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## Components of Kenya's future population growth and population policy implications

John Kekovole

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**Components of  
Kenya's Future  
Population Growth  
and Population Policy  
Implications**

**John Kekovole**

**Ministry of Planning and  
National Development  
Nairobi, Kenya**

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National Development  
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**THE POPULATION COUNCIL, NEW YORK**

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I thank Stephen Odhiambo for his research assistance and Bernard O. Obasi and Hellen Kariuki for their clerical and secretarial support.

It is my sincere hope that the findings presented here will be effectively utilized in formulating Kenya's future population policies and programs geared toward accelerated reduction in the population growth rate.

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The world's population has grown rapidly from about 2.5 billion in 1950 to a current size of about 5.8 billion. Most of the increase has been recorded in the developing countries of Africa, Asia, and Latin America due to continued high fertility in the face of reductions in levels of mortality. These three continents are projected to have a total of 5.1 billion people by the year 2000 (United Nations 1990; UNFPA 1993), about 81 percent of the world's population. This share is projected to increase in the first half of the twenty-first century as a result of relatively high fertility rates and the impact of population momentum.

Sub-Saharan Africa is projected to have a population of 1.32 billion in the year 2025, which represents 15.6 percent of the projected world population (United Nations 1995). This rapid increase in population size is expected to put tremendous pressure on the meager resources available to governments in the region and to contribute to the further deterioration of the economic performance of the countries concerned.

Currently, the rate of population growth in sub-Saharan Africa is 3.0 percent per year; this exceeds the growth rate of the gross domestic product (GDP) in a majority of the countries. This discrepancy has led to a rapid increase in the proportion of the population living in poverty. Although there are indications of fertility decline in a few countries (for example, Botswana, Kenya, and Zimbabwe), the levels are still high in most countries, above 6 children per woman on average, and contraceptive prevalence rates are low. The political commitment to measures geared to reduce population growth is inadequate in most countries on the continent.

Kenya provides a unique opportunity to study the impact of various policy options on future population growth. Five population censuses have been carried out in the country since 1948. Several demographic surveys, including the most recent Demographic and Health Surveys (NCPD 1989, 1994), have been undertaken. The data collected in the various censuses have documented a rapid increase in population from 5.4 million in 1948 to 21.4 million in 1989, and in the population growth rate from 2.5 percent per year in 1948 to a peak of 3.8 percent in 1979 and 3.4 percent in 1989 (see Table 1). The major contributing factors to these trends have been a significant increase in fertility during the period 1948–79 and large declines in mortality, particularly among infants and children. The total fertility rate increased from 6.0 in 1948 to 7.9 in 1979. The 1989 and 1993 Demographic and Health Surveys indicate that the total fertility rate has declined to 6.7 in 1989 and 5.4 in 1993 (Cross et al. 1991; Kelley and Nobbe 1990). The crude death rate has also declined from 25 per 1,000 in 1948 to 10 per 1,000 in 1994.

**Table 1 Trends in demographic indicators for Kenya, 1948–94**

	1948 census	1962 census	1969 census	1979 census	1989 census	1994 projection
Population (millions)	5.4	8.6	10.9	16.1	21.4	25.4
Total fertility rate (per woman)	6.0	6.8	7.6	7.9	6.8	5.4 <sup>a</sup>
Crude birth rate (per 1,000)	50	50	50	52	48	42
Crude death rate (per 1,000)	25	20	17	14	10	10
Population growth rate (percent per year)	2.5	3.0	3.3	3.8	3.4	3.2
Infant mortality rate (per 1,000)	184	NA	118	104	66	62 <sup>a</sup>
Life expectancy (years)	35	44	49	54	57	59

NA = not available

<sup>a</sup> Estimate from the 1993 Kenya Demographic and Health Survey.

Source: Government of Kenya Population Census Reports.

The rapid increase in population size has posed diverse socio-economic challenges to the Kenyan Government. The provision of basic needs—health, education, housing, employment opportunities, and food—has drastically deteriorated, especially since 1980. The rate of urbanization has significantly increased without appropriate enhancement of the requisite social amenities and employment opportunities. The negative consequences of urbanization include social decadence, growth in slums, and crime. Environmental degradation has continued unabated: the country has experienced destruction of water catchment areas, soil erosion, and encroachment of the desert on the fragile semi-arid areas.

### **Objectives of the Study**

The primary objective of this study is to measure the impact of different causes of continued population growth on Kenya's future size and to formulate appropriate policy measures to minimize the adverse socioeconomic consequences of population growth. In general, continued population growth is the consequence of three factors: (1) unwanted fertility, (2) high desired family size, and (3) population momentum.



The ongoing fertility transition in Kenya, though highly welcome, will not necessarily lead to stabilization of the population in the short term, unless appropriate policies and programs are implemented to address all three of these causes of population growth.

This study first briefly reviews population policies pursued by the Kenyan Government since the formulation of the first such policy in 1967. Next, projections made by the World Bank and the United Nations are summarized, and a new set of projections is presented to highlight the contributions of the different causes of future growth. The study concludes with policy implications emanating from this analysis.

### **Population Policy Since 1967 and Its Impact**

Kenya was the first sub-Saharan country to formulate a population policy. The initial 1967 policy emphasized the reduction of the rate of population growth by reducing fertility. Its successful implementation was at first inhibited by inadequate political support, pronatalist attitudes evident in the high desired family sizes of the population (Dow and Werner 1983; CBS 1980), and poor implementation of the family planning program, which was the backbone of the policy (Mauldin and Ross 1991). Contrary to expectations, the period 1967 to 1980 witnessed an increase in fertility and the population growth rate, as documented in Table 1. According to many observers, the policy had failed.

The policy was extensively revised in 1984 (NCPD 1984), when the government concluded that concerted efforts had to be made to reduce the rate of population growth as a step toward promoting economic progress. Like the previous one, this policy had fertility reduction as its first priority. In addition, it emphasized socioeconomic development strategies (mainly enhancement of the education of women and their participation in formal employment), involvement of men and youth, and collaboration between the government and nongovernmental organizations in policy implementation.

As indicated earlier, fertility has begun to decline. Desired family size has also been drastically reduced from 7.3 children in 1979 to 5.8 in 1989 and 3.7 in 1993. The contraceptive prevalence rate has significantly increased from 7 percent in 1979 to 27 percent in 1989 and 33 percent in 1993. These trends in fertility levels and contraceptive use indicate improvements in policy implementation, but the level of unmet need for family planning services remains high: in 1993, 36 percent of currently

married women were not practicing contraception, despite a desire not to get pregnant.

## Population Projections

The most recent projections by the United Nations (1995) and the World Bank (Bos et al. 1994) are presented in Table 2. The two projections differ widely for the year 2025 and especially for 2050 (92 million vs. 60 million). The principal reason for these differences is that the World Bank takes into account the findings of the 1993 Kenya Demographic and Health Survey, which indicated a sharp decline in fertility (to a TFR of 5.4), and assumes rapid fertility declines to the replacement level by 2015; in contrast, the UN starts from a higher level of fertility in 1990–95 and assumes that fertility will decline more gradually, reaching the replacement level only by 2030. The UN also assumes a significantly more rapid improvement in life expectancy over the next several decades.

**Table 2 Projections of the population of Kenya by the United Nations and the World Bank**

Year	United Nations	World Bank
1990	23,613,000	24,160,000
2000	32,577,000	31,409,000
2025	63,360,000	47,393,000
2050	92,194,000	60,317,000

Sources: United Nations (1995) (revised estimates); Bos et al. (1994).

## Alternative Population Projections and the Causes of Population Growth

I have made three new projections to assess the separate contributions of unwanted fertility, high desired family size, and population momentum. All projections start in 1990 with a population total estimated at 21.9 million.

### *Assumptions*

The first projection, labeled the “standard scenario,” assumes a total fertility rate of 5.4 between 1990 and 1995 (based on the 1993 Kenya

Demographic and Health Survey) and replacement fertility beginning in 2015. Mortality assumptions are the same as those used in the current World Bank projection because they appear plausible and incorporate a moderate effect of the AIDS pandemic on the projected population. Although this series is essentially the same as the World Bank's, the Bank series starts with a total population of 24.2 million in 1990 instead of 21.9 million.

The second projection is the same as the standard scenario except that all unwanted fertility is removed from 1995 onward. In all periods after 1995, this projection sets the total fertility rate equal to the wanted fertility level, which was estimated at 3.4 in 1990–95 and is assumed to decline to replacement level beginning in 2015. This projection is labeled the “wanted scenario.”

The third projection assumes immediate reduction of fertility to replacement level ( $NRR = 1$ ;  $TFR = 2.4$ ) starting in 1995. This set provides the lowest projected figures and is labeled the “replacement scenario.” These three series permit the decomposition of the total projected population into the contributions made by the three causes of population growth.

## *Results*

Table 3, Figure 1, and Appendixes 1–3 show the projected population for the three scenarios. The figures indicate substantial disparities among the scenarios. It is projected that by 2050 Kenya will have a population of 54 million in the standard scenario, 47 million if the effect of unwanted fertility is eliminated completely, and 45 million if the impact of high desired fertility is eliminated as well. The replacement scenario estimates population momentum. The implied estimates of the total fertility rate in each scenario are presented in Table 4.

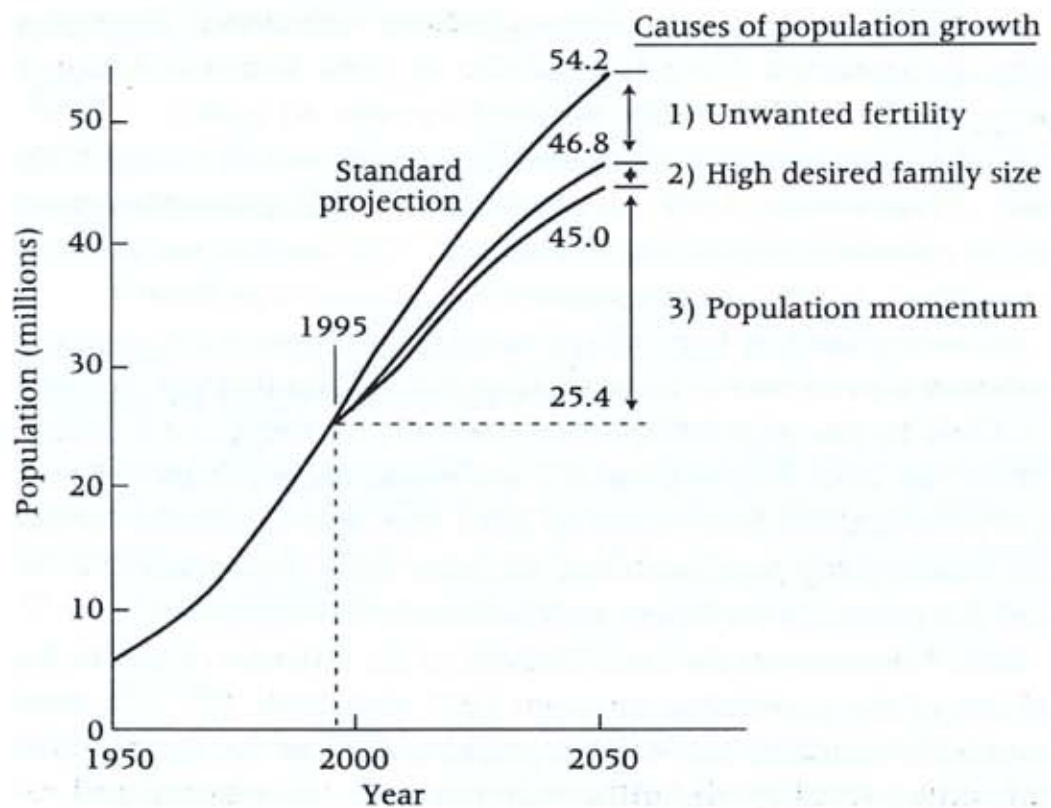
As documented in Appendixes 2 and 3, the primary school-going population is projected to increase from 5.8 million in 1990 to about 7.5 million by the year 2005, before gradually declining to 6.9 million by 2050. The labor force is projected to increase sharply from 10.7 million in 1990 to about 36.5 million by 2050. The rapid increase in the size of the school-going population and the labor force is expected to compound the pressures on future socioeconomic development.

Table 5 documents the contributions of the different causes to the total size of the population between 1995 and 2050. The difference between the standard and wanted projections gives the contribution of unwanted fertility; the difference between the wanted and re-

**Table 3 Projected population of Kenya to 2050: Standard, wanted, and replacement scenarios**

Year	Standard	Wanted	Replacement
1990	21,900,764	21,900,764	21,900,764
1995	25,419,851	25,419,851	25,419,851
2000	28,854,960	27,006,402	26,883,869
2005	32,066,045	29,351,001	28,757,235
2010	35,039,265	31,825,008	30,977,053
2015	37,636,311	34,245,804	33,364,435
2020	40,384,363	36,552,405	35,629,324
2025	43,172,230	38,676,538	37,640,924
2030	45,827,473	40,639,350	39,422,523
2035	48,195,038	42,384,655	40,992,950
2040	50,372,198	44,027,986	42,476,162
2045	52,303,224	45,454,314	43,765,102
2050	54,177,321	46,791,729	44,985,304

**Figure 1 Standard projection of the population of Kenya to 2050 and amounts attributable to each of three causes**



**Table 4 Estimates of the total fertility rate implied in each projection scenario, by five-year period, 1990–2020<sup>a</sup>**

Period	Standard	Wanted	Replacement
1990–1995	5.40	5.40	5.40
1995–2000	4.45	3.10	2.43
2000–2005	3.64	2.83	2.42
2005–2010	2.97	2.56	2.36
2010–2015	2.42	2.35	2.32
2015–2020	2.28	2.29	2.29

<sup>a</sup>There are no significant differences in the estimates beyond 2020.

**Table 5 Components of population growth since 1995, in absolute and relative terms**

Year	Standard projection of total population	Population increase since 1995	Increase in population since 1995 attributable to		Population momentum
			Unwanted fertility	High desired family size	
2000	28,855,000	3,435,000	1,849,000	122,000	1,464,000
2025	43,172,000	17,752,000	4,495,000	1,036,000	12,221,000
2050	54,177,000	28,757,000	7,385,000	1,807,000	19,565,000

Period	Population increase since 1995 (percent)	Percent of future growth attributable to		Population momentum
		Unwanted fertility	High desired family size	
1995–2000	100	53.8	3.6	42.6
1995–2025	100	25.3	5.8	68.8
1995–2050	100	25.7	6.3	68.0

placement scenarios estimates the contribution of high desired fertility; and the increase in population size between 1995 and 2050 in the replacement scenario estimates the contribution of population momentum.

According to the standard projection, the population will increase by 3.4 million between 1995 and 2000, by 17.8 million between 1995 and 2025, and by 28.8 million between 1995 and 2050. Of the growth between 1995 and 2000, 54 percent is attributable to unwanted fertility, 4 percent to high desired family size,

and 42 percent to population momentum. The role of population momentum increases as the projection period lengthens, and by 2050 it is responsible for 68 percent of the growth since 1995, compared with just 26 percent for unwanted fertility and 6 percent for high desired family size.

This result points to the critical impact of population momentum, an issue that has thus far been relatively neglected. Integrated policies and programs are therefore needed to address the three issues in a concerted manner.

## **Implications for Future Population Policies**

The projections just presented underscore the fact that, despite the ongoing fertility transition, Kenya's population will increase from the current estimate of 25 million to 29 million by the end of the century and to 54 million by 2050. The emphasis on strengthening the family planning program has been crucial to the fertility decline in the past and will remain essential in the future. But this program alone will not suffice to stabilize the population in the shortest possible time. Other innovative and effective policy measures that squarely address all three causes of population growth will also be required.

### *Reducing unwanted fertility*

The 1989 and 1993 Demographic and Health Surveys (NCPD 1989, 1994) have indicated a high unmet need for family planning services in Kenya. Over a third of the women interviewed in 1993 said that they wanted either to stop or space their childbearing but were not practicing contraception. The major causes for this unmet need were related to lack of knowledge, fear of side effects, disapproval of husbands, and poor services at service delivery points. Inadequate involvement of men in family planning programs has particularly undermined their potentially supportive role and has reduced communication between partners on matters pertaining to unwanted fertility. Family planning services have been directed mainly at women. These issues underscore the need to strengthen family planning program as follows:

First, family planning programs in Kenya have remained mostly clinic-based with limited coverage of the population. Current efforts to expand the community-based distribution system represent a step in the right direction and should be extended and enhanced in terms of efficiency and self-sustainability.

Second, various information, education, and communication (IEC) programs should be improved and made culturally sensitive in order to reach a majority of the eligible population. In particular, there is an urgent need to extend programs to men and adolescents, who are currently underserved.

Third, the problem of poor-quality services needs to be addressed by supplying a variety of effective contraceptive methods, training personnel adequately, and providing proper physical facilities.

### *Reducing the demand for large families*

Although recent studies have documented a decline in the number of children desired by women, from 7.3 around 1980 to 3.7 in 1993, acceleration of this trend toward lower fertility deserves special policy consideration.

Improvement in the educational attainment of the population, particularly of women, can be instrumental in reducing fertility preferences. Censuses and demographic surveys in many developing countries have documented that women with secondary-level and higher education have consistently lower fertility and lower family-size preferences than those with only primary-level education or none at all. Education not only empowers women to demand and exercise their reproductive health rights, but it also enhances their ability to participate actively in deciding upon the desired number of children on an equal footing with men. Educated women also tend to be the ones who effectively gain access to family planning services.

Women's current involvement in informal-sector and agricultural activities as their main source of income needs to be enhanced by examining the impact of existing policies on their access to credit facilities and returns on their labor. Women's involvement in modern-sector activities can also lower the desired number of children. These economic measures have the potential of improving women's economic security and independence. Gender-sensitive policies are therefore needed to promote women's access to economic resources (e.g., credit) and modern-sector employment opportunities, which at the moment are the domain of men. If well conceived and implemented, such policies may encourage women to forego higher fertility for economic advancement.

Children have traditionally been perceived as assets to parents in old age due to the lack of guaranteed economic security. This parental expectation is profoundly entrenched in society, regardless of the decline in both achieved and desired fertility (Dow et al. 1994). But in

recent years, structural adjustment programs and adverse economic conditions have increased the cost of bearing and rearing children, resulting in a further reduction in desired family size. It is therefore important that this initiative to curtail fertility is sustained by appropriate socioeconomic policies that should neither hinder children's access to education nor provide incentives for parents to revert back to high fertility.

### *Reducing the impact of population momentum*

The problem posed by the impact of population momentum on future population growth is a complex and intriguing one to many policymakers because there is little experience with relevant programmatic interventions.

One approach to reducing momentum is to raise both the age at marriage and age at first birth. Some increase in the average age at marriage may be achieved through legislation. However, this approach has its limitations because it threatens the primacy of religious and customary laws in this area. Its implementation might thus be difficult and socially disruptive. An alternative and preferable option is to promote female education beyond the primary level. Prolonging girls' stay in school can have a positive impact on age at marriage and female social status.

Another option is to inculcate the norms of responsible sexual behavior and small family size when educating the adolescents on whom future fertility trends will depend. Adolescents should be given information on reproductive health and family planning issues and be offered access to reproductive health and family planning services to assist them in avoiding early pregnancies. The implementation of family-life education in schools is of paramount importance in this regard.

## **Recommendations**

This study has underscored the challenges Kenya is likely to confront as it attempts to reduce the rate of population growth and ultimately to achieve population stabilization. Kenya's population is projected to more than double by the year 2050 in spite of the ongoing fertility transition. Unwanted fertility and population momentum are envisaged to be the primary forces propelling this growth. Population momentum alone is projected to contribute 19.6 million people to future growth, which represents two-thirds of the total increase.



Appropriate population and socioeconomic policies will have to be formulated to address the adverse effects of unwanted fertility and population momentum on future wellbeing. The key policy areas to be considered encompass:

- (1) Strengthening family planning programs by improving coverage and the quality of the services and by providing adequate information, education, and communication to eliminate current and future unmet need. Male involvement in family planning should be enhanced. This is expected to promote spousal communication and decisionmaking.
- (2) Integrating maternal-child health and family planning services so that women coming for MCH services are referred to family planning service delivery points and vice versa. The two programs should be mutually reinforcing in order to yield optimum results.
- (3) Enhancing female education beyond the primary level with a view to promoting women's participation in socioeconomic activities and in decisions that affect their reproductive health rights and fertility.
- (4) Devoting special attention to adolescents' sexual and reproductive health concerns. As future parents, they should be availed every opportunity to receive appropriate reproductive health information and services. This approach should promote adolescents' internalization of responsible parenthood and small-family preferences. However, the specific needs of boys and girls should be accorded appropriate consideration given the differences in their sexual behavior.
- (5) Promoting gender equality in order to raise women's socioeconomic status, which in turn should assist the government in lowering unwanted fertility. In this regard laws pertaining to child support, particularly affiliation laws and those related to female inheritance from their husbands, should be reviewed to facilitate women's access to family property and to provide incentives to men to reduce their fertility.

**Appendix I**  
**Projected total population under three scenarios,**  
**1990–2050**

Standard scenario				Growth rate (percent)	Crude birth rate (per 1,000)
Year	Males	Females	Total		
1990	10,855,035	11,045,729	21,900,764	2.98	47.0
1995	12,600,368	12,819,483	25,419,851	2.54	40.0
2000	14,301,744	14,553,216	28,854,960	2.11	35.0
2005	15,889,020	16,177,025	32,066,045	1.77	30.1
2010	17,356,436	17,682,829	35,039,265	1.43	25.7
2015	18,632,450	19,003,861	37,636,311	1.41	21.7
2020	19,982,970	20,401,393	40,384,363	1.34	21.4
2025	21,352,467	21,819,763	43,172,230	1.19	20.5
2030	22,654,276	23,173,197	45,827,473	1.01	19.1
2035	23,811,918	24,383,120	48,195,038	0.88	17.6
2040	24,895,577	25,476,621	50,372,198	0.75	16.0
2045	25,837,865	26,465,359	52,303,224	0.70	15.2
2050	26,745,815	27,413,506	54,177,321	0.70	14.7

Wanted scenario				Growth rate (percent)	Crude birth rate (per 1,000)
Year	Males	Females	Total		
1990	10,855,035	11,045,729	21,900,764	2.98	47.0
1995	12,600,368	12,819,483	25,419,851	1.21	40.1
2000	13,375,494	13,630,908	27,006,402	1.67	20.8
2005	14,529,587	14,821,414	29,351,001	1.62	25.3
2010	15,747,591	16,077,417	31,825,008	1.47	24.3
2015	16,936,397	17,309,407	34,245,804	1.30	22.5
2020	18,067,854	18,484,551	36,552,405	1.13	20.7
2025	19,107,526	19,569,012	38,676,538	0.99	18.8
2030	20,064,629	20,574,721	40,639,350	0.84	17.5
2035	20,912,562	21,472,093	42,384,655	0.76	16.5
2040	21,727,119	22,300,867	44,027,986	0.64	15.5
2045	22,417,781	23,036,533	45,454,314	0.58	14.9
2050	23,060,363	23,731,366	46,791,729	0.58	14.4

Replacement scenario				Growth rate (percent)	Crude birth rate (per 1,000)
Year	Males	Females	Total		
1990	10,855,035	11,045,729	21,900,764	3.34	47.0
1995	12,600,368	12,819,483	25,419,851	2.98	40.1
2000	13,314,097	13,569,772	26,883,869	1.12	19.8
2005	14,232,100	14,525,135	28,757,235	1.35	21.9
2010	15,322,926	15,654,127	30,977,053	1.49	22.9
2015	16,495,259	16,869,176	33,364,435	1.48	22.8
2020	17,606,186	18,023,138	35,629,324	1.31	20.9
2025	18,590,098	19,050,826	37,640,924	1.10	18.6
2030	19,457,010	19,965,513	39,422,523	0.92	17.0
2035	20,217,843	20,775,107	40,992,950	0.78	16.1
2040	20,951,664	21,524,498	42,476,162	0.71	15.2
2045	21,573,612	22,191,490	43,765,102	0.60	14.7
2050	22,158,101	22,827,203	44,985,304	0.55	14.4

## Appendix 2

### Projected primary school-going population under three scenarios, 1990–2050

#### Standard scenario

Year	Males	Females	Total
1990	2,940,225	2,905,121	5,845,346
1995	3,250,950	3,220,024	6,470,974
2000	3,515,775	3,499,311	7,015,086
2005	3,747,986	3,743,409	7,419,395
2010	3,699,135	3,693,951	7,393,086
2015	3,586,409	3,578,230	7,164,639
2020	3,375,956	3,364,497	6,740,453
2025	3,298,479	3,284,372	6,582,851
2030	3,517,769	3,498,687	7,016,456
2035	3,602,255	3,577,490	7,179,745
2040	3,596,047	3,563,245	7,159,292
2045	3,521,502	3,481,642	7,003,144
2050	3,451,703	3,408,590	6,860,293

**Wanted scenario**

<b>Year</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
1990	2,940,225	2,905,121	5,845,346
1995	3,250,950	3,220,024	6,470,974
2000	3,515,775	3,499,311	7,015,086
2005	3,179,635	3,175,862	6,355,497
2010	2,231,957	2,228,930	4,460,887
2015	3,010,767	3,003,559	6,014,326
2020	2,965,423	2,955,349	5,920,772
2025	3,060,381	3,047,279	6,107,660
2030	2,990,902	2,974,796	5,965,698
2035	2,964,065	2,943,689	5,907,754
2040	2,947,000	2,920,117	5,867,117
2045	2,950,880	2,917,414	5,868,294
2050	2,938,448	2,901,751	5,840,199

**Replacement scenario**

<b>Year</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
1990	2,940,225	2,905,121	5,845,346
1995	3,250,950	3,220,024	6,470,974
2000	3,515,775	3,499,311	7,015,086
2005	3,142,016	3,138,291	6,280,307
2010	2,007,265	2,004,611	4,011,876
2015	2,651,551	2,645,136	5,296,687
2020	2,812,237	2,802,616	5,614,853
2025	3,020,655	3,007,720	6,028,375
2030	2,922,010	2,906,301	5,828,311
2035	2,830,619	2,811,187	5,641,806
2040	2,768,321	2,743,079	5,511,400
2045	2,791,218	2,759,545	5,550,763
2050	2,794,074	2,759,185	5,553,259

**Appendix 3**  
**Projected potential labor force under three scenarios,**  
**1990–2050**

Standard scenario				Growth rate (percent)
Year	Males	Females	Total	
1990	5,238,207	5,468,014	10,706,221	—
1995	6,450,114	6,671,911	13,122,025	4.1
2000	7,808,917	8,045,333	15,854,250	3.8
2005	9,214,913	9,466,729	18,681,642	3.3
2010	10,766,983	11,046,606	21,813,589	3.1
2015	12,236,146	12,557,571	24,793,717	2.6
2020	13,567,732	13,931,977	27,499,709	2.1
2025	14,691,166	15,092,541	29,783,707	1.6
2030	15,534,402	15,898,598	31,433,000	1.1
2035	16,403,084	16,701,067	33,104,151	1.0
2040	17,190,709	17,456,148	34,646,857	0.9
2045	17,756,614	18,016,377	35,772,991	0.6
2050	18,136,640	18,390,595	36,527,235	0.4

Wanted scenario				Growth rate (percent)
Year	Males	Females	Total	
1990	5,238,207	5,845,346	11,083,553	—
1995	6,450,114	6,671,911	13,122,025	3.4
2000	7,808,917	8,045,333	15,854,250	3.8
2005	9,214,913	9,466,729	18,681,642	3.3
2010	10,766,983	11,046,606	21,813,589	3.1
2015	11,363,990	11,684,694	23,048,684	1.1
2020	12,265,195	12,624,799	24,889,994	1.5
2025	13,146,598	13,537,603	26,684,201	1.4
2030	13,907,087	14,255,519	28,162,606	1.1
2035	14,565,493	14,843,486	29,408,979	0.9
2040	15,021,714	15,269,316	30,291,030	0.6
2045	15,243,035	15,483,587	30,726,622	0.3
2050	15,319,205	15,546,005	30,865,210	<0.3

Replacement scenario				Growth rate (percent)
Year	Males	Females	Total	
1990	5,238,207	5,468,014	10,706,221	—
1995	6,450,114	6,671,911	13,122,025	4.1
2000	7,808,917	8,045,333	15,854,250	3.8
2005	9,214,913	9,466,729	18,681,642	3.3
2010	10,766,983	11,046,606	21,813,589	3.1
2015	11,306,178	11,626,835	22,933,013	1.0
2020	11,982,001	12,341,226	24,323,227	1.2
2025	12,738,275	13,127,806	25,866,081	1.2
2030	13,481,981	13,827,398	27,309,379	1.1
2035	14,121,531	14,395,227	28,516,758	0.9
2040	14,521,437	14,765,193	29,286,630	0.5
2045	14,652,087	14,888,834	29,540,921	<0.5
2050	14,641,365	14,863,103	29,504,468	<0.5

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