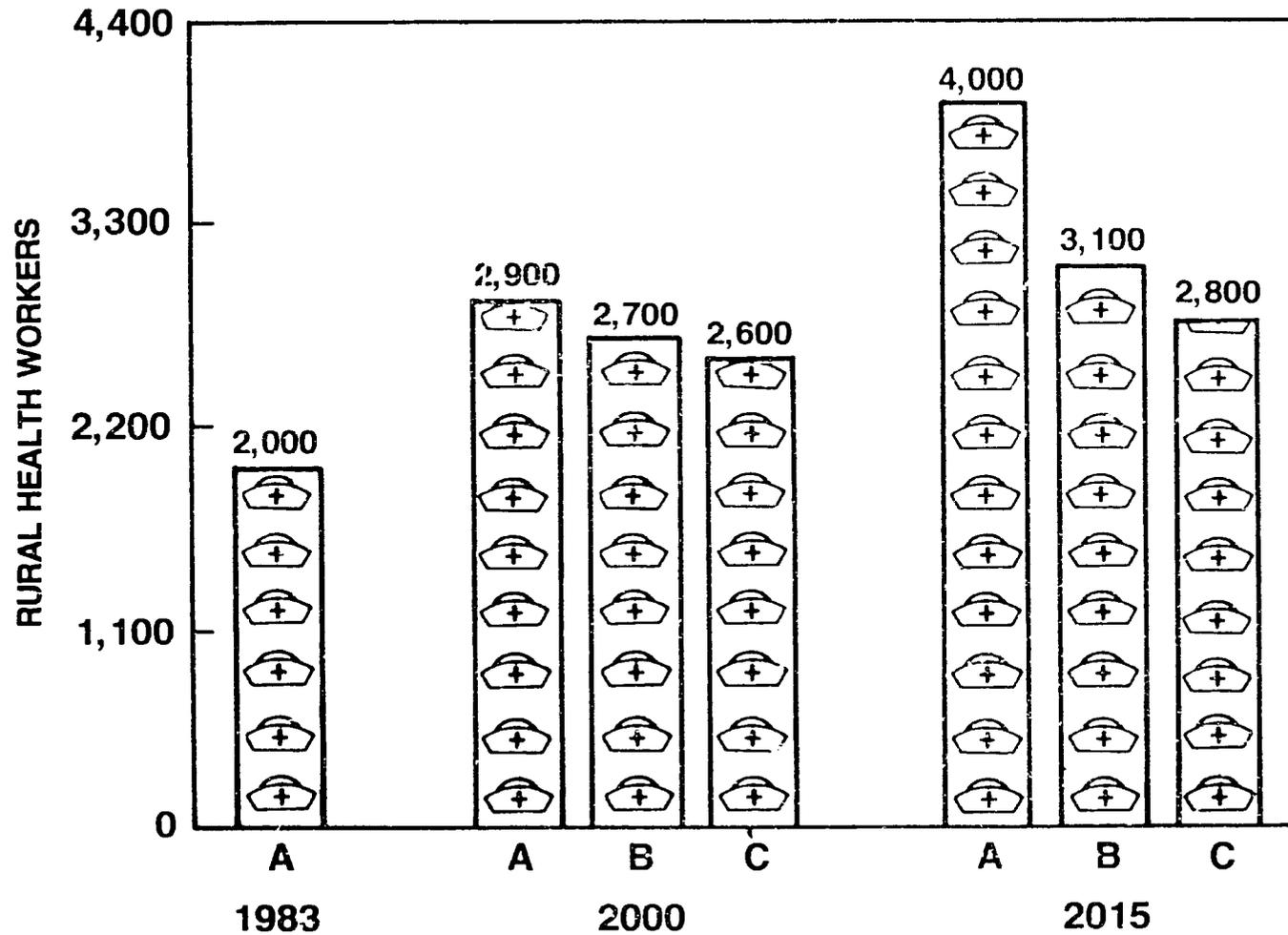
In reporting the health manpower situation in 1983, the Ministry of Labour, Manpower Planning and Social Welfare indicated 491 physicians, 2,192 state registered nurses, and 3,437 medical assistants practicing in Zimbabwe. Of these, most continued to be in the urban areas, as approximately 2,000 of them were working in the rural parts of the country. This equalled about one health practitioner for each 2,850 rural inhabitants. Looking just at the rural areas and assuming the same level of service as at present:

About 1,900 additional rural health workers would be needed between 1985 and 2015 under Projection A.

By contrast, about 1,005 additional rural health workers would be required over the same period of time under Projection B.

Finally, 715 more health personnel would be required in the rural areas over the 1985 - 2015 interval under Projection C, or 1,185 fewer than with the first projection.

Rural Health Workers, 1983-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

Government Health Expenditures

For the 1984-85 fiscal year, the budget for the Ministry of Health equalled \$131,374,000, or about \$16 per person. This represented a \$7.6 million decrease from the 1983-84 budget, although the Government has succeeded in raising the health budget and distributing more resources in the rural areas following independence. Given a continuation of the 1984-85 level of expenditure per capita, Government budgets would have to rise as follows to maintain the same level of care as at present.

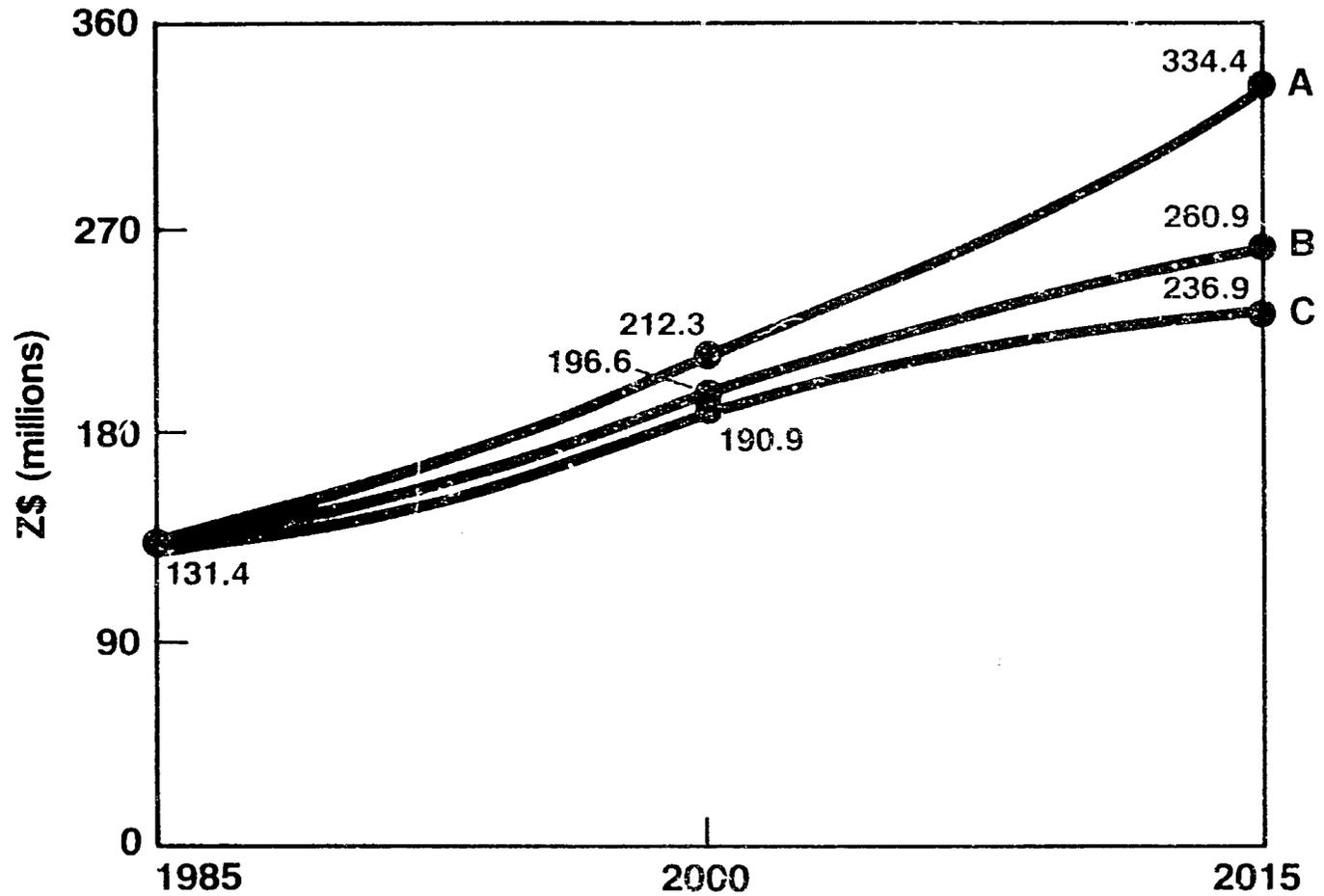
Assuming continued high fertility, the Government health budget would rise to \$212 million in 2000 and \$334 million in 2015.

Assuming a fertility decline to a 3-child per woman average by 2005, the health budget would increase more slowly to \$197 million in 2000 and \$261 million in 2015.

Assuming a more rapid fertility reduction to a 2-child per woman average by 2005, annual health expenditures would grow to \$191 in 2000 and \$237 in 2015.

In brief, the rate of population growth is one factor affecting the extent to which the health infrastructure of Zimbabwe must be expanded to meet adequately the needs of the entire population.

Government Health Expenditures, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

GROSS DOMESTIC PRODUCT PER CAPITA

A primary objective of the Transitional National Development Plan is to achieve rapid and sustained economic growth. The rationale stated in the plan is that, in view of a rapidly growing population, distribution without economic growth and development would only lead to a decline and deterioration in living standards. (Nor, on the other hand, would economic growth without equitable distribution result in national development.) Zimbabwe, with its diverse economy including strong manufacturing, mining and agricultural sectors, has the development potential to achieve sustained economic growth. The goal of the transitional plan was to achieve a real rate of increase of 8 percent annually, an objective which has not been achieved.

Economic growth in Zimbabwe averaged about 7 percent per year between 1965 and 1974, then fell by about 2.7 percent per annum between 1975 and 1979. In 1980 and 1981, the economy recovered impressively growing by 11.2 percent per year. However, with the drought, world recession and low prices for some of Zimbabwe's minerals, the economy declined by about 2 percent in 1982 and 3 percent in 1983. Gross Domestic Product per capita, which by 1981 had regained its 1971/72 level, fell thereafter.

Many factors affect the Gross Domestic Product, one of which is change in the size of the labour force. However, because most new entrants into the labour force over the 1985 - 2015 interval are young persons who have already been born or who will be born in the near future, the drop in fertility in Projections B and C will make only a small difference in the size of the labour force as compared with Projection A. Levels of unemployment and underemployment are high in Zimbabwe, and, in addition, a smaller labour force would permit more resources per worker, Consequently, a difference of 10 to 15 percent in the size of the labour force by 2015 is not likely to greatly affect the overall productive capacity of the economy, given that other factors such as technological progress and the availability of capital remain the same.

For that reason, the projections used below to illustrate the relationship between the rate of population growth and changes in the Gross Domestic Product per capita incorporate the same assumption. More precisely, they assume no overall growth between 1982 and 1985 and a 5 percent per annum growth rate thereafter. Gross Domestic Product per capita, given in 1982 Zimbabwe dollars, would then change as follows.

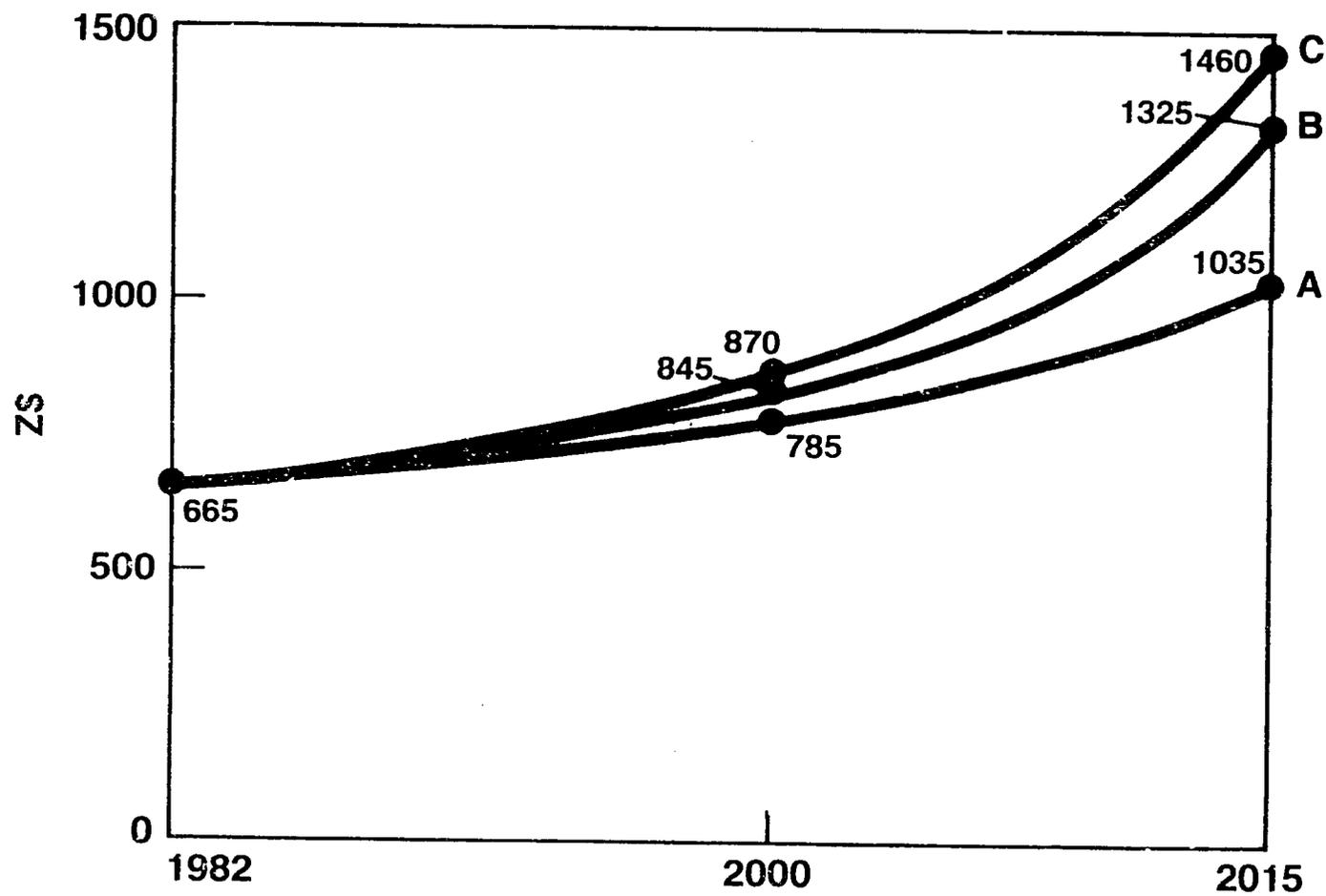
With continued high fertility, GDP per capita would rise from Z\$665 in 1982 to Z\$785 in 2000 and Z\$1035 in 2015. By the latter year, GDP per capita would be about 50 percent higher than it had been in 1982.

With a drop in the fertility rate to a 3-child per woman average by 2005, GDP per capita would rise to Z\$845 in 2000 and Z\$1325 in 2015, almost twice the 1982 level.

With a decline in the fertility rate to a 2-child per woman average by 2005, GDP per capita would rise more quickly to Z\$870 in the year 2000 and Z\$1460 in 2015.

Since national policy is to achieve a more equitable distribution of the wealth of the nation, a more rapid rise in the Gross Domestic Product per capita can indicate a faster improvement in living standards of the people.

Gross Domestic Product Per Capita, 1982-2015 (1982 Z\$)



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

SCHOOL LEAVERS AND MODERN SECTOR JOBS

One of the most important development issues facing Zimbabwe is that of employment creation. The Ministry of Labour, Manpower Planning and Social Welfare reported in its Annual Review of Manpower, 1983 that formal sector employment had dropped from 993,333 in 1982 to 965,892 in 1983. Equally as significant, declines were registered in the productive sectors, including agriculture, mining and manufacturing, while employment increases occurred in public administration and education. Thus, employment opportunities in Zimbabwe have been contracting in the productive sectors of the economy while expanding in the public service areas.

The contraction in employment is especially significant in view of the post-independence expansion of educational opportunities in Zimbabwe. For example, in 1982 there were about 80,000 school leavers competing for about 10,500 formal sector jobs. The number of school leavers was also expected to increase significantly over the subsequent few years.

The Development Plan target was to increase formal employment by 3 percent per year which would have equalled about 108,000 new modern sector jobs over the three year plan period. This expansion would have been commensurate with the projected 8 percent annual increase in the Gross Domestic Product. As noted, neither goal has been achieved.

Assuming that Zimbabwe achieves a 9 year basic education program, the stated goal in the Transitional National Development Plan, the number of students who would leave school with at least some secondary education each year would rise from about 95,000 in 1985.

Under Projection A, the number would increase to 273,000 in 2000 and 445,000 in 2015.

Under Projection B, the number of secondary school leavers each year would rise to 261,000 in 2000 and 315,000 in 2015.

Under Projection C, the number of annual leavers with some secondary education would increase to 257,000 in 2000 and 268,000 in 2015.

Not all these young men and women would seek immediate entry into the labour force. Others would be able to take over jobs from persons who left the labour force because of death, retirement or other reasons. Assuming that 20 percent of new school leavers were accommodated in this manner, this would still mean that the economy would have to generate enough new formal sector jobs to provide employment for 80 percent of the school leavers each year.

As noted above, the Development Plan goal was to increase formal sector employment by 3 percent per year. Given that rate of expansion after 1985 and given that 80 percent of the school leavers each year would need jobs in the modern sector, the relationship between school leavers and modern sector employment can be examined.

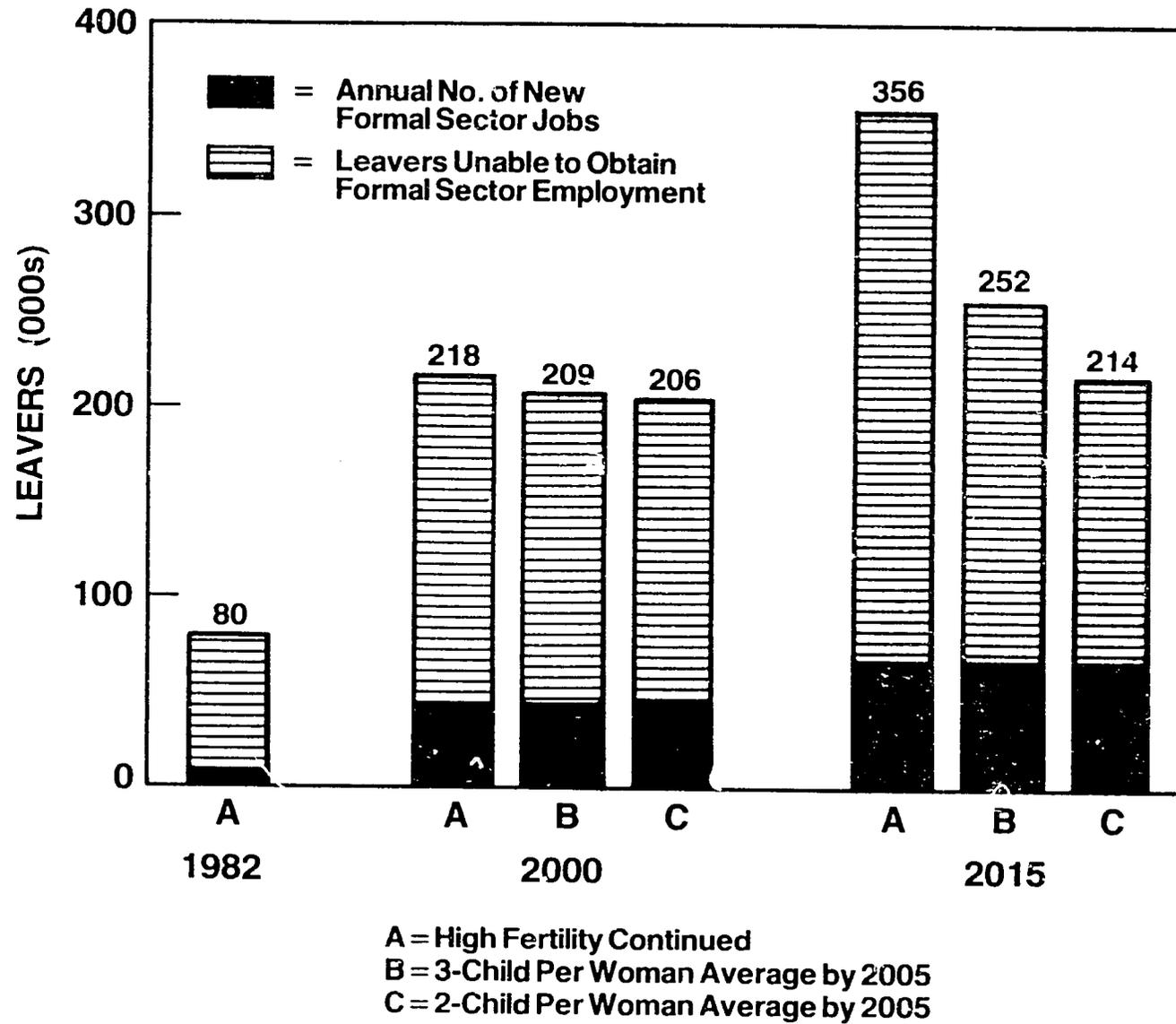
With high fertility continued, by 2000 about 218,000 school leavers with some secondary education would be competing for about 43,000 new jobs. By 2015, about 356,000 leavers would be coming out of the system each year, but the economy would be creating closer to 67,000 new jobs in the modern sector. This would leave an annual shortfall of about 289,000 new jobs.

With a decline to a 3-child per woman average by 2005, the situation would be very like that in the first projection over the next 15 years, as most new entrants into the secondary schools between 1985 and 2000 are children who have already been born. By 2015, however, the 252,000 school leavers needing new jobs would be more than 100,000 fewer than with Projection A. The gap between the number of school leavers and the number of available modern sector jobs would still be very large.

With a decline to a 2-child per woman average by 2005, the number of school leavers in 2015 would be 214,000. This would be 142,000 fewer leavers than with high fertility continued, but would still be 147,000 more than the number of new modern sector jobs available in that year.

Rapid population growth, rapid expansion of educational opportunities and a serious shortfall of new employment possibilities for school leavers have thus combined to create one of the most difficult development challenges facing Zimbabwe.

School Leavers and Formal Sector Jobs, 1982-2015



LABOUR FORCE AND CHILD DEPENDENCY

The Zimbabwean labour force, defined in the Annual Review of Manpower as between 85 and 90 percent of the population aged 15 to 64, numbers about 3.7 million persons in 1985. The following projections assume that labour force participation rates drop gradually to about 75 percent with greater urbanization.

Because most new entrants into the labour force over the next 15 years are children who have already been born, the size of the labour force will be about the same in 2000 with all three population projections. Thereafter, declining fertility would affect the size of the labour force. By 2015, 8.7 million persons would be in the work force under Projection A; 8.0 million under Projection B; and 7.8 million under Projection C, still only a difference of 12 1/2 percent between the first and third projections. Even with a rapid decline in fertility, Zimbabwe would have more than a sufficient labour force to develop the country.

What changes more rapidly is the number of dependents who would have to be supported by the productive members of the labour force. The observation is made in the Transitional National Development Plan that "slower population growth means that the dependency ratio (that is, the proportion of people who are young and not immediately productive) is lower and a worker has fewer people to maintain." The statement is accurate.

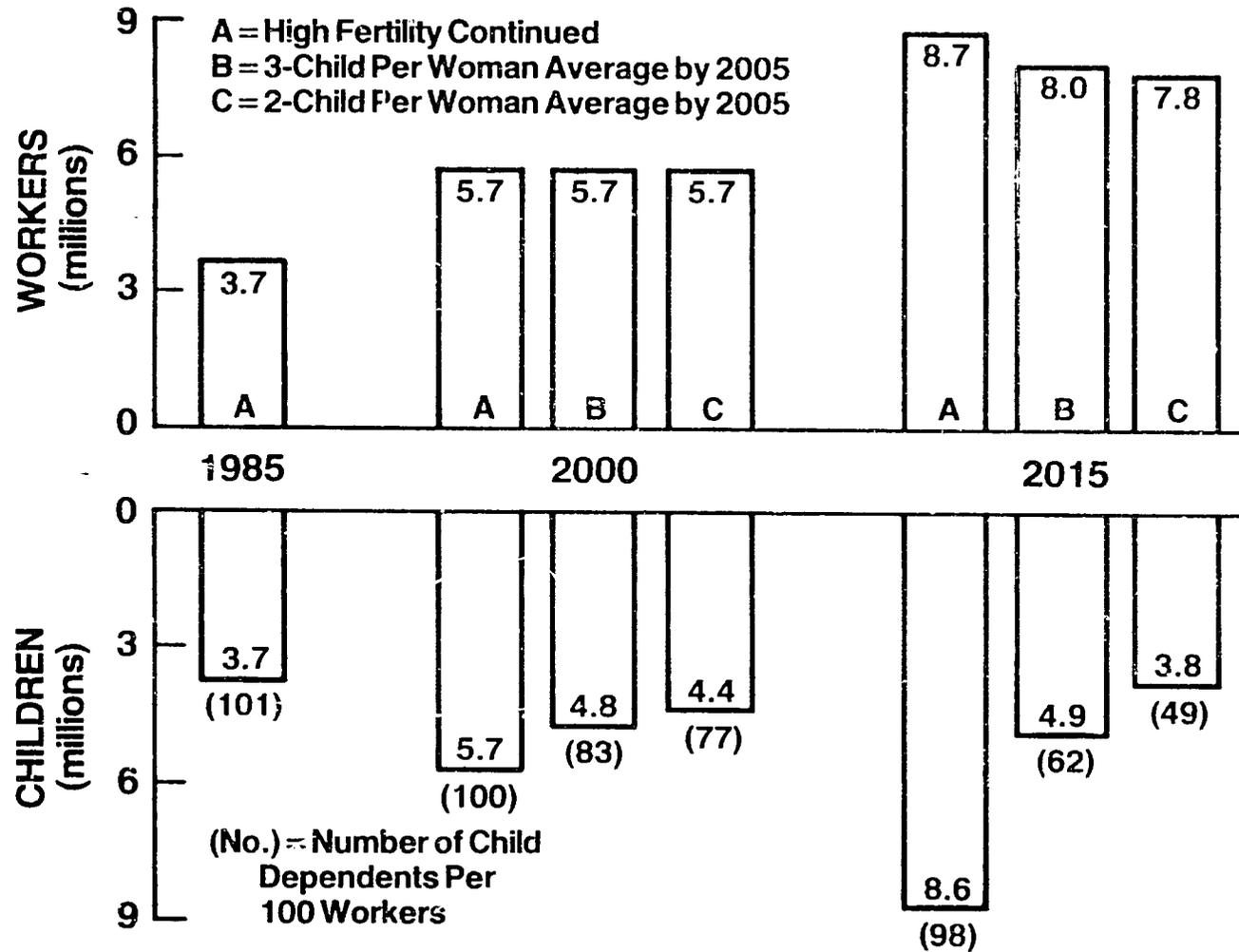
If fertility were to remain high, every 100 productive members of the labour force would have to support 101 child dependents in 1985, 100 in 2000, and 98 in 2015.

If fertility were to drop to a 3-child per woman average by 2005, every 100 productive workers would have to support 83 child dependents in 2000 and 62 in 2015.

If fertility were to drop to a 2-child per woman average by 2005, every 100 workers would have to take care of 77 child dependents in 2000 and 49 in 2015.

The lower dependency ratio suggests that more resources, such as educational services, would be available for each child, and that potentially more resources could be made available to develop the productive sectors.

Labour Force and Child Dependents, 1985-2015



AGRICULTURAL DEVELOPMENT

Agricultural development remains key to the national goals of poverty alleviation and the provision of basic needs. About 73 percent of the populace still lives in the rural areas of Zimbabwe and more than 70 percent of the population makes its living from the land. The relative contribution of agriculture to the Gross Domestic Product is smaller, about 19 percent in 1981, although about half of all manufacturing is dependent, to some extent, on production in the agricultural sector. Agriculture also has traditionally accounted for more than 30 percent of employment in the formal sector of the economy; nonetheless, the historic trend has been towards fewer people engaged in wage employment in agriculture.

The dualism of the agricultural sector in Zimbabwe is well known - a modern, commercial sector on the one hand and a peasant, largely subsistence sector on the other. According to the Transitional National Development Plan, large scale commercial farms cover about 15.7 million hectares, over 30 percent of which is in Natural Regions I and II, the best agricultural land in Zimbabwe. By contrast, the communal areas include about 16.3 million hectares of which only about 8.5 percent is in Natural Regions I and II.

The Development Plan reported over 700,000 families living in the communal areas. Because they are, for the most part, in the poorer ecological zones, the estimated carrying capacity of the communal lands is around 325,000 families, or less than half the number actually there in the early 1980s. Combined with overgrazing, the end result has been a progressive degradation of these lands.

The Government of Zimbabwe has a number of goals in the agricultural sector, including efforts to achieve a fairer distribution of land ownership and greater integration of the commercial and peasant sectors, reduce rural poverty, increase productivity, exports and employment, maintain food self-sufficiency and conserve land resources. The achievement of these goals can be affected in many ways by the rate of population growth.

Land Availability

As noted, a fairer distribution of land ownership is among the goals of the Government of Zimbabwe. In particular, because of overcrowding on the communal lands, the issue of land availability is an important one.

In many ways, Zimbabwe has a good agricultural resource base. The Transitional National Development Plan indicates that Zimbabwe has about 8.6 million hectares of potentially arable land, of which about 3.5 million were committed to cultivation. Rapid population growth, however, can quickly change the relatively advantageous resource base with which Zimbabwe commenced its development effort. Given an excess of about 375,000 families in the communal areas at the beginning of the development plan, and given that each resettled household needs about 5 hectares of arable land, 1.9 million hectares of the arable but unutilized land could potentially be used simply to resettle households currently on the communal lands to bring the population in the communal areas into line with the potential carrying capacity of these regions.

That would leave about 3.2 million hectares still available which could accommodate about 640,000 new rural households. But even given rapid urbanization, the number of new agricultural households would exceed 640,000 in the not distant future.

Under Projection A, high fertility continued, about 560,000 new rural households would be established between independence and the year 2000, a short 15 years from now. These new households would require about 2.8 million hectares of unutilized land which would use up most of that resource. Between 2000 and 2015, an additional 577,000 farming households would require another 2.9 million hectares of land.

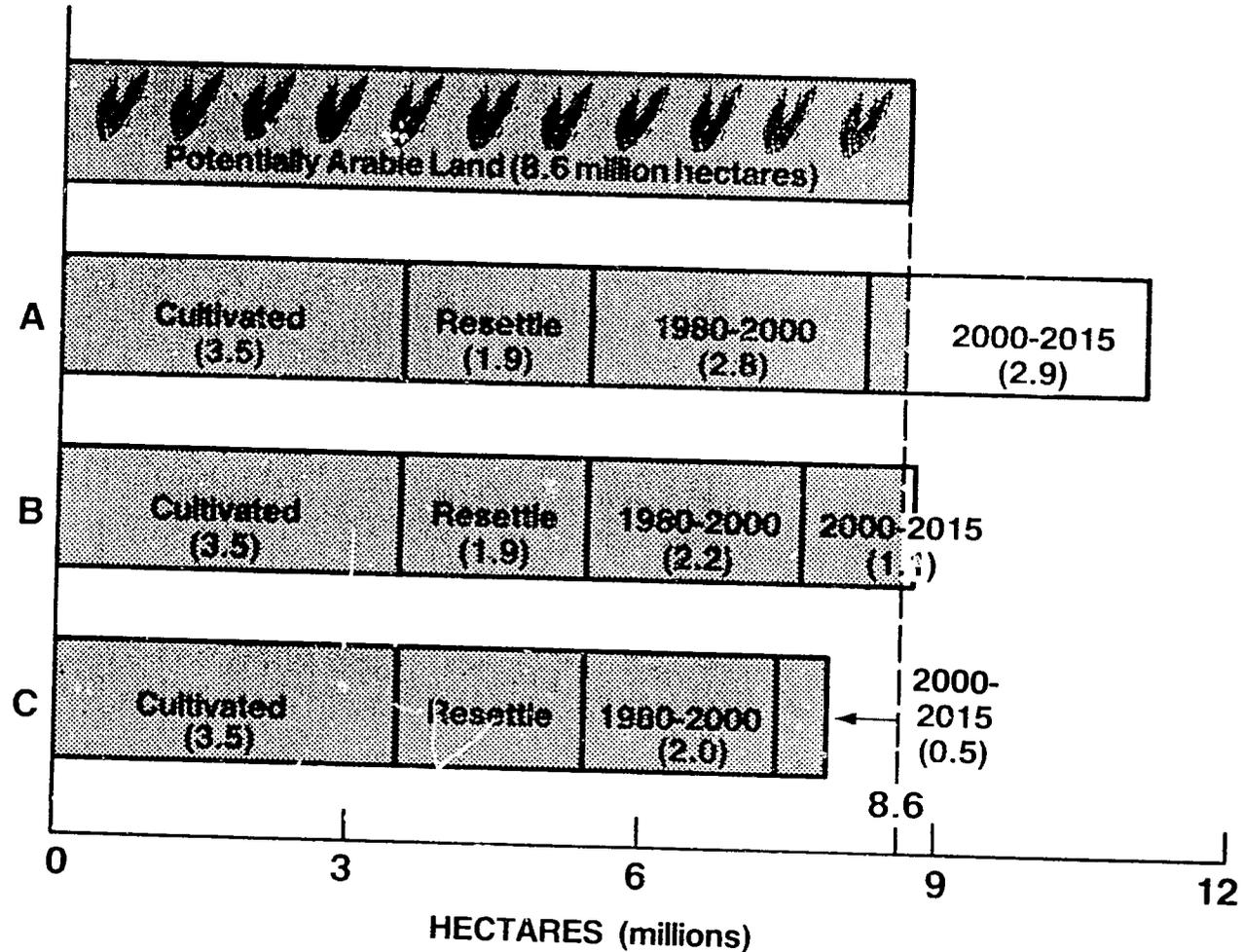
Under Projection B, a drop to a 3-child per woman average by the year 2005, about 440,000 new rural households would require about 2.2 million hectares of unused arable land between 1980 and 2000. Over the ensuing 15 years, 2000 - 2015, another 213,000 rural households would need about 1.1 million hectares.

Under Projection C, a decline to a 2-child per woman average by 2005, approximately 400,000 additional rural households would need about 2.0 million hectares of land over the 1980 - 2000 interval. Another 100,000 households would need about 500,000 hectares of land between 2000 and 2015.

As the demand for land increases, so do the pressures to subdivide the farms into smaller holdings. For example, even if all potentially arable land were put into cultivation, average size of a new holding under Projection A would drop from 5.0 hectares in 1985 to 3.4 hectares in 2010.

In sum, independent Zimbabwe has had a relatively good land resource base from which to launch its development effort. Nonetheless, arable land remains a finite resource and this advantageous position can be altered with the continued rapid growth of the population.

Land Availability, 1980-2015



Cultivated = Committed to Cultivation, 1980
 Resettle = Land to Resettle Excess Households from Communal Lands
 1980-2000 = Land Required for New Rural Households, 1980-2000
 2000-2015 = Land Required for New Rural Households, 2000-2015

Resettlement

In the Transitional National Development Plan, the observation is offered that "over-population has created numerous settlement and development problems in the communal areas... with the result that there has been massive soil erosion." Resettlement of farm families has thus become an important development goal in Zimbabwe. The cost of moving large numbers of people to the unused commercial and communal lands and then developing the lands and the infrastructure to make them productive can be considerable. In fact, the Government has not been able to relocate the 162,000 families who were to be resettled during the transitional development plan period.

For the first 11 intensive resettlement program schemes, average capital costs, exclusive of land purchase costs, were planned to be about Z\$2,670 per farming unit. At that level of expenditure, it would cost more than Z\$1 billion to resettle the 375,000 farming families now on the communal lands who would have to be moved to bring population in the communal areas into line with the carrying capacity of those regions. This figure might be contrasted with the Z\$26.7 million allocated for resettlement schemes, including land purchases, during the 1984/85 fiscal year.

Using the same expenditure level, a sense of the relative costs to develop new lands to accommodate the growth of the farming population under the three population projections can be obtained.

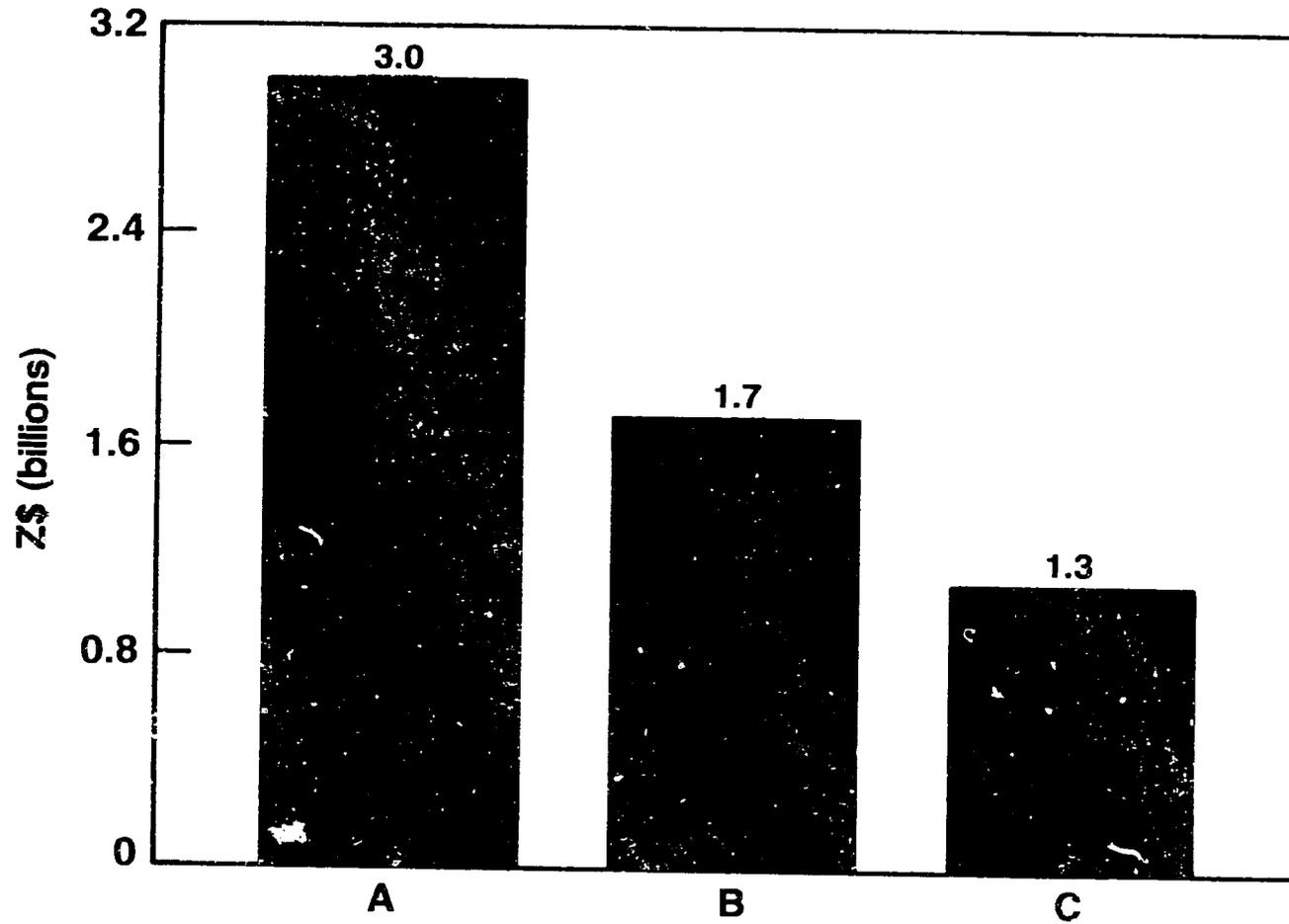
With high fertility continued, about \$1.5 billion would have to be invested before the year 2000 to develop new lands for the 560,000 additional agricultural households. Another \$1.5 billion would be required between 2000 and 2015, for a total of \$3.0 billion.

By contrast, \$1.7 billion would have to be invested over the 1980 - 2015 period for resettlement under Projection B, which would be \$1.3 billion less than with high fertility continued.

And, finally, \$1.3 billion would be needed for resettlement costs over the same 35 year period with the rapid decline in birth rates in Projection C, which would be \$1.7 billion less when compared with the first projection.

Staff at the Ministry of Lands and Resettlement caution that the projections on land availability and resettlement should in one sense be regarded as a theoretical contrast between the amount of potentially arable land and the demand for that resource. In fact, only about 32,000 families have been resettled to date. Realistically, continued population growth in the rural parts of Zimbabwe is likely to intensify present pressures on the land and soil, especially in the communal areas.

Resettlement Costs, 1980-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

Food Production

A key goal in the Transitional National Development Plan is to maintain and enhance food security and self-sufficiency in Zimbabwe. The recent drought and the need to import food has underscored the importance of this objective.

Historic trends in food production in Zimbabwe are difficult to discern. Over the past 25 years, total production of major foods in the communal areas, including maize, millet, sorghum and groundnuts, increased by 3.2 percent per year, of which increasing yields contributed 1.9 percent per year, and expansion of the hectareage under cultivation 1.3 percent. This is a better record than in many neighbouring countries where those production gains which have been achieved over the past decade have come largely from expanding the amount of land under cultivation.

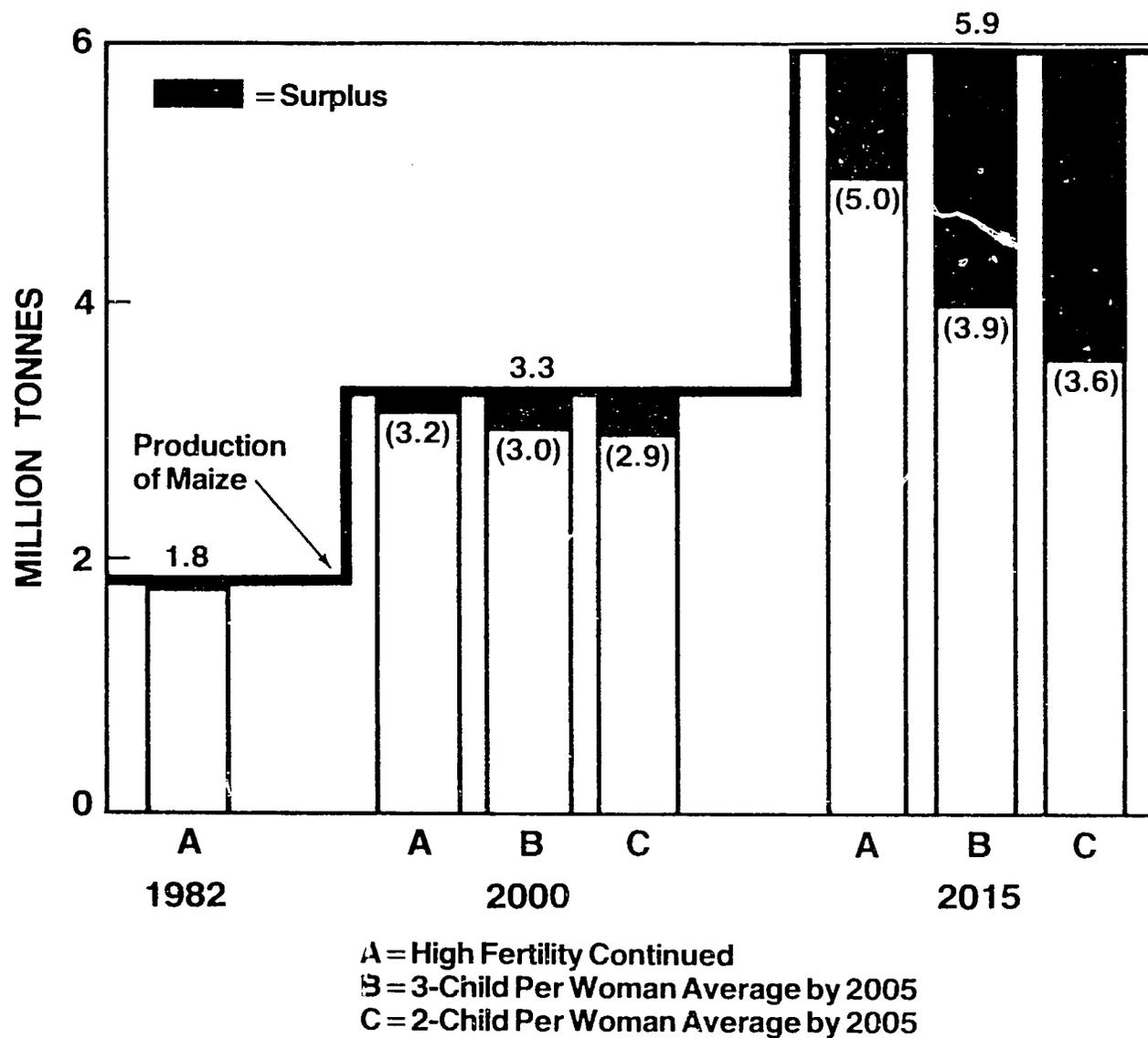
Nonetheless, considerable opportunity exists for improving yields. World Bank and other sources, for example, suggest that with adequate research and extension services, maize yields in the communal areas could increase by up to 4 percent over the next 15 years. In addition, as discussed above, Zimbabwe possesses a considerable amount of good land which has not yet been brought into production.

On the other hand, agricultural production actually dropped by 20 percent in 1983 with the drought and the economic situation has forced limitations on research and extension services. The 1984 harvest, in turn, appears to have been a good one. Given these countervailing forces and divergent performances, prognosticating future trends in food production and relating them to the rapid rate of population growth becomes difficult.

Still, maize production may serve as at least an illustrative example. In 1982, according to Central Statistical Office information, Zimbabwe produced about 1.8 million tonnes of maize or about .24 tonnes per capita. The first example assumes that maize production increases by 4 percent per year after 1985 which is higher than the historic rate of increase in the production of basic foodstuffs in the communal areas.

With a continuation of the 1982 level of maize consumption per person, a growth rate in maize production of 4 percent per year would allow the Government of Zimbabwe to attain its goal of achieving and enhancing food security. As indicated in the graphic, surpluses would occur under all three population projections, although they would be larger with the declining fertility trends in Projections B and C.

Maize Production and Requirements, 1982-2015 (Assumes a 4 Percent Annual Increase in Maize Production)



Should difficulties be encountered in achieving and maintaining a 4 percent annual rate of growth in maize production, the situation would evolve differently. For example, in the projections below, maize production is assumed to increase by 3 percent per year after 1985 which is closer to the historic rate of growth in the communal areas.

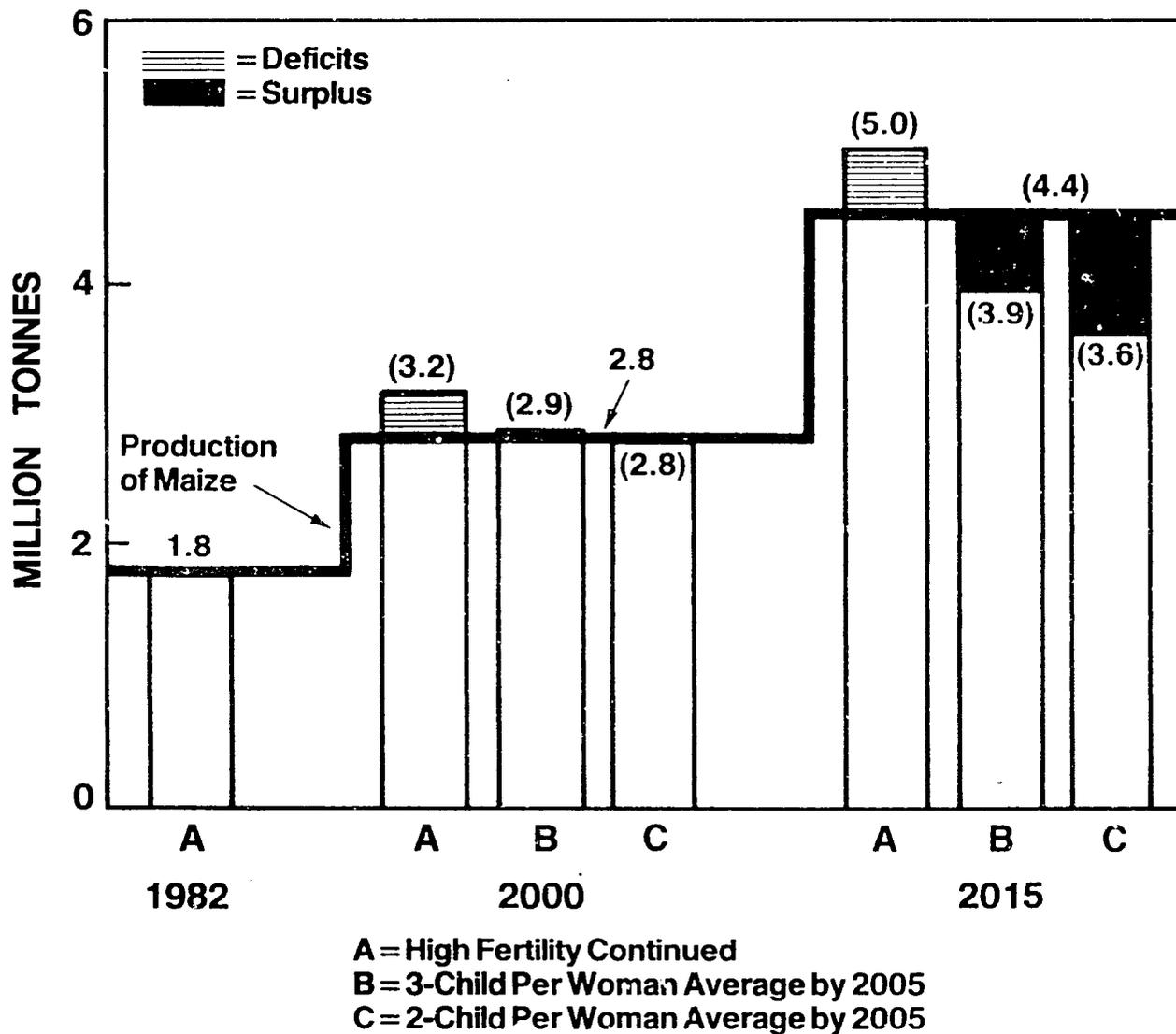
In the case of continued high fertility, Zimbabwe would have an annual deficit in maize production of 368,000 tonnes each year by 2000, and a shortfall of 626,000 tonnes each year by 2015.

With a gradual decline to a 5-child per woman average by 2005, Zimbabwe would have an annual deficit of 132,000 tonnes each year by 2000, but would have a surplus of 476,000 tonnes annually by 2015.

With a decline to a 2-child per woman average by 2005, Zimbabwe would have an annual surplus of 836,000 tonnes by 2015.

In brief, whether basic food production outstrips rapid population growth is dependent on future increases in yields and the development of new lands for production. Zimbabwe has the potential to feed a population much larger than its present one - nonetheless, food production must continuously increase at a pace equal to or faster than the rate of population growth if the nation is to achieve its goals of food self-sufficiency and security.

Maize Production and Requirements, 1982-2015 (Assumes a 3 Percent Annual Increase in Maize Production)



WOOD RESOURCES

Wood is extremely important for the rural population of Zimbabwe as a source of energy and building materials. Perhaps 80 percent of the population uses wood for cooking and heating, and fuelwood accounts for an estimated 28 percent of all energy consumption. Fuelwood is consumed at a rate of close to 6 million cubic meters per year.

Nonetheless, the Transitional National Development Plan reports: "High population growth, density of settlement and demand for agricultural land and serious shortages of forest and tree plantations are likely to cause serious shortages of fuelwood in the future. At present about 2.5 million people in the communal areas suffer from a critical energy shortage . . . twenty seven districts have been described as critically short of fuelwood and the position is deteriorating rapidly."

In view of this situation, Government policy is to develop a programme to arrest the rate of deforestation, ensure adequate supplies at affordable prices, increase the efficiency with which wood and wood wastes are used, and develop alternative, renewable energy sources.

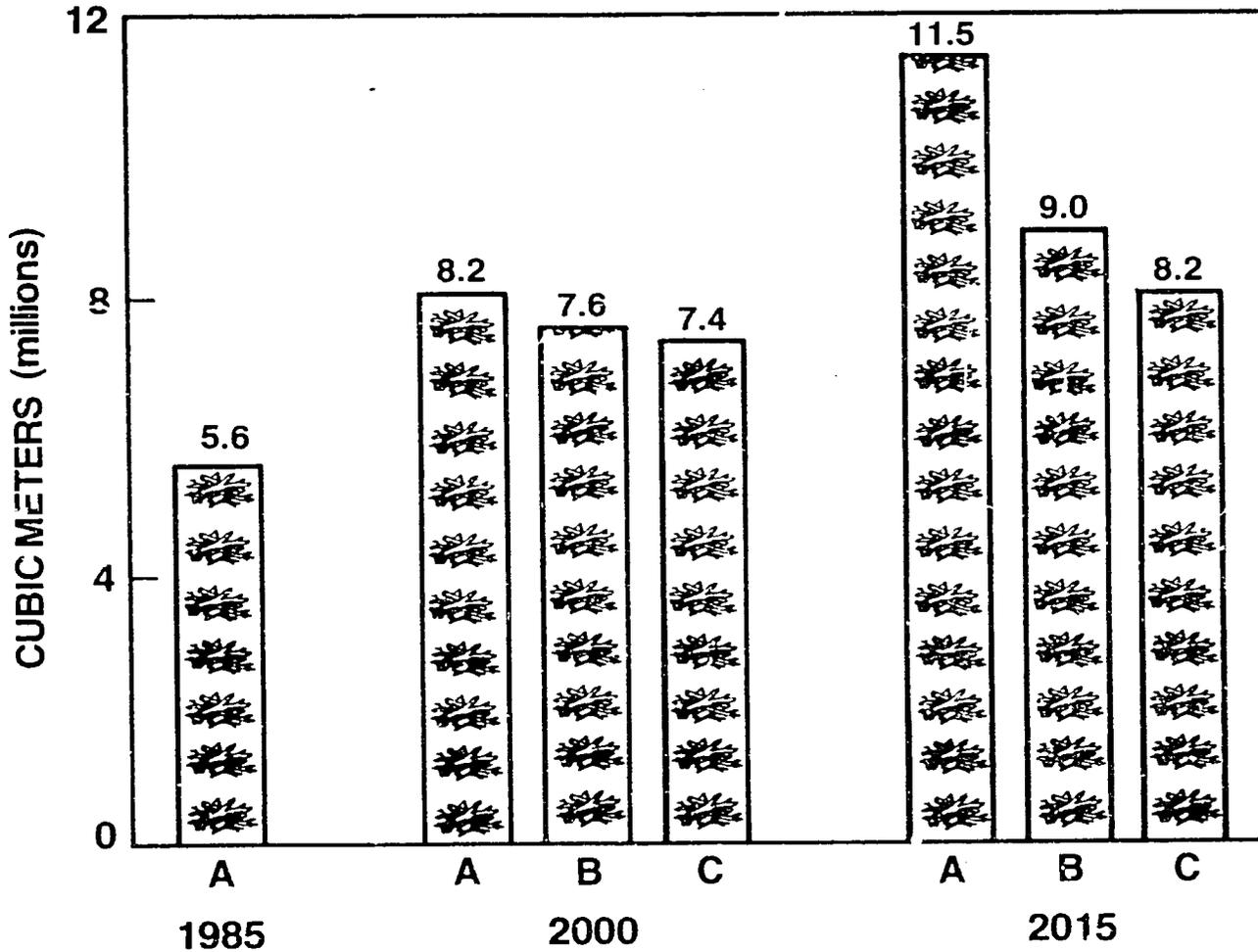
Population growth is important to the issue because the size of the population will not only help determine the level of consumption of wood products but also the amount of land which is deforested to develop new areas for cultivation. Fuelwood may be used to illustrate the consumption side of the equation. The Whitsun Foundation Rural Afforestation Study indicates an annual consumption of between 0.85 and 1.0 cubic meter of fuelwood per person among those families which depend on wood for heating and cooking in the communal areas. The following projections assume the same per capita consumption level in the future and a drop in the proportion of families dependent on fuelwood from 80 percent now to 65 percent in 2015.

Under Projection A, continued high fertility, fuelwood consumption would increase from 5.6 million cubic meters in 1985 to 8.2 million cubic meters in 2000 and 11.5 million cubic meters in 2015.

Under Projection B, declining fertility, fuelwood consumption would increase to 7.6 million cubic meters in 2000 and 9.0 million in 2015. By the latter year, 2.5 million fewer cubic meters would be needed than with the first projection.

Under Projection C, rapidly declining fertility, the annual consumption of fuelwood in Zimbabwe would increase to 7.4 million cubic meters by 2000 and 8.2 million by 2015. At that time, 3.3 million fewer cubic meters would be required as compared with the high fertility projection.

Fuelwood Demand, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

As a point of reference, the Whitsun Foundation report indicated a sustained yield in the communal areas of about 6.3 million cubic meters per year for all uses, including fuelwood.

As noted in the Development Plan, the deforestation and land degradation situation is bad and deteriorating rapidly. Rapid population growth is one of the factors contributing to this decline.

URBAN GROWTH AND HOUSING

A preliminary assessment of the 1982 census indicates that the urban population was about 1,940,000 persons, or more than 25 percent of the total population. Harare, with 656,000 persons, and Bulawayo, with 414,000 persons, accounted for about 55 percent of the urban populace. Chitungwiza had another 173,000 persons.

Overall, the urban population grew approximately 5.4 percent per year between 1969 and 1982. Harare and Bulawayo grew by 4.6 and 4.4 percent per annum respectively. The relatively low rates of growth for the major urban centres can partially be attributed to restrictive legislation during the UDI period which effectively discouraged rural to urban migration.

In the Transitional National Development Plan, the Government "recognizes that a clear and concise policy strategy on urbanization is critical for a realistic and meaningful regional development programme." One of the key justifications is that, because of the anticipated rapid growth of both the total and the urban populations, chaos and confusion will ensue in the absence of planned population distribution. In particular, urban strategy stresses the need to develop towns and growth points outside of Harare and Bulawayo.

Urban Growth

Assuming a continuation of past rural to urban migration patterns, the urban areas of Zimbabwe would grow as follows under the different population projections.

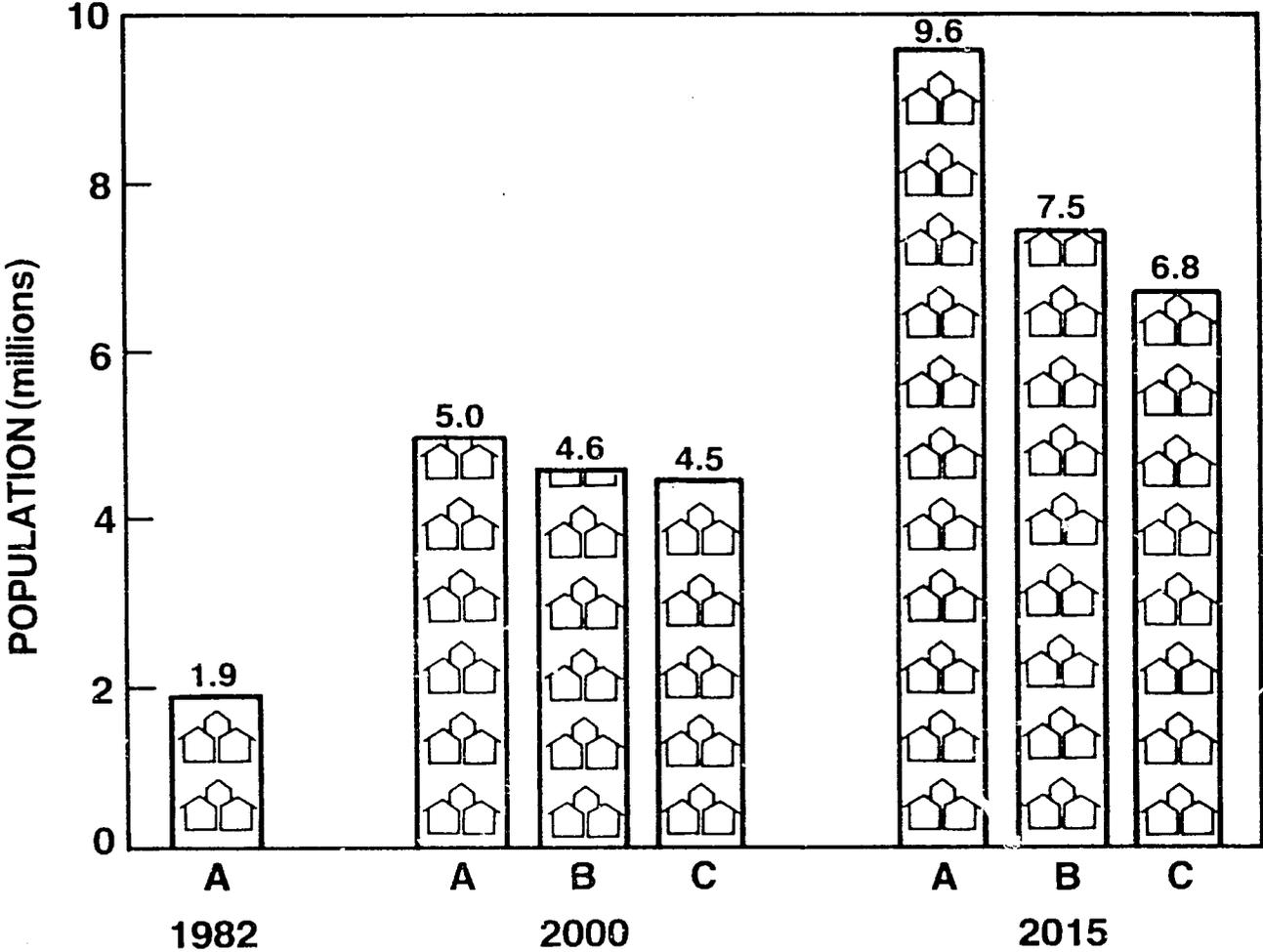
With high fertility continued, Projection A, the urban population of Zimbabwe would increase from about 1.9 million persons in 1982 to 5.0 million in 2000 and 9.6 million in 2015. Looked at another way, urban growth between 1982 and 2015 would be equal to developing almost 12 new Harares in Zimbabwe.

With a drop to a 3-child per woman average by 2005, Projection B, the urban population would still rise to 4.6 million persons in 2000 and 7.5 million in 2015.

With a drop to a 2-child per woman average by 2005, Projection C, the population of the cities would increase to 4.5 million persons in 2000 and 6.8 million in 2015.

These projections can be looked at from two perspectives. On the one hand, Zimbabwe is likely to experience considerable urban growth even with a reduction in fertility. On the other hand, the difference between the first and third projections in 2015 equals 2.8 million persons, or 1 1/2 times the entire urban population of the country in 1982.

Size of the Urban Population, 1982-2015



A = High Fertility Continued
 B = 3-Child Per Woman Average by 2005
 C = 2-Child Per Woman Average by 2005

Harare-Chitungwiza

Even should the combined Harare-Chitungwiza area continue to grow at a rate slower than the overall rate of urbanization, that region of Zimbabwe would emerge as a very large metropolitan centre.

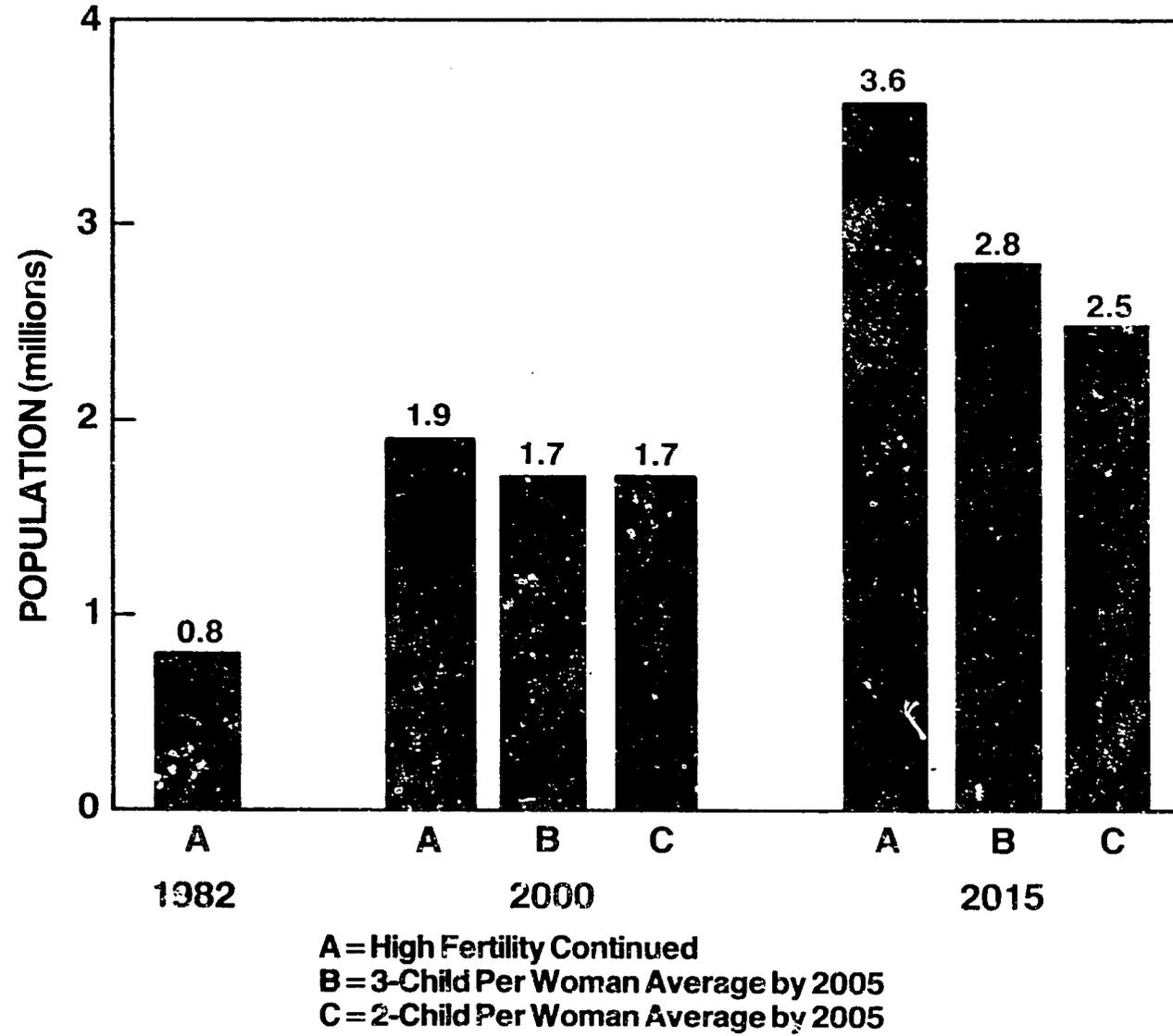
Assuming continued high fertility, the combined population of Harare-Chitungwiza would grow from 829,000 in 1982 to 1.9 million in 2000 and 3.6 million persons in 2015.

Assuming the fertility decline in Projection B, the population of the region would expand more slowly to 1.7 million persons in 2000 and 2.8 million in 2015.

Assuming the more rapid fertility decline in Projection C, the population of the Harare-Chitungwiza area would grow to 1.7 million persons in 2000 and 2.5 million in 2015.

Again, although the Harare-Chitungwiza area promises to be considerably larger in the future than today even with a drop in the fertility rate, the region would have about 40 percent more people in 2015 with Projection A as against Projection C.

Growth of Harare- Chitungwiza, 1982-2015



Urban Housing

The movement of so many people into the urban areas of Zimbabwe places considerable demands on the social and physical infrastructure of the cities. Housing can be used as an example. The Transitional National Development Plan indicates an estimated backlog of 64,000 housing units in the urban centres of Zimbabwe in 1982. "This excess demand for urban housing," the plan reports, "is manifesting itself in over-crowding, poor housing conditions, and an increase in the number of squatters, with serious implications for sanitation, health and other environment conditions." The annual rate of increase of the backlog was estimated to be about 15 percent per year.

The following projections assume an average urban household size of about 5 persons. A unit is regarded as living space for 5 persons, though it might be part of a multiple household building.

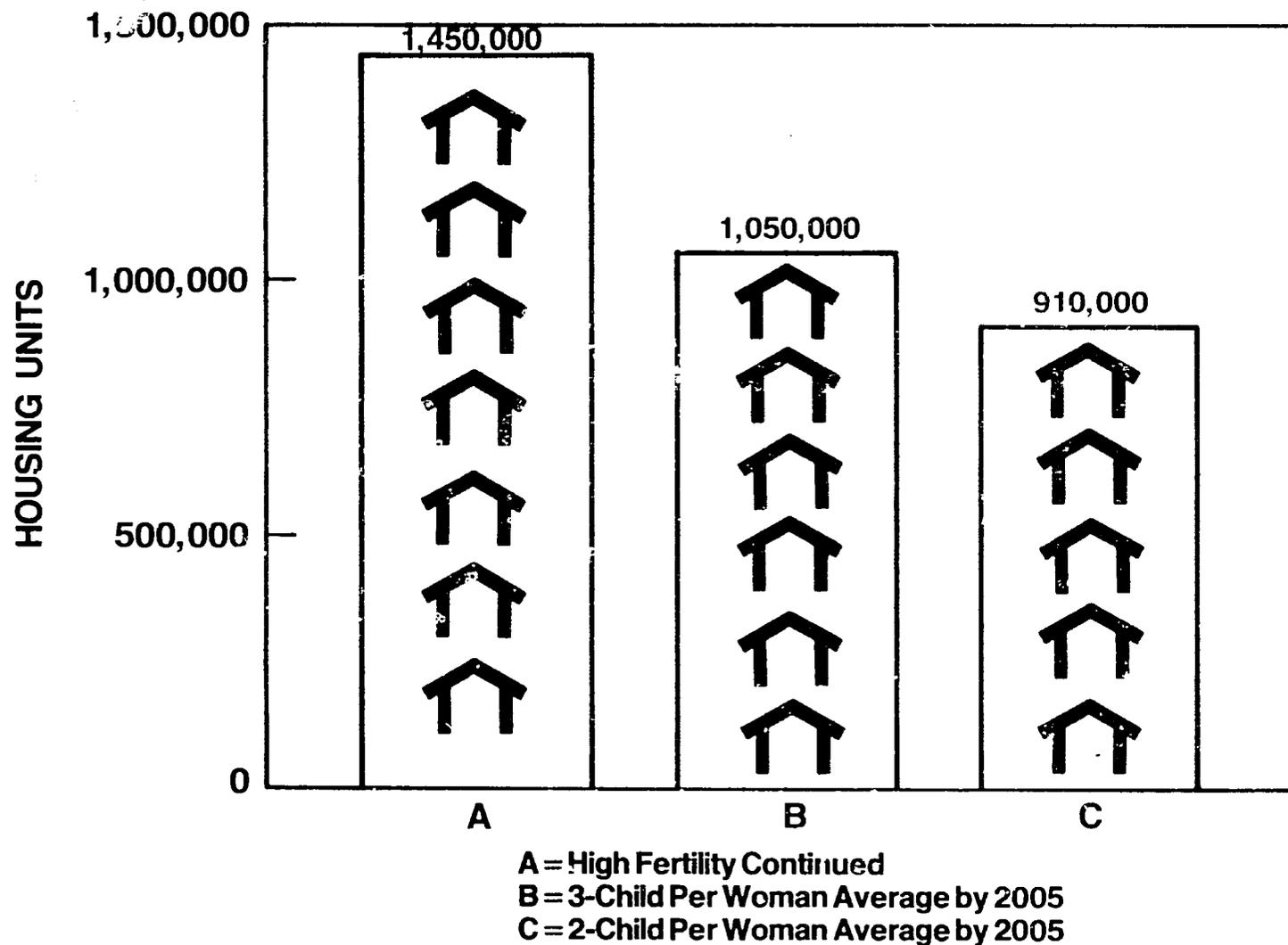
If fertility remains high, about 535,000 new housing units would be needed in the cities between 1985 and 2000 simply to accommodate the growth of the urban population. An additional 920,000 units would be required between 2000 and 2015.

If fertility drops to a 3-child per woman average by 2005, 465,000 new units would be needed between 1985 and 2000 and 580,000 more between 2000 and 2015 to house the additional number of persons living in the urban centres.

If fertility drops to a 2-child per woman average by 2005, 440,000 new units would be needed between 1985 and 2000 and 470,000 more would be required between 2000 and 2015.

Over the 1985 - 2015 period, 540,000 fewer new urban housing units would be required to accommodate the growth of the urban population with a rapid fertility decline than with continued high fertility.

New Urban Housing Requirements, 1985-2015



The development plan reports further that estimates of required housing tend to understate the real demand because even the price of low cost housing is unaffordable for a large number of urban dwellers. The plan quotes from a 1977 study showing that 28 percent of African wage earners could not afford minimum housing; another 51 percent could only afford the site or a semi-permanent or core house; no more than 17 percent could afford a standard low cost house; and only 3 percent could qualify for a building society bond.

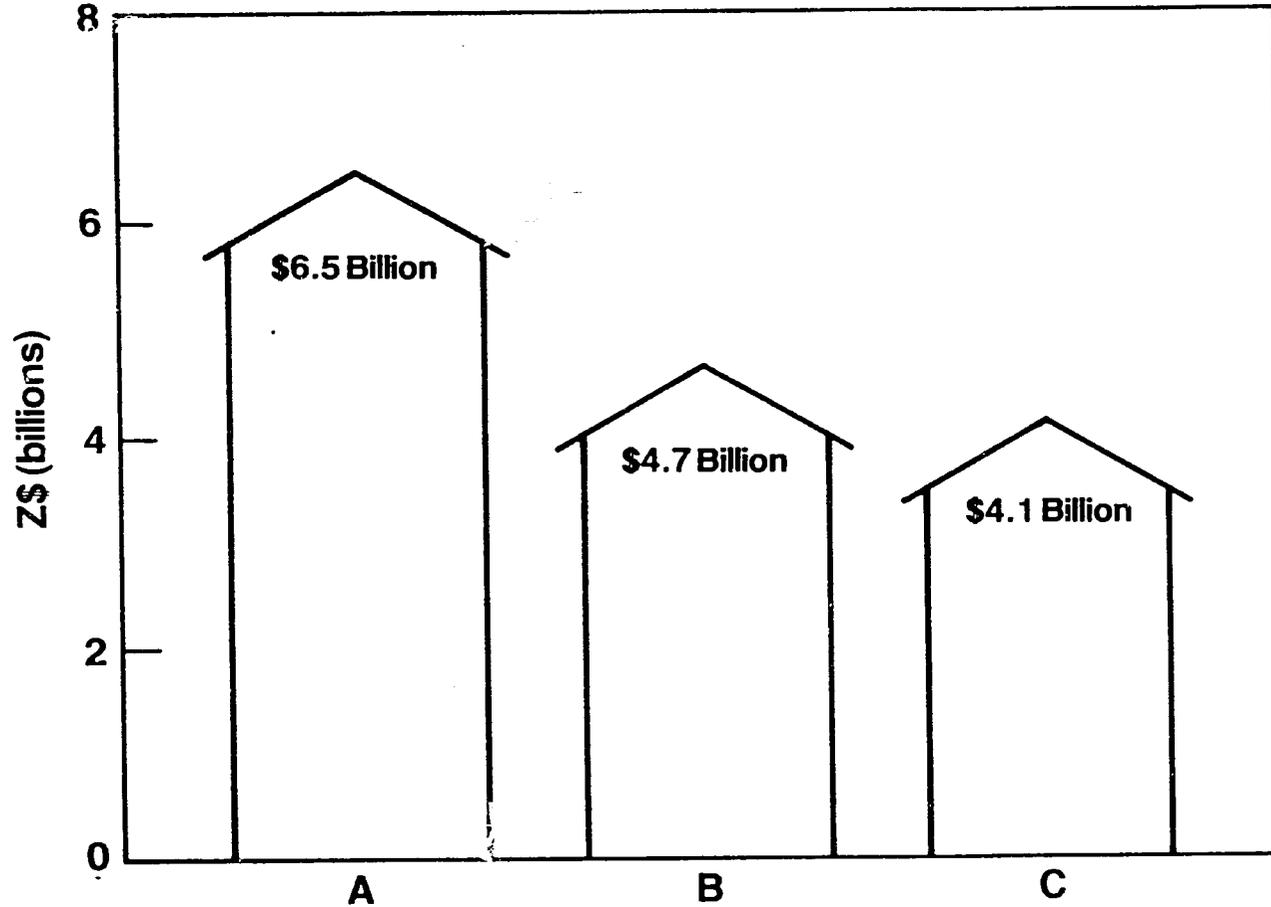
A conservative assumption might be, then, that if all new urban dwellers in Zimbabwe were to have access to acceptable quality housing, the public sector would have to account for at least 50 percent of new housing costs. The development plan also noted that 57,500 low cost units could be built during the plan period for about \$525.2 million, or roughly \$9,000 per unit. Using these assumptions that the public domain supports half of the new housing effort in the urban centres and that each unit costs \$9,000, the fiscal consequences of rapid urbanization for the housing sector can be examined.

Under Projection A, public expenditures for new housing would equal \$6.5 billion between 1985 and 2015.

Under Projection B, costs would be \$4.7 billion over the same period of time.

Under Projection C, housing expenditures would be \$4.1 billion over the thirty year period under consideration.

Low Income Urban Housing Costs, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005
C = 2-Child Per Woman Average by 2005

Creative efforts to mobilize financing of low income shelter from both private and public resources and to establish self-help programs to enable low income households to assist in the development of their own housing will be required if the demand for acceptable quality urban housing is to be met.

Housing serves as an example of the need for increased services which accompanies urban growth. Other components of the urban infrastructure, such as water, sanitation, transportation and social services, would also have to be expanded to meet the needs of a growing urban population.

THE EFFECTS OF POPULATION AND DEVELOPMENT
PROGRAMS ON FERTILITY DECLINE

Social and Economic Development, Population Programs and Fertility Decline
Effects of a Delay in Fertility Decline

SOCIAL AND ECONOMIC DEVELOPMENT, POPULATION PROGRAMS AND FERTILITY DECLINE

As discussed, a relatively high rate of population growth can impede the ability of Zimbabwe to attain its social and economic development objectives. At the same time, a successful development effort itself can contribute to lower birth rates. More widespread educational opportunities for women; urbanization; declines in early childhood mortality; more employment opportunities for women, especially in the modern sector of the economy; old-age security plans; and higher and more equitable distribution of incomes have all been postulated as contributing factors to fertility decline in developing countries.

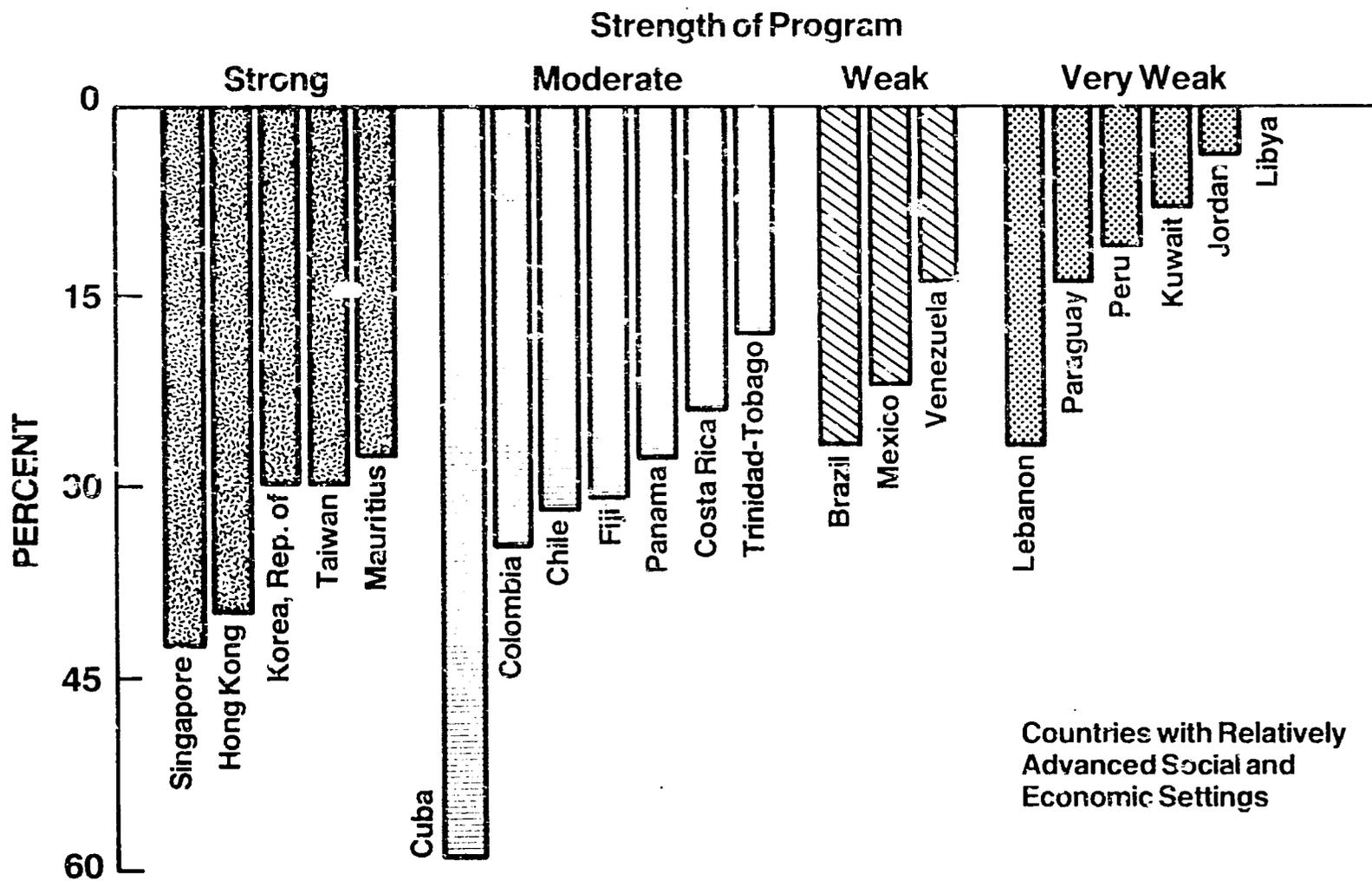
The relationships between social and economic development and fertility decline, however, are complex. For example, in many eastern and southern African countries, women with a few years primary education actually give birth more frequently than women with no education. This occurs because women with some education tend to engage in better health practices, enter into more stable marital unions, ignore traditional prohibitions on sexual intercourse subsequent to childbirth, and reduce the time children are breastfed. At the same time, a few years of primary schooling appears to do little to reduce the desire for large families. Only after several years of primary school, and often some secondary education, do women have fewer children than other women with less education.

Over the decades, a successful social and economic development effort will bring lower fertility to Zimbabwe. In the shorter run, development advances may not always favor early fertility decline and may sometimes actually contribute to the persistence of high birth rates.

Socioeconomic changes, then, may be expected to provide a partial foundation for rapid fertility transitions in the developing countries. Population and family planning programs may also be important. This view is sustained in a recent study of 87 developing countries by Robert Lapham and Parker Mauldin. This analysis first looked at the percentage decline in the birth rate between 1965 and 1980 among 21 developing countries, all of which had relatively advanced social and economic settings but which differed in the strength of the population/family planning program effort. Overall, birth rates in these countries declined an average of about 25 percent. However, birth rates dropped an average of 32 percent in countries with strong or moderately strong population/family planning programs; 21 percent in countries with weak efforts; and 11 percent in nations with very weak or no programs.

The same pattern prevailed among 23 countries classified as having a more moderate social and economic setting. While birth rates in these nations dropped an average of 13 percent between 1965 and 1980, they declined an average of 25 percent in countries with a

Effects of Population Programs on Birth Rates (Decline in the Birth Rate, 1965-1980)

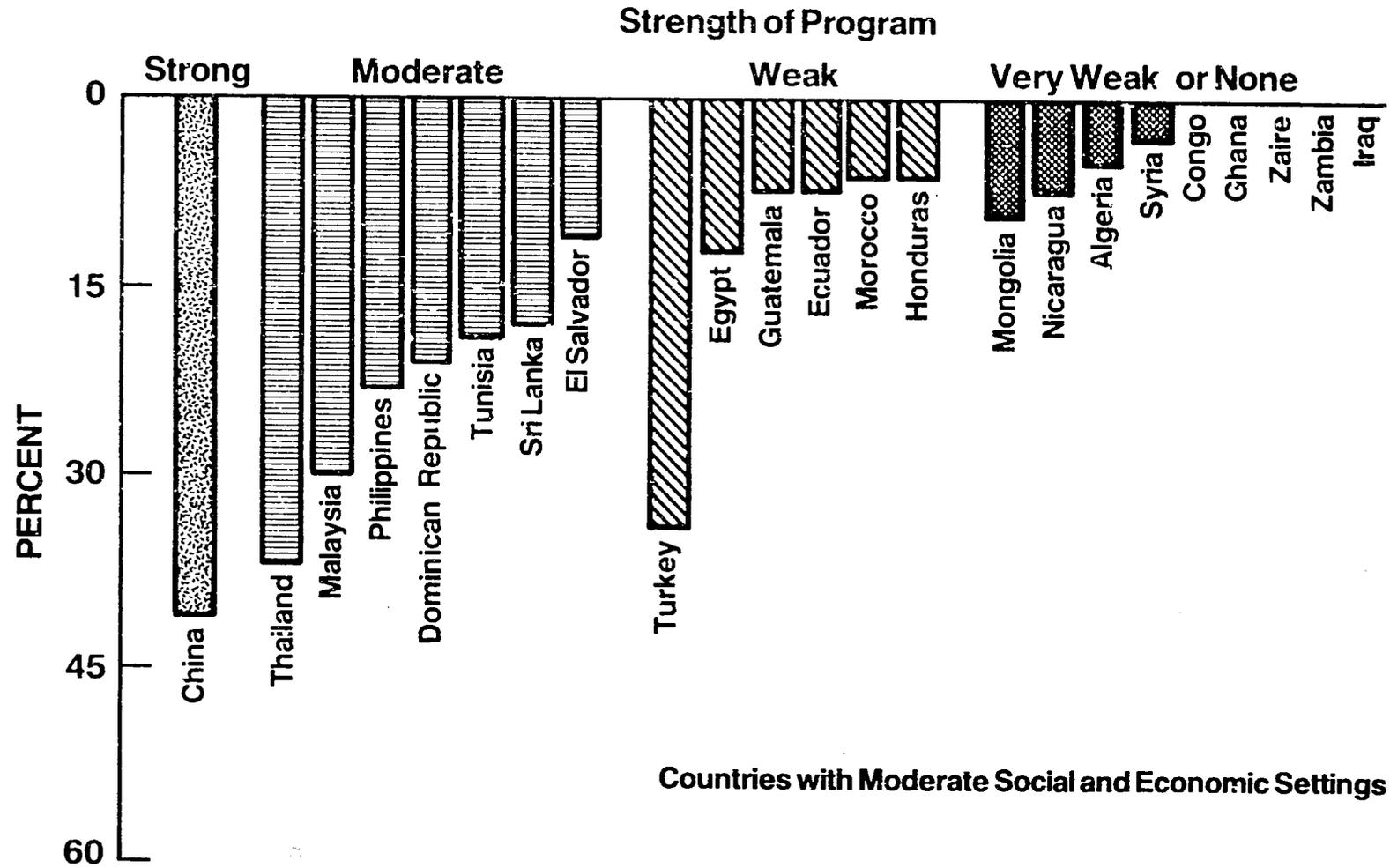


strong or moderate family planning program; 12 percent in countries with a weak program; and only 3 percent in countries with very weak or without programs.

Looked at the other way, birth rates declined about 14 percent in countries which had relatively advanced social and economic settings but weak or very weak population programs, but did not decline at all in countries which had the combination of weak social and economic settings and poor population/family planning efforts. None of the countries classified as having weak social and economic settings had strong or moderately strong family planning programs.

In sum, both social and economic development and population programs contribute to fertility reduction in developing countries, but birth rates drop fastest when they exist in tandem with one another.

Effects of Population Programs on Birth Rates (Decline in the Birth Rate, 1965-1980)



EFFECTS OF A DELAY IN FERTILITY DECLINE

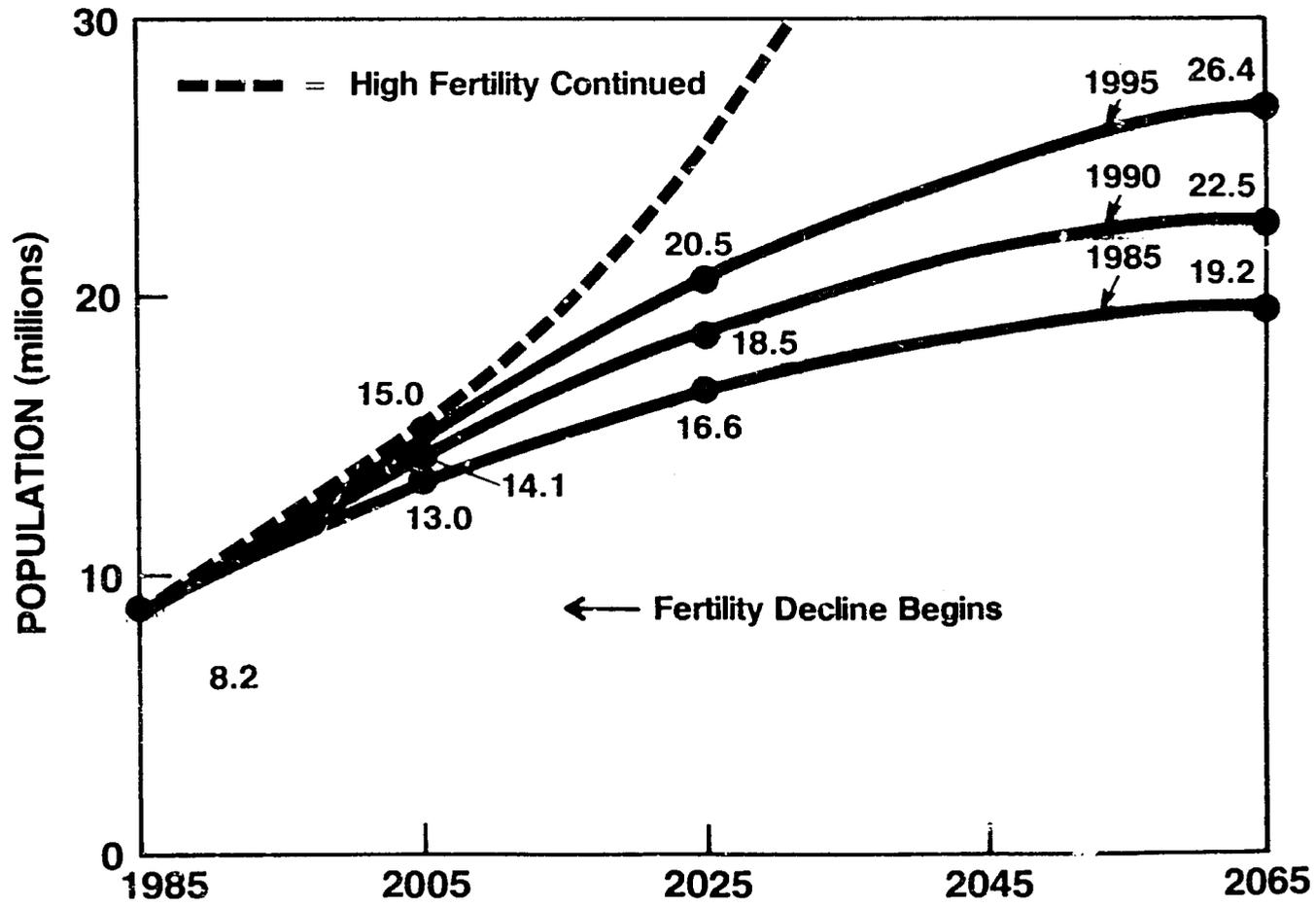
The population dynamics operating in Zimbabwe today are so important to the social and economic development effort that it is useful to conclude by looking again at these factors. In particular, because the population is growing at a high rate and because of the irresistible momentum of population growth, any delay which occurs before fertility declines from present levels will have an important impact on the future size of the Zimbabwean population. To illustrate this notion, the following projections each incorporate the assumption that fertility declines from its present level to slightly over a 2-child per woman average over a 20 year period. What differs in each case is the point in time at which the decline begins.

If the 20 year fertility decline began in 1985, the population would be 12.9 million persons in 2000 and 17.4 million in 2030. The size of the population would eventually level off at about 19.2 million persons.

If the assumed fertility decline began in 1990, the population would be 12.7 million persons in 2000 and 19.5 million in 2030, and it would not stop growing until it reached over 22.5 million persons.

If the fertility drop commenced in 1995, the population would be 13.2 million in 2000 and 21.8 million in 2030, and would continue to grow until it reached over 26.4 million persons. A delay of only 10 years would make a difference of 7.2 million persons in the ultimate size of Zimbabwe's population.

**Effects of a Delay in Reducing Fertility
(Fertility Decline to Slightly Over a
2-Child Per Woman Average in 20 Years)**



Clearly, the timing and degree of any fertility decline will have an important influence on the future population characteristics of Zimbabwe.

CONCLUSION

The rapid growth of the population is important to the social and economic development effort in Zimbabwe, including efforts to:

Achieve and maintain a quality system of universal education;

Provide adequate health services to the entire population;

Achieve a high rate of economic growth and increase Gross Domestic Product per capita;

Provide a sufficient number of new jobs for the rapidly growing labour force, especially formal sector jobs for the increasing number of school leavers;

Develop the agricultural sector and alleviate rural poverty;

Conserve forest resources and develop alternative energy sources;

Ensure adequate services, including housing, to the growing urban population.

The information, projections and speculations presented in this analysis are thus intended as a contribution to the discussion of the importance of population factors to the ability of the government and people of Zimbabwe to achieve their social and economic development goals.

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