Introduction

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March 2017

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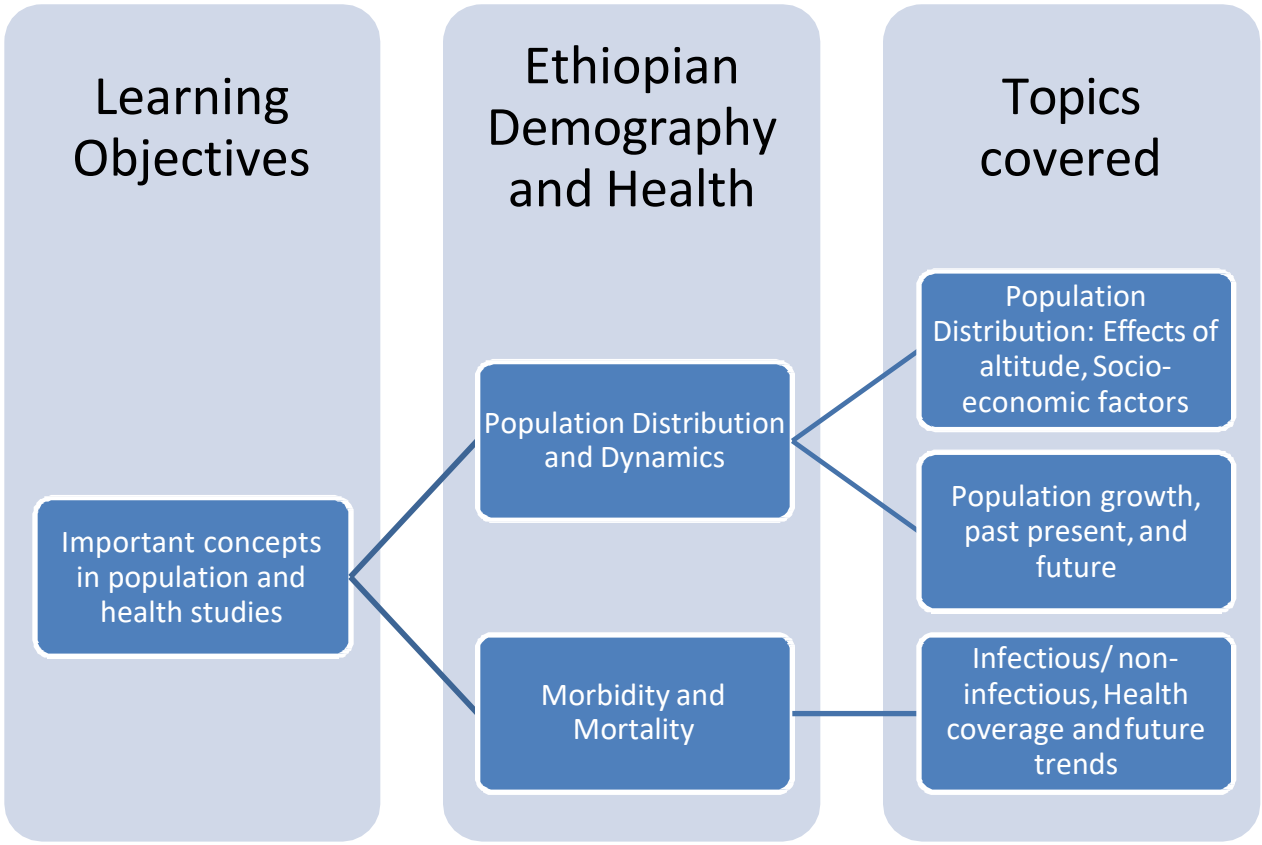
LEARNING OBJECTIVES



Introduction

Population Size and Distribution

With an estimated population of **104.34** million in 2017 [1] Ethiopia has the second largest population in Africa (see Fig. 1.1). A crude birth rate of 40 per thousand, and a fertility rate of 4.6 (a reduction from 5.4 in 2000) attest to the prevailing high fertility regime, which, coupled with the very high proportion of people under 19 years of age (50.0%), suggests an explosive growth in the future, tempered only by heavy disease burden imposed by infectious illnesses including malaria and HIV/AIDS and increasingly by the so-called life-style diseases including heart disease, stroke and diabetes.

Population of Ethiopia (2017 and historical)

Year	Population	Yearly % Change	Yearly Change	Median Age	Fertility Rate	Density (P/Km²)	Urban Pop %	Urban Population	Country's Share of World Pop	World Population
2017	**104,344,901**	2.45 %	2,491,633	18.9	4.46	104	20.3 %	21,174,205	1.39 %	7,515,284,153
2016	**101,853,268**	2.48 %	2,462,518	18.9	4.46	102	19.8 %	20,202,815	1.37 %	7,432,663,275
2015	**99,390,750**	2.57 %	2,365,787	19	4.59	99	19.4 %	19,265,898	1.35 %	7,349,472,099
2010	**87,561,814**	2.71 %	2,190,677	18	5.26	88	17.2 %	15,083,947	1.26 %	6,929,725,043
2005	**76,608,431**	2.89 %	2,032,966	17	6.13	77	15.6 %	11,958,476	1.18 %	6,519,635,850
2000	**66,443,603**	3.03 %	1,841,275	17	6.83	66	14.6 %	9,731,656	1.08 %	6,126,622,121
1995	**57,237,226**	3.56 %	1,836,026	17	7.09	57	13.8 %	7,884,886	1 %	5,735,123,084
1990	**48,057,094**	3.34 %	1,456,219	17	7.37	48	12.6 %	6,063,524	0.91 %	5,309,667,699
1985	**40,775,997**	2.96 %	1,107,205	17	7.42	41	11.5 %	4,670,398	0.84 %	4,852,540,569
1980	**35,239,974**	1.59 %	534,287	18	7.18	35	10.4 %	3,668,755	0.79 %	4,439,632,465
1975	**32,568,539**	2.77 %	830,708	18	7.1	33	9.5 %	3,081,000	0.8 %	4,061,399,228
1970	**28,414,999**	2.58 %	680,290	18	6.87	28	8.6 %	2,440,175	0.77 %	3,682,487,691
1965	**25,013,551**	2.46 %	572,467	18	7.17	20	7.6 %	1,897,833	0.75 %	3,322,495,121
1960	**22,151,218**	2.12 %	440,791	18	6.9	22	6.4 %	1,425,092	0.73 %	3,018,343,828
1955	**19,947,265**	1.93 %	363,846	18	7.17	20	5.4 %	1,085,994	0.72 %	2,758,314,525

Source: [1]

The reported birth and death rates translate into **3,168,840** births per year (**8682** births per day), and **1,188,315** deaths per year (**3255** deaths per day). Simple subtraction shows an annual population increase of roughly 2 million nationally. Given the regional differences in resource, climate, levels of environmental degradation, food dependency, regional politics, and security/stability, birth and death rates as well as overall growth rates are likely to show significant regional variations. Eighty five percent of the population lives in the countryside [2], a testament to the country's continuing status as an agrarian society with a backward economy.

Population of Regions: 1994 and 2018

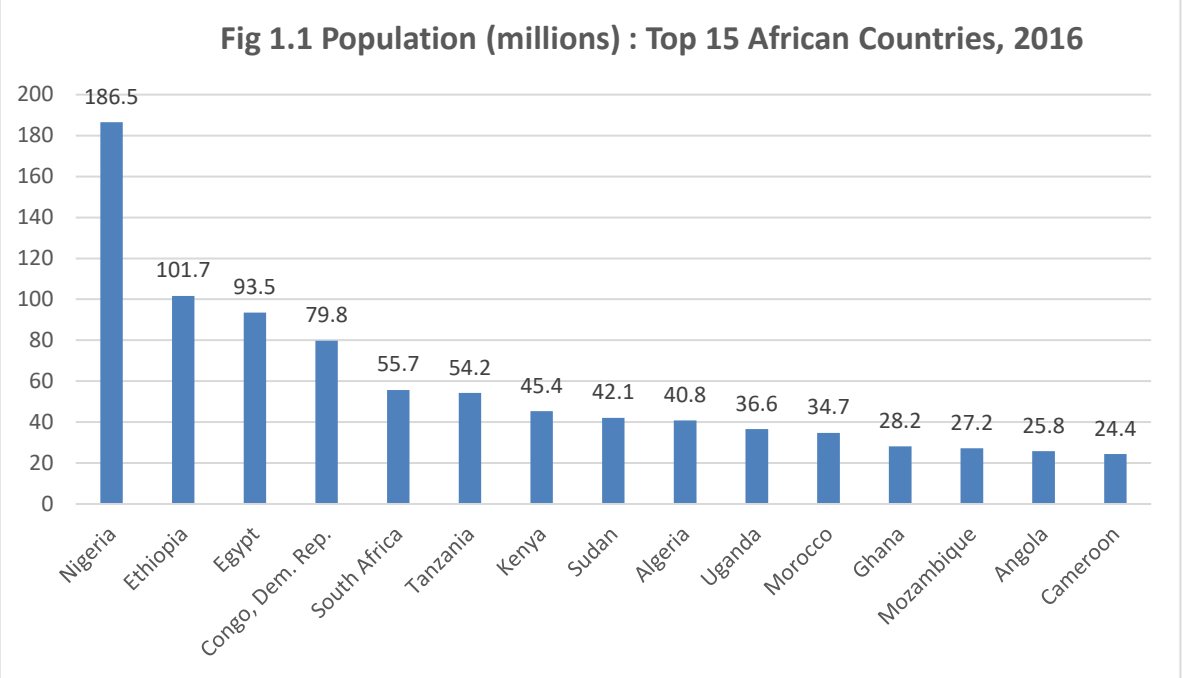
	1994 Census*				2018
Region	**Rural**	**Urban**	**Total**	**Percent**	**Total**
Tigray	2,667,789	468,478	3,136,267	5.9%	6,276,729
Afar	980,705	79,868	1,060,573	2.0%	2,122,565
Amhara	12,568,982	1,265,319	13,834,301	25.9%	27,687,108
Oromiya	16,762,437	1,970,088	18,732,525	35.1%	37,490,108
Somali	2,761,479	437,035	3,198,514	6.0%	6,401,307
Benishangul Gumuz	424,432	36,027	460,459	0.9%	921,534
SNNPR	9,672,210	704,818	10,377,028	19.5%	20,767,937
Gambella	154,438	27,424	181,862	0.3%	363,967
Addis Ababa	28,149	2,084,588	2,112,737	4.0%	4,228,300
Dire Dawa	78,676	173,188	251,864	0.5%	504,065
Total	46,099,297	7,246,833	53,346,130	100.0%	**106,763,619****
***Source: http://www.irpps.cnr.it/etiopia/pdf/MigrationChap2.PDF**					
****Source: http://countrymeters.info/en/Ethiopia (For May 11 2018)**					

Click HERE to access a Regional map of Ethiopia's Demographic and Health Survey Results and then click any region

Also see the population density map below:

Click HERE to access an interactive population density map based on the 2007 census and zoom into the Amhara region (the darker the shade, the larger the population size of Weredas).

The first national census was conducted in 1984, and the second in 1994. However, changes in administrative units and boundaries make comparison of data from the two censuses difficult, if not impossible. Simple analyses such as the growth rate of the population between the two censuses cannot be made because of altered administrative boundaries.



Source: Based on [3]

Administratively, the county is divided into eight ethnic-based rural majority regions – Afar, Amhara, Benishangul-Gumuz, Gambella, Oromia, Southern Nations Nationalities and Peoples (SNNP), Tigray, Somali – and three urban-majority regions – Addis Ababa, Dire Dawa, and Harari, further subdivided into"….62 Zones, 8 Special Weredas and 523 Weredas" [4]

An article offering a "concise summary" of the country's history [5] describes Ethiopia as "unique among African countries" adding that "the ancient Ethiopian monarchy maintained its freedom from colonial rule with the exception of the 1936-41 Italian occupation during World War II". At the other extreme is its image as a place with enormous suffering and hardship, continually, and shockingly displayed on television screens in most living rooms of the Western world. These images relate to the various segments of its population, especially those in the northern and, more recently, the southern and eastern regions, which have repeatedly fallen victim to drought, famine, and war. The article goes on to state that a military junta seized power in 1974 but that, buffeted by "…. uprisings, wide-scale drought, and massive refugee problems, the regime was finally toppled in 1991…" [5] and was replaced by the EPRDF - the ruling party currently in power.

Many analysts, including the UN [6] have tried to present the country as a living proof of what the population-environment disequillibrium would do to nations (see the quote below), if centuries of misuse of available land resources through outdated subsistence farming practices were not curbed.

> There has not been any time, since the early 1980s when the [Ethiopian] economy grew at a rate higher than that of the population. GDP grew at an average rate of 2.7% between 1965 and 1980 and at 1.9% between 1980 and 1989. Available data indicate that the population increased fourfold between 1900 and 1988. At the beginning of the present century the crude rate of natural increase was estimated at 0.3% per annum. This was a far cry from the 2.9% a year suggested by the 1984 census. The total population in 1900 was estimated at 11.8 million. It took 60 years for this to double to 23.6 million in 1960. It took only 28 years for the population in 1960 to double to 47.3 million in 1988.

As can be expected on the basis of its status as one of the poorest countries in the world (GNP per capita of US$100.00), the crude death rate is high but declining (15 per thousand), as is the infant mortality rate - 77 infant deaths per thousand births – [7], and life expectancy at birth is low - 46 years for both sexes. Economic mismanagement, war, recurrent droughts and famine (in all decades since the 1950's), have taken their toll on the country and its people. Sadly, this is draining the meager resources that, otherwise, could have been directed toward socio-economic development. Moreover, natural disasters have been operating in tandem with man-made catastrophes. Civil strife still

continues, as does the relentless bite of hunger and malnutrition. As a result, millions of people still need emergency food assistance and rural Ethiopia faces widespread poverty and disease. Sanitation coverage reaches only 15 percent of rural households, and only 24 percent have access to safe drinking water [8]. The World Bank's report puts the maternal mortality ratio at 1800 per 100,000 births - among the highest in the world - [8] but the DHS survey results which gave a ratio of 871 appear to be more accurate [7]. Over 17,000 women die each year due to complications related to pregnancy and childbirth. Ethiopia has one of the highest death rates of abortion related deaths of young women.

Resettlement and villagization were among the former Marxist government's response to the crisis. Programs were launched in the mid-1980s as part of a national goal to combat drought, avert famine, and increase agricultural productivity. Resettlement was considered by the regime as a long-term solution to the drought/famine problem. This involved the permanent relocation of an estimated 1.5 million people from the drought-prone North to the relatively sparse and so-called virgin arable lands of the South and West. The effort was welcomed at first. However, once the process had begun in earnest, there was widespread criticism of the program's poor planning and execution, which actually increased the number of famine deaths. Another remedy sought by the government was villagization [9].

> The villagization program, the regime's plan to transform rural society, started in earnest in January 1985. If completed, the program might have uprooted and relocated more than 30 million peasants over a nine-year period. The regime's rationale for the program was that the existing arrangement of dispersed settlements made it difficult to provide social services and to use resources, especially land and water, efficiently. The relocation of the peasants into larger villages (with forty to 300 families, or 200 to 2,500 people) would give rural people better access to amenities such as agricultural extension services, schools, clinics, water, and electricity cooperative services and would strengthen local security and the capacity for self-defense. Improved economic and social services would promote more efficient use of land and other natural resources and would lead to increased agricultural production and a higher standard of living.

This was one of the greatest exercises in government population redistribution efforts the world has seen in the last century. The result was predictably catastrophic. Tens of thousands fled to avoid forcible relocation; others died or lived in inhuman conditions after being forcibly moved. According to available estimates, "… by the end of 1988, over 12 million people had been relocated in twelve of the fourteen administrative regions of the country; Eritrea and Tigray were the only exception" [9]. The number may have risen to 13 million by 1989. Expectedly, different regions, known, then, as ***Kiflehager***, carried out villagization at different pace; some took quick action as required by the government while others slackened off.

> "For example, in Harerge province, where the program began early (1985), over 90 percent of the population had been relocated by early 1987, whereas in Gonder and Welo the program was

> just beginning to take hold. In Ilubabor province over a million peasants had been relocated to over 2000 villages between the end of 1985 and spring of 1989."[9]

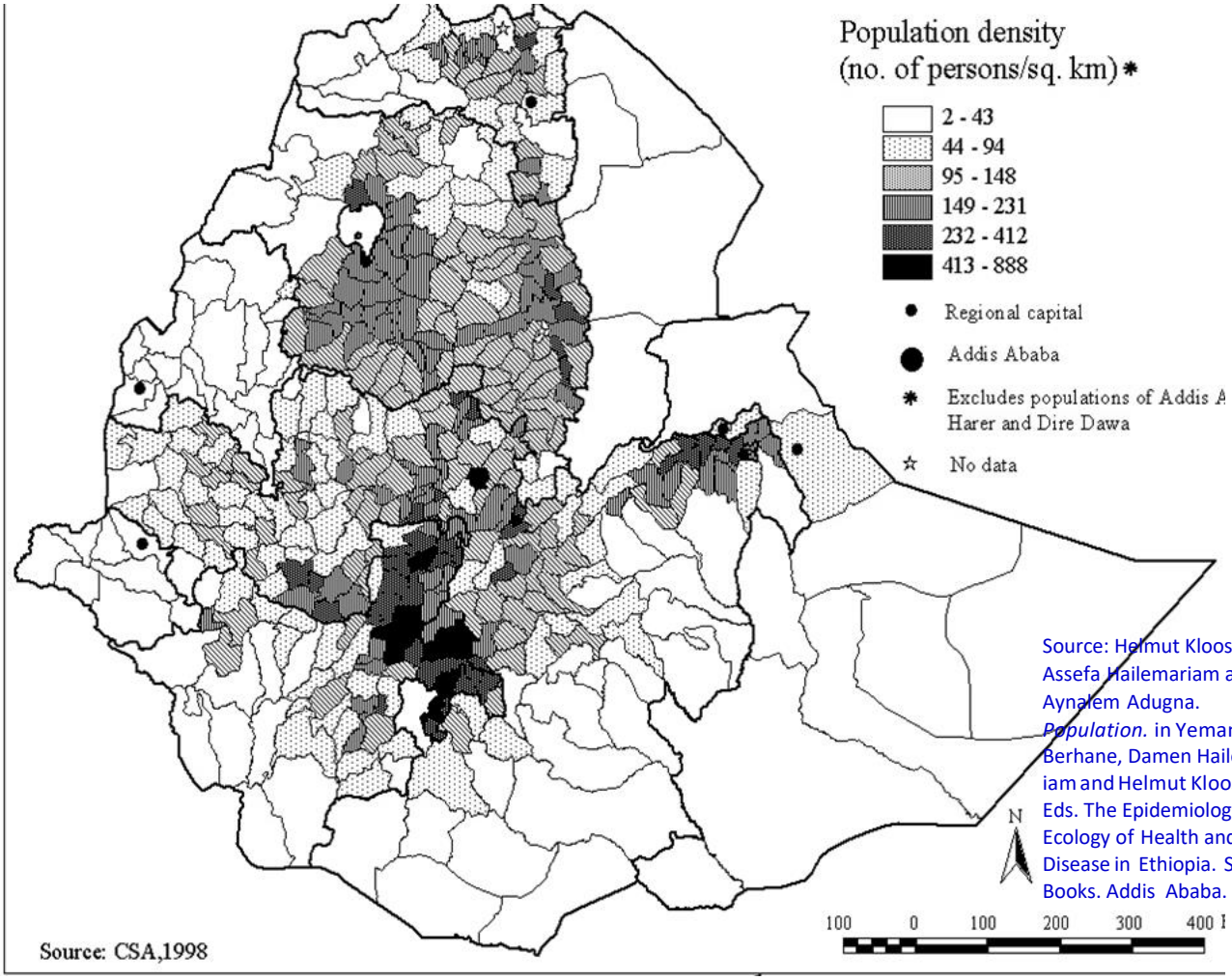
The highly mobile nomadic groups in Eastern and Southeastern regions as well as shifting cultivators, were illusive targets, and remained largely unaffected by the scheme.

In a dramatic reversal of fortunes the government announced new economic policies early in 1990 and peasants were given the freedom to abandon cooperatives and, equally, importantly, to bring their produce to market. In this way, the Mengistu Hailemariam regime completely abandoned one of the strong rationales for villagization – communalization of farms and farm products [9]. The effects of this futile exercise involving millions of unwilling citizens, on current population distribution patterns and other demographic characteristics of the Ethiopian population, have not been studied thoroughly.

An estimated 80 percent of Ethiopia's population still earns its livelihood through labor intensive, but low-yielding employment in agriculture and nomadic herding. Government-sponsored population redistribution is still continuing. A new program was launched in 2004 with the goal to move 2 million people [10].

The major ethnic groups include the Oromo whose proportion has been reported variously ranging from 30 per cent to 40 percent and inhabit the central, western, southwestern, and eastern regions, and the Amhara (30%) in the central, northern, and northwestern regions [11]. Other major ethnic groups include the Tigray in the north (6.2%) and the Somali in the Ogaden region (6%) [11] of the east, the Afar in the northeastern lowlands, as well as the Shanquila, Gurage, Kembata, Wolayita, Sidama, and tens of other smaller groups in the western, central and southern regions. The Wolayita region is among the high-density enclaves due, in part, to the high carrying capacity afforded by the high-yielding inset (a root crop) cultivated in the area.

The distribution of Ethiopia's population is influenced greatly by altitude, climate, availability of good soil, and the presence or absence of infectious diseases such as malaria. These physical factors explain the high concentration of population in the highlands. About 14 percent of the population lives in areas above 2,400 meters in climates similar to the temperate zones. About 75 percent live between 1,500 and 2,400 meters where temperature is moderate, and only 11 percent below 1,500 meters where temperatures are high. The hot zone encompasses more than half of Ethiopia's territory. In other words, localities above 3,000 meters and below 1,500 meters of elevation are sparsely populated, the first due to cold temperatures and rugged terrain, which limit agricultural activity, and the latter because of high temperatures and low rainfall.



Source: Helmut Kloos, Assefa Hailemariam and Aynalem Adugna. *Population.* in Yemane Berhane, Damen Hailemariam and Helmut Kloos. Eds. The Epidemiology and Ecology of Health and Disease in Ethiopia. Shama Books. Addis Ababa. 2006.

Population: A Brief Introduction

Statisticians use the term "population" to denote a collection of things. Demographers, however, use it in reference to "the collection of persons alive at a specified point in time who meet certain criteria" [12]

"We entered the 20thcentury with a population of 1.6 billion people. We entered the 21st century with 6.1 billion people" [13]. There are 6.6 billion people in the world today. Two countries – China and India – have over a billion people each. Almost two-thirds of humanity (4.1 billion) lives in the Asian continent. If we add Africans in the continent of Africa now numbering nearly a billion, we cover four-fifths of humanity.

This year, 81.6 million people will be added to the world population, and all but 1.6 million will be added to the population of the less developed countries (LDC). Some of the developed countries (DC) are actually experiencing a slowdown in population growth

rates, or an actual decline. The world is also on the eve of a major urban-rural shift. For the first time in human history more people will be living in urban, rather than rural, areas. This is projected to happen in 2008 [13].

The following table shows important population milestones – estimates of when each billion was, or will be reached:

Fig. 1.3 World Population Growth

Population	1 Billion	2 Billion	3 Billion	4 Billion	5 Billion	6 Billion	7 Billion	8 Billion	9 Billion
Year	1804	1927	1961	1974	1987	1999	2011	2024	2042
Year Until Next Billion	123	34	13	13	12	12	13	18	

Source: Based on [14]

POPULATION DISTRIBUTION AND DYNAMICS

Population Distribution

Population distribution refers to the manner in which population numbers are spread over a geographical area. A prominent characteristic of the distribution of human populations anywhere in the world is its unevenness. One of the many measures of population distribution is ***Population Density***. This relates the number of people inhabiting an area, to the land size of the area. Such calculations form the basis of Choropleth (shading) maps available for all countries of the world. Advanced graphic softwares such as the Geographic Information System (GIS) have made this task much easier. "Places which are **sparsely** populated contain few people. Places that are **densely** populated contain many people"[14]. Sparsely settled areas of the world tend to be those with harsh physical environments, and present formidable obstacles to human activities, needed for survival; activities such as farming. Good examples are the major deserts like the Sahara, or relatively smaller ones like the Ogaden, as well as permanently frigid lands such as Antarctica. Densely settled places include most of Europe, southern and southeastern Asia, as well as western Africa and north eastern North America. In Ethiopia many Weredas in the Amhara, Ormomiya, and SNNRP region, have high densities. Much of the settled lands in these regions tend to be less hostile, less forbidding to human habitation, and pose fewer challenges to the main economic activity – farming.

Factors Determining Population Distribution

In this online course, we have made extensive use of online sources to put together all of the salient facts of human population including its distribution. The table below shows one such effort. There are two classes of determining factors: Physical, and Human [14].

What determines population distribution and density?

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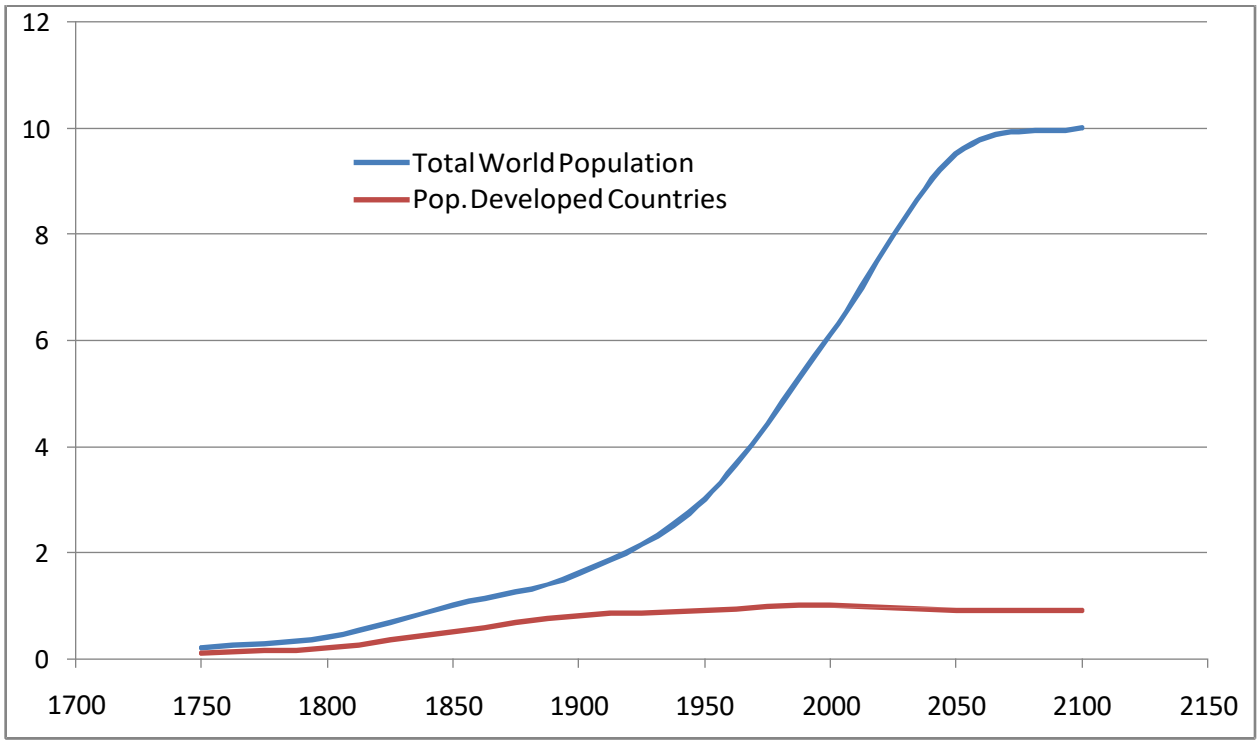
Topography (the size, height and shape of a local land mass)	Low-lying, undulating plains that are flat e.g. The Nile River Valley and Delta in Egypt.	Rugged and mountainous landmass, e.g. Semien Mountains and the Arssi-Bale massif.
Resources	Places endowed with abundant resources (e.g. fertile land, easily extractable minerals, fuel and construction wood, fishing etc.) tend to densely populated This has been the case with most densely populated areas of Ethiopia, but overpopulation, land degradation and resource depletion are posing major challenges.	Areas with low resource base tend to be sparsely populated e.g. Much of the rugged and barren mountain sides of northern and eastern Ethiopia where volcanic rocks predominate.
Climate	Areas with optimum temperature and precipitation such as in the temperate climatic regions of the world tend to be densely populated. Example: most of the densely populated Weredas of the Amhara, Oromia, and SNNPR regions of Ethiopia	Places of extreme temperature tend to be sparsely populated. Example: the Ogaden and other lowlands in the Somali and Afar regions.
Human Factors	**High Density**	**Low Density**
Political	Stable and democratic governments foster favorable a political climate for economic growth and expansions there by	Political instability could push people out and lead to lesser densities. Moreover, the lack of a stable

	enabling people to make long-term plans about where to live. The population itself is stable due to a lesser need to cross borders, whether local or international, to escape persecution. There are enumerable examples of such dislocations in the recent political history of Ethiopia.	environment precludes long-term investment in time and energy to create a favorable habitation for individuals and families. Several examples could be cited from Ethiopia's past.

Fig. 1.4 World Population (Billions), 1750 to 2100



Sources: Based on [5]

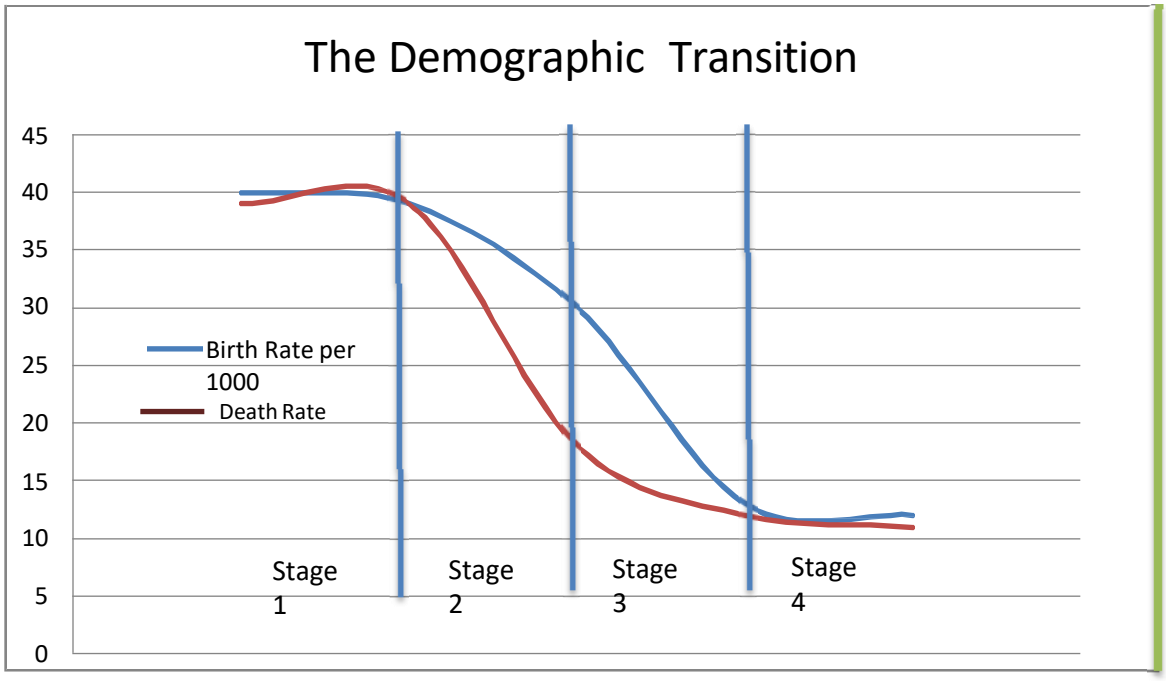
Population Dynamics

"It took all of human history until 1830 for world population to reach one billion. The second billion was achieved in 100 years, the third billion in 30 years, the fourth billion in 15 years, and the fifth billion in only 12 years"[14]. Opinions are divided when it comes to global (or national) population numbers and growth rates. There are two camps. One camp decries what it views as the un abating acceleration in the number and growth rates of world/national populations. The other camp is unconcerned, or even views population growth as a good thing.

The good news for those advocating population control is that, with expanded use o birth control in the second half of the 20t century, developing countries including the population giants China and India have managed to substantially reduce their population's growth rates. The average number of children born to women in the LDCs has fallen from about six in the 1960s to less than three today. In other words, the LDCs are undergoing a transition from high birth/death rate regimes to low birth/death rate regimes already undergone by the developed countries of the world (see the graph below)

[14]. This transition is known to demographers and all other students of population as the ***Demographic Transition***, and the theory behind it is known as The Demographic Transition Theory. Is Ethiopia undergoing a transition? We will examine this briefly in this chapter, and more comprehensively in the Mortality and Fertility chapters.

Fig. 1.5 The Demographic Transition



Source: Based on [14]

Why Study Populations?

Statistics on population are vital to a country's development and for planning of future needs such as schools, hospitals, fiscal and economic planning, as well as overall governance. Population denominators are needed to assess pressure on land, infection rates of a new epidemic, birth rates, per capita income, dependency ratios, etc. Calculations of direct and 'standardized' mortality or morbidity rates, life expectancies at various ages, also require detailed breakdowns by age and gender. It is important to note, however, that population estimates are merely a snap-shot in time, a cross-sectional look at possible underlying causes of the population dynamics, and by no means a longitudinal motion-picture-like image of all population processes [15].

Demography Defined

The Population Reference Bureau defines demography/population studies as follows [16] [17]:

> "Demography, or more generally, population studies, is the study of human populations: their size, composition, and distribution, as well as the causes and consequences of changes in these characteristics. Demography is clearly a discipline because it is a field with its own body of interrelated concepts, techniques, journals, departments, and professional associations. It is also an interdisciplinary field because it draws from many disciplines, including sociology, economics, biology, geography, history, and the health sciences. Nearly all the major events of people's lives have demographic implications: birth, schooling, marriage, occupational choices, childbearing, retirement, and death"

A term often used in population studies/demography is "dynamics". This relates to a basic population fact: that it is never static. Populations don't always grow, however. They decline at times (think of all of the civilizations that have come and gone) through the interplay of major population events, also referred to as vital events - mortality, fertility, and migration. These three form the core structure of the main page of this website, and of the online course you are now taking. Different elements within the same population could be changing at different pace or rate. This fact introduces us to another important concept in population, namely, composition.

The genetic make-up of Ethiopians: A Brief Introduction

A recent work sought to unravel the genetic makeup of Ethiopians. Pooled samples were collected from a total of 77 unrelated males (19 Oromos, and 58 speakers of the Semitic languages Amharic, Tigrigna and Guragigna) [18]. The data had been pooled because the two groups did not show important differences – so much for the ethnic hatred and sense of distinctness, even supremacy, harbored by some. To the delight (or dismay) of those seeking to amplify an African or non-African connection when tracing their roots, the test,

"……led to the hypothesis that the Ethiopian population (1) experienced Caucasoid gene flow mainly through males, (2) contains African components ascribable to Bantu migrations and to an in situ differentiation process from an ancestral African gene pool, and (3) exhibits some Y-chromosome affinities with the Tsumkwe San (a very ancient African group)." A related finding also showed "… a high (20%) frequency of the 'Asian' mtDNA haplotype in Ethiopia is discussed in terms of the 'out of Africa' Model'**. [18]**

The Cradle of Mankind

Given that the oldest known human ancestor "Lucy"/ "Dinkinesh" was found in the Afar region of Ethiopia, all of humanity can claim to be Ethiopians. "It is in the Afar region of Ethiopia where scientists discovered the remains of 'Lucy' or Dinkenesh, meaning 'thou art wonderful,' as she is known to the Ethiopians. 'Lucy' lived more than three million years ago, and her bones now rest in the Ethiopian National Museum" [19]

Ethiopia's unique status as a country of three thousand years of history and independence is a source of pride for its citizens. At first blush, this would suggest a stable political environment with favorable implications for demographic change and transition. A more detailed look reveals a different reality, however. Underneath the façade of millennia of quite historical calm prevailed centuries of violent upheavals and turmoil in the form of external invasions, internal expansionist moves, and power struggles. The 19th and 20th centuries are notable examples. The question here is: did these have effects on the country's population dynamics? If yes, what were/are the consequences for population distribution and change? Answers are hard to come-by given the focus of Ethiopian history books on leaders – emperors, empresses, and princes - as well their conquests and military prowess, rather than the lives of everyday Ethiopians – the great grandparents of today's generation.

A few online publications on the country's history make a brief mention of its population matters [20, 21]:

> "…… recent research in historical linguistics--and increasingly in archaeology as well--has begun to clarify the broad outlines of the prehistoric populations of present-day Ethiopia. These populations spoke languages that belong to the Afro-Asiatic super-language family, a group of related languages that includes Omotic, Cushitic, and Semitic, all of which are found in Ethiopia today. Linguists postulate that the original home of the Afro-Asiatic cluster of languages was somewhere in northeastern Africa, possibly in the area between the Nile River and the Red Sea in modern Sudan. From here the major languages of the family gradually dispersed at different times and in different directions--these languages being ancestral to those spoken today in northern and northeastern Africa and far southwestern Asia".
>
> "The first language to separate seems to have been Omotic, at a date sometime after 13,000 B.C. Omotic speakers moved southward into the central and southwestern highlands of Ethiopia, followed at some subsequent time by Cushitic speakers, who settled in territories in the northern Horn of Africa, including the northern highlands of Ethiopia. The last language to separate was Semitic, which split from Berber and ancient Egyptian, two other Afro-Asiatic languages, and migrated eastward into far southwestern Asia".

Historical events that have had clear but unknown impacts on population numbers, dynamics, and distribution include, but are not limited to:

- ***Wars***
- ***Large-scale population movements (migrations)***
- ***Famine***
- ***Disease (including animal diseases)***

- ***Rural urban migrations of the post-World War II period with the Italian invasion as the trigger point***
- ***Forced relocations: Case in point, socialist resettlement and "villagization" during the 1980's, as well as resettlement by the current government***
- ***Political instability, civil-war/war of independence (Eritrea), and the resulting elevated mortality of the last quarter of the 20th century with possible fertility impacts***

Ethiopian Population Trends 1900 - present

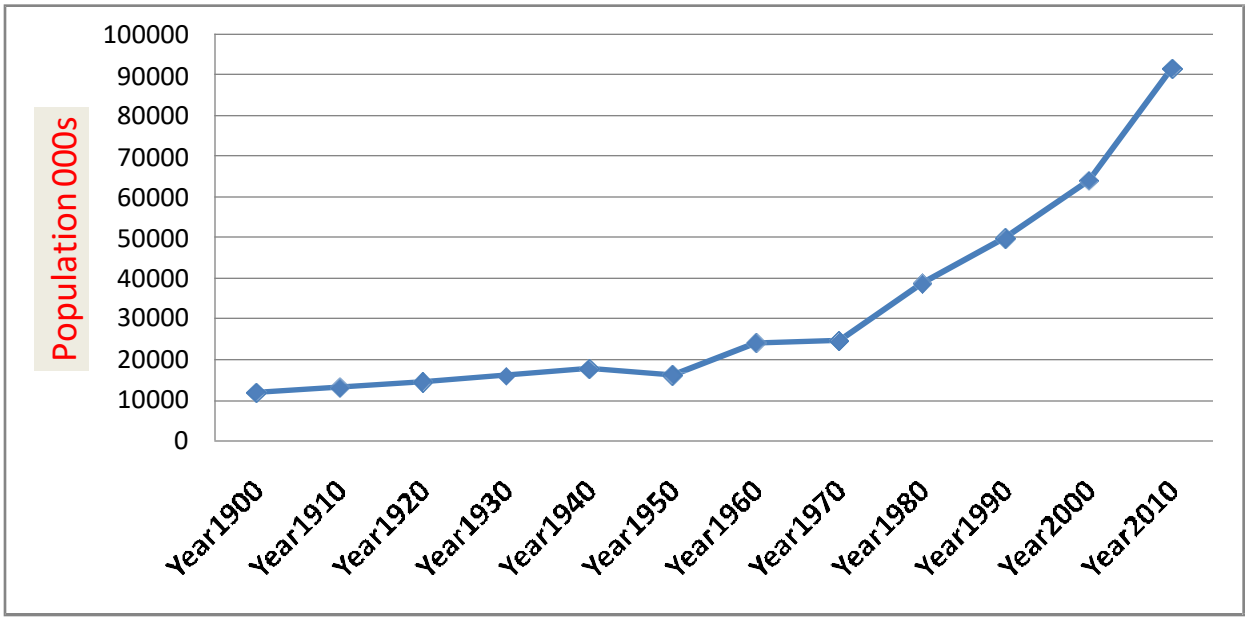
Some have ventured an estimate of the country's population in different historical periods. A recent UN report [22] states that the population increased fourfold between 1900 and 1988.

The rate of natural increase was estimated at 0.3% for the early part of the 20th century – only a tenth of the 2.9% annual growth suggested by the 1984 census. The estimate of the population total for 1900 was 11.8 million (see Fig 1.6 below). The report also adds…"it took 60 years for this to double to 23.6 million in 1960. It took only 28 years for the population in 1960 to double to 47.3 million in 1988".

Ethiopia conducted its first ever population census in 1984. The census covered 81 percent of the population. The rest had to be estimated due, mainly, to security concerns spawned by the secessionist wars in the north. It gave a total count of 42 million and a growth rate of 3.1 percent [1, 23].

The figure below is based on (a) estimates for all the years prior to the 1984 census, (b) estimates for the intercensal years, and (c) projections to the year 2010. The fact that we are using the words "estimates" and "projections" suggest that we should not place full trust on the numbers for the decades shown, or in future numbers suggested by the trend line.

Fig.1.6. Ethiopia: Population Trends: 1900 to 2010

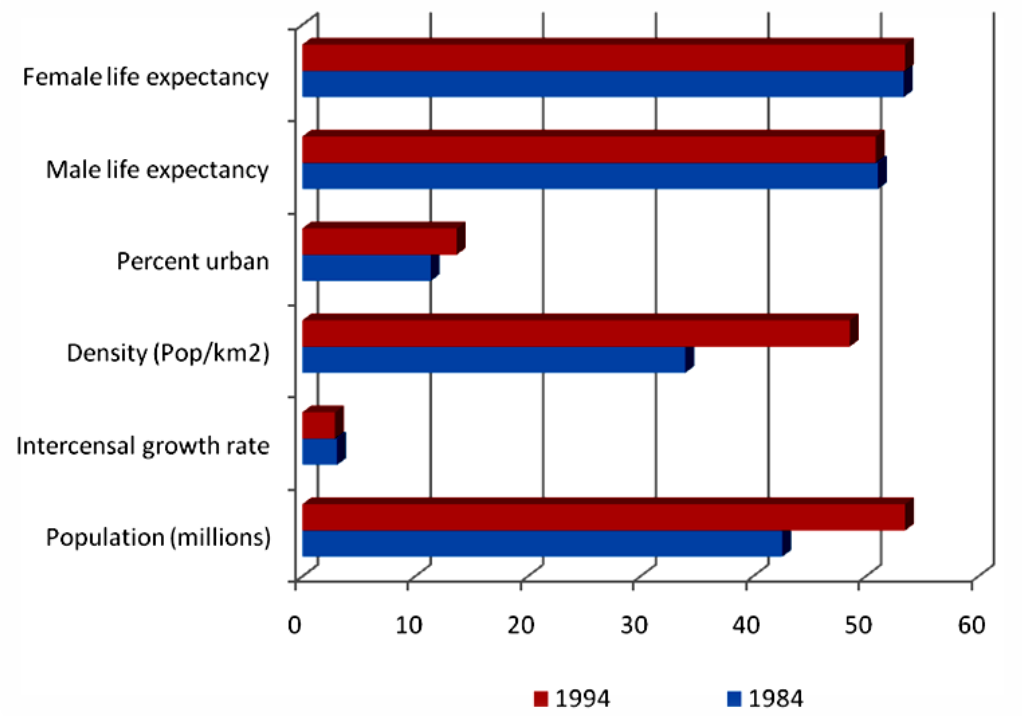


Source: Based on [24]

The second census was conducted 10 years later in 1994 and, unlike the first, this one covered the entire country (Eritrea had broken away and become independent by then). The second census gave a population total of 53.5 million. The growth rate at this time had declined somewhat, down to 2.9 percent [23]. The graph below shows changes during the intercensal period.

Most of the estimates for the pre-1984 period came from sample surveys - the 1964-67 National Demographic Survey 1st round, the 1968-69 National Demographic Survey 2nd round, and the 1981 demographic survey. Subsequently, better organized surveys analyses have been conducted including the 1990 National Family and Fertility Survey (NFS), the 1995 Fertility Survey of Urban Addis Ababa, and the 2000 and 2005 Ethiopia Demographic and Health Surveys (EDHS).

Fig 1.7 Ethiopia: Population change between the 1984 – 94 censuses



Source: Based on [23]

Figure 1.7 shows changes between the two censuses. Expectedly, not much movement was observed in life expectancies (defined in the mortality chapter) of males or female Ethiopians. However, substantial differences are observed in population numbers as well as density.

Urbanization

The table below shows percentage changes in the population sizes of 85 cities and towns with populations of 10,000 and above in 2006. Two urban centers – Moyale and Gambella - experienced a population increase of over 500 percent during the study period, and three towns – Boditi, Jinka, and Ziway - grew by over 400 while an additional five towns – Adigrat, Asosa, Jijiga Kombolcha and Shakiso, gained between 300 and 400 percent. If the data is correct, this shows a phenomenal growth whose underlying causes and correlates need to be studied and documented. A total of 21 towns grew between 200 and 300 percent while an additional 50 towns more than doubled their population (100 – 200 percent growth). There is no clear indication of a link between location and growth rate as the towns in the various classes of growth are spread all over the regions.

The spectacular growth suggested by Table 1.1, gives, at first glance, the sense that Ethiopia's urban population has grown so much and so fast (Addis Ababa, the capital doubled in population between 1984 and 2006) that the country is now predominantly urban. However, with only 16.5 percent of the population living in urban areas (2008) this is far from the truth.

Table 1.1 Percentage growth rate of cities and towns* – 1984 – 2006

City/Town	% Growth Rate	City/Town	% Growth Rate	City/Town	% Growth Rate
Adet	225	Debre Zeyit	157	K'olito (Alab	208
Adigrat	300	Degeh Bur		Korem	213
Addis Ababa	110	Dembi Dolo	148	Maych'ew {Maychew}	142
Adis Zemen	172	Derwernache (Derwonaji)		Mekele	175
Adwa	208	Dese	146	Mek'i {Meki}	228
Agaro	121	Dila	155	Metahara	247
Agere Maryam	211	Dire Dawa	187	Metu	176
Aksum	166	Dodola	199	Mojo	182
Alamata	225	Dolo		Mot'a {Mota}	143
Aleta Wendo	111	Fiche	122	Moyale	519
Arba Minch	215	Finote Selam	194	Nazret	200
Areka	427	Gambela	597	Negele	28
Arsi Negele	222	Genet (Holata)	155	Nekemte	193
Asayita		Gimbi	180	Robe	241
Asbe Teferi	194	Ginir	151	Sawla (Felege Neway)	280
Asela	130	Giyon (Waliso)	171	Sebeta	150
Asosa	386	Goba	121	Shakiso	302
Awasa	246	Gode		Shambu	146

Awubere		Gonder	141	Shashemene	195
Bahir Dar	205	Hagere Hiywet (Ambo)	185	Shewa Robit	154
Bati	142	Harer	51	Sodo	167
Bedele	205	Hartisheik		Softu	
Bichena		Himora	143	Weldiya	172
Boditi	452	Hosaina	279	Welenchiti	183
Bure	185	Inda Silase	243	Welkite	253
Butajira	171	Jijiga	323	Wenji Gefersa	-34
Chagne	267	Jima	161	Werota	205
Dangila	152	Jinka (Bako)	402	Wik'ro {Wikro}	119
Debark' {Debark}	195	Kebri Dehar		Yirga 'Alem {Yirga Alem}	174
Debre Birhan	161	Kembolcha	336	Yirga Chefe	153
Debre Markos	115	Kibre Mengist	151	Ziway	445
Debre Tabor	156	Kobo	167		

Source: Based on [25]

* Only cities with a population of 10,000 and above in 2005 are included

As can be inferred from the quote below the rapid population increase is not limited to the contemporary urban scene:

> "The period 1967-75 saw rapid growth of relatively new urban centers. The population of six towns--Akaki, Arba Minch, Awasa, Bahir Dar, Jijiga, and Shashemene--more than tripled, and that of eight others more than doubled. Awasa, Arba Minch, Metu, and Goba were newly designated capitals of administrative regions and important agricultural centers. Awasa, capital of Sidamo, had a lakeshore site and convenient location on the Addis Ababa-Nairobi highway. Bahir Dar was a newly planned city on Lake Tana and the site of several industries and a polytechnic institute. Akaki and Aseb were growing into important industrial towns, while Jijiga and Shashemene had become communications and service centers". [26]

Contrary to the evidence from most other African countries, in Ethiopia, more females than males migrate to cities and towns. Moreover, the country's recent history of warfare and political upheavals is often cited as a contributing factor leading the influx into urban centers, of thousands of men, women, and children seeking safety and better economic prospects. "In addition to beggars and maimed persons, the new arrivals comprised large numbers of young people. These included not only primary and secondary school

students but also an alarming number of orphans and street children, estimated at well over 100,000." [26]

AGE STRUCTURE

With 43% of the population in 0 – 15 age group [3] the Ethiopian population can be described as young, but recent trends in the fertility rate suggest the beginning of a reversal, and a slight shift from a population that has been "***younging***" to that with early signs of a trend toward ***aging***.

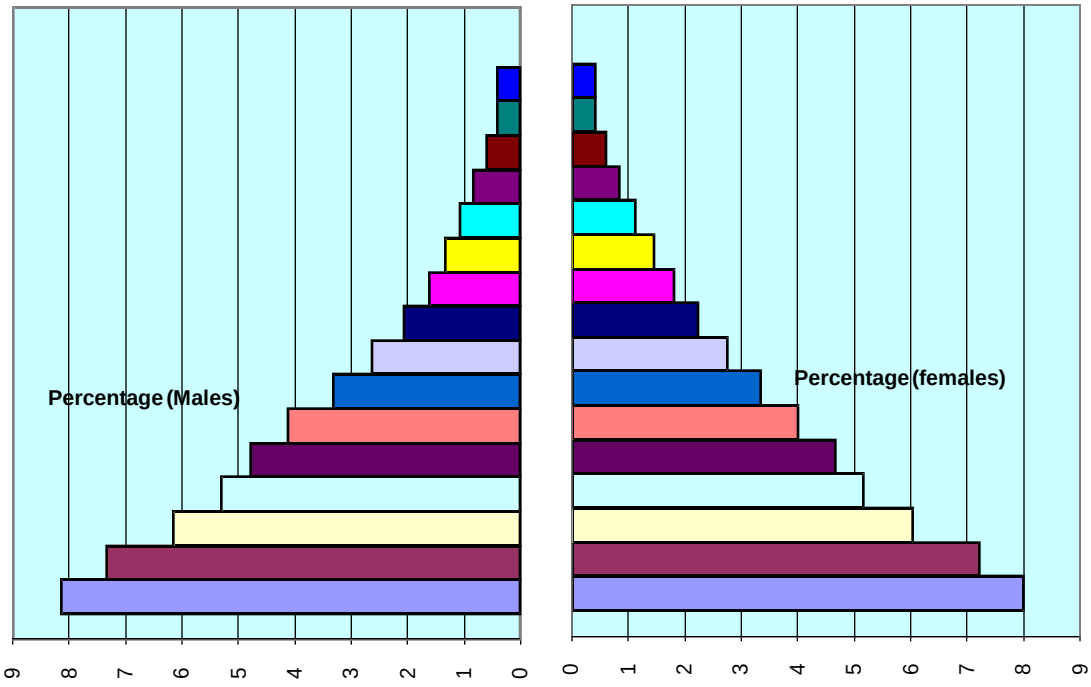


Fig 1.2 Ethiopia: Percentage Distribution by Age (July 2007)
Source: Based on [1]

The horizontal bars represent a five year age group: 0 – 4, 5 – 9, 10 – 14…..etc, from bottom up. The very top bar represents the 75+ group. Ethiopia's age pyramid displays a classic shape of a wide bottom (due to high fertility) with a quickly tapering middle and top where-by the bars decrease in size significantly from one age category to the next higher category due to high mortality.

Health and Diseases in Ethiopia

Introduction

Ethiopia's weak health infrastructure results in inadequate and uneven access to health services and leads to health outcomes favoring urban areas. About eight in ten illnesses in Ethiopia are due to preventable communicable illnesses and nutritional diseases, both of which are associated with poverty and low socio-economic development [27]. The diversity of socio-economic and physical environments pose significant challenges to health care delivery in Ethiopia as does the feeble transport and access systems to rural villages with roads that are generally impassable except during the dry seasons. "With about 0.43 km per 1000 people, the Ethiopian road network is among the least developed in the world. Only 20% of Ethiopia's land area is located within a 10 km range of an all-weather road. Not only is the network limited in outreach, but much of it is also in poor condition". [28]

Poverty and lack of institutional infrastructure severely limits the availability of, and access to health care, and other services. Low level of education, lack of access to improved sanitation and clean drinking water underlie much of the adult and childhood illnesses Ethiopians suffer from [29].

> Only 15 percent of Ethiopians have access to improved sanitation compared to SSA [Sub Saharan Africa's] average of 55 percent. Access to clean drinking water is slightly better at 24 percent but it is still much lower than the SSA average (55 percent). Fifty-nine percent of the adult population is illiterate, which is higher than the SSA average of 36 percent, and females have a higher rate of illiteracy. The primary school enrollment rate is 49 percent, also below the SSA average. More than 50 percent of Ethiopians also remain food insecure, particularly in rural areas.

Women face the added risk of pregnancy and delivery complications. Barely more than a quarter of pregnant women receive perinatal care and "almost all births take place at home in Ethiopia (94 percent)", with 5 per cent of home births self-delivered with no assistance even from relatives or other household members. "One in 14 Ethiopian women faces the risk of death during pregnancy and childbirth" due, in part, to a tradition that allows early marriage of girls [27]. Women also face a higher risk of HIV infection and "young women are particularly vulnerable to HIV infection compared with young men" [30].

Significant variations are observed in vaccination coverage. It is three times higher in urban that rural areas.

> "Ethiopia's immunization performance is mixed. The percentage of 12-23 months-olds who have received one or more of the EPI vaccines is high at 83 percent. However this percentage largely reflects the coverage

> achieved through the polio eradication program. Other important indicators reflecting the contribution towards a reduction in child mortality by immunizations (such as DPT 3 which, according to 2000 DHS and MIS data are 21 percent and 42 percent, respectively) place Ethiopia among the low performers by SSA [Sub-Saharan Africa] standards, far behind Malawi, Zambia, Benin or Ghana. This is largely due to a high drop-out rate between the first and subsequent vaccination, showing that it is difficult for the Ethiopian health system to ensure continuity of services."

Malaria represents the most serious health problem, and a major cause of morbidity and mortality in Ethiopia. It is the leading cause of outpatient visits, as in the rest of Sub-Saharan Africa. The mortality burden of 3 million deaths per year at the continental level [31] is staggering. With an estimated 672 million people at risk the cost of fighting this scourge in Sub-Saharan Africa is estimated at US$3.00 billion a year ($4.02 per African at risk) [31].

Ethiopia has a very ambitious goal of a universal primary health care for all by the year 2009.

> By 2009, a total of 30,000 extension health workers will receive one year training and will be deployed in villages to provide basic curative and preventive health services. Prevention and control of communicable diseases such as providing malaria bed nets, health education, and contraceptives, with active community participation, are priorities of the HEP [Health Extension Program] [27]

Ethiopian children remain the most vulnerable of all age groups with nearly one in two children under five years of age in the "stunted" category (short for their age), "….11 percent wasted (thin for their height), and 38 percent underweight" [30]. A recent government report embellished the numbers on changes between 2000 and 2005. This is how they presented it [32].

> "The percentage of stunted children fell by 10 percent, from 52% in 2000 to 47% in 2005. Similarly, the percentage of children underweight declined by 19% from 47% in 2000 to 38% in 2005" .

This is simple arithmetic, and the correct numbers are 5% and 9% respectively – a respectable gain still.

> "While malaria is one of the leading causes of morbidity and mortality in Ethiopia, it is estimated to represent only 4.5 percent of the causes of child mortality. According to recent estimates, most deaths among children under five years in Ethiopia can be attributed to pneumonia (28 percent) and diarrhea (24 percent)—a disappearing cause of death in many poor countries.

Non-vectored infectious

The newest, and potentially deadliest non-vectored infectious disease responsible for a five-year decline in life expectancy of Ethiopians, is HIV/AIDS. A 2004 estimate put the number of infected Ethiopians at 1.6 million [33]. The report put the annual number of new adult infections (2003) at 105,000. The adult (age 15 or older) prevalence rate is much higher in urban areas (12.5%) that rural (2.8%). An estimated 740,000 children (2005) have been orphaned by HIV/AIDS. [34]

On the opposite end of the disease-age spectrum is one of oldest causes of human ailments on record – Tuberculosis (one of the major causes of morbidity and mortality in Ethiopia). It is the third leading cause of admissions into health care facilities and "…the leading cause of in-patient deaths (10.1%) in 2001". [35]. Ethiopia is ranked number 8 among the world's top 22 countries with a high tuberculosis burden. An estimated 267,000 TB cases were detected in 2004, with an incidence rate of 353 cases per 100,000 people. The country has instituted a new treatment regime [36]

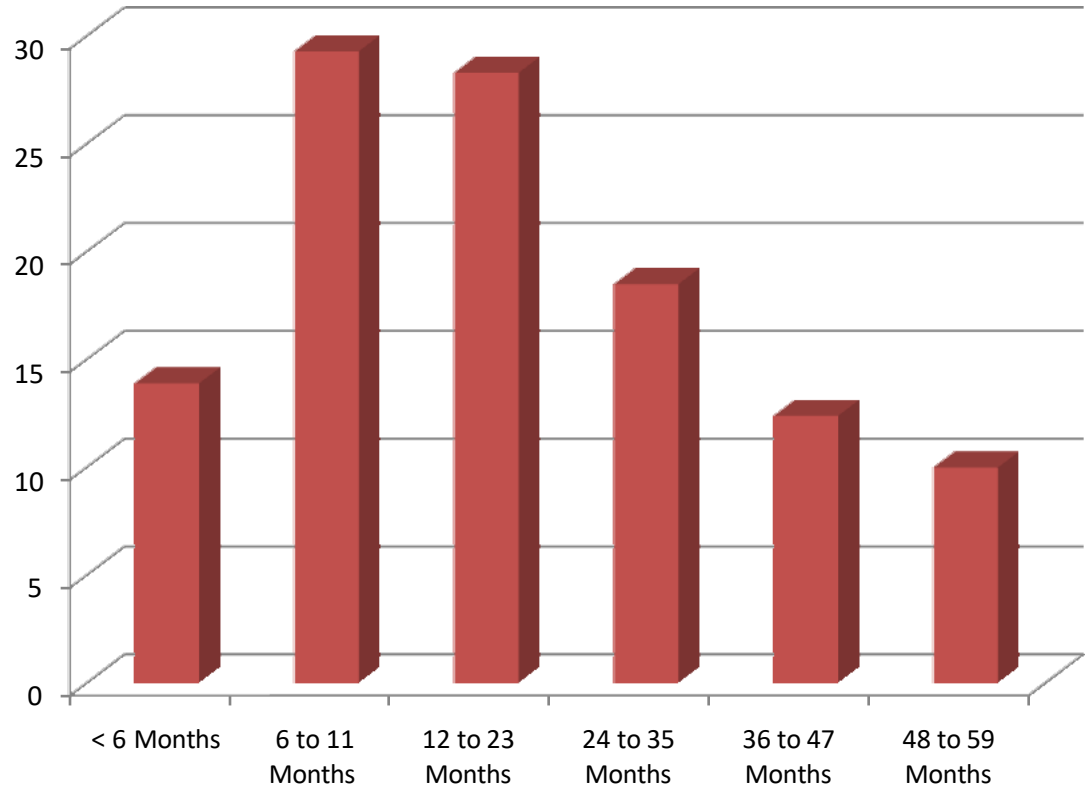
> Ethiopia's TB and Leprosy Control Program (TLCP) began to implement Directly Observed Therapy, Short-Course (DOTS) in two zones in 1991, and in 2004, DOTS coverage was 70 percent in areas where health services had adopted the strategy. TB treatment is integrated into general health services, although only 40 percent of Ethiopia's people have true access to DOTS. [36].

Over 377,030 Ethiopians have active TB and 36% of the population (24.5 million in 2005) are infected (latent infection) [37]. Co-infection with HIV/AIDS amplifies the severity of both "…thus accelerating the progression to AIDS" and the onset of death. [37]. The co-infection rate is "over 45% among outpatient TB clinic attendees" and 'the prevalence of TB among pediatric AIDS patients is 61%..." [33].

A major health risk in Ethiopia, especially at the bottom of the age pyramid is acute respiratory infection (ARI) which represents a major cause of morbidity and mortality for Ethiopian children. The 2005 Demographic and Health Survey asked mothers if their children had the symptoms of ARI. About 13 percent were found to have had the classic symptoms of a cough accompanied by short rapid breathing in the two weeks before the survey [7]. Babies 6 – 11 months old are most affected with incidences higher in urban than rural areas, and in homes that use wood/straw or animal dung for fuel than in homes with alternative fuel sources. Minimal medical intervention was observed during the study period: "Only 19 percent of all children under five with symptoms of ARI were taken to a health facility or provider" [7]

Diarrhea is among the major causes of childhood mortality and morbidity in Ethiopia with seasonal ebbs and swells. The survey mentioned above also solicited information on the subject. The result is shown in Fig. 1.8.

Fig. 1.8 Percentage of Children under 5 with Diarrhea in the Last Two Weeks Before the 2005 DHS survey by age (in months).



Source: [7]

There is no difference in incidence between boys and girls but the usual urban-rural difference persists with an incidence rate of 12% and 19% respectively. Diarrhea is also a common occurrence among HIV/AIDS patients, both adult and pediatric, with 51% of patients showing symptoms in a southern Ethiopian study [37].

Although not as life-threatening as HIV/AIDS which, in Ethiopia, is primarily transmitted during sexual intercourse, other sexually transmitted infections (STI) also affect millions, some with severe health effects including sterility and life-long disabilities. "Sexually transmitted infections (STI) include not only the common classical STIs (gonorrhea, syphilis, cancroids, and lymphogranuloma venereum) but also about 20 infections often referred to as 'second generation' sexually transmitted infections caused by bacterial, viral, parasitic, protozoal, and fungal agents" [38]

Vectored infectious

Malaria is by far the deadliest and the most widespread vector-borne disease in Ethiopia covering three quarters of the country's land area and threatening the health and lives of

millions of people. About 68% of the Ethiopian population (52.5 million) is at risk [29] and "over 5 million episodes of malaria are estimated to occur annually…" [39]. The disease accounts for 27% of hospital deaths [38]. A UNICEF report paints an even gloomier picture:

> Malaria… contributes up to 20% of under-five deaths. Tragically, in epidemic years, mortality rates of nearly 100,000 children are not uncommon. In the last major malaria epidemic in 2003, there were up to 16 million cases of malaria - 6 million more than an average year. Out of an estimated 9 million malaria cases annually, only 4-5 million will be treated in a health facility. The remainder will often have no medical support. It is estimated that only 20 per cent of children under five years of age that contract malaria are treated in a facility. [41]

The two most common strains of malaria parasites are the ***P. Falciparum*** and ***P. Vivax***, the latter representing a milder form of the disease. Almost all deaths are caused by the P. Falciparum strain. " ***P. Falciparum*** can rapidly become resistant to malarial treatment and poses a significant challenge to malarial medicine"[41].

> Children and pregnant mothers are among the most vulnerable. Drought related malnutrition, poor health and no sanitation can leave a weak immune system open to attack from malaria. It can also worsen the effects of malnutrition through malaria-related diarrhea and anemia. Malaria is also known to speed up the onset of AIDS in anyone who is HIV positive. Those living with HIV in high-risk areas are also amongst the most vulnerable. [41]

In April 2006 the government of Ethiopia announced a malaria control plan with a budget of $447 million that envisaged, among other things, the training of 37,000 health extension workers [41] and a substantial reduction in the disease burden and its detrimental impacts on the country's economy and society.

Other vector-borne diseases in Ethiopia with significant area coverage and impacts on public health have been studied and analyzed in a recent publication on Ethiopian epidemiology and ecology [43]. These include Trypanosomiasis, Onchocerciasis, Lymphatic Filariasis (LF), Leshmaniasis, Yellow Fever, Relapsing Fever, Typhus and related Rickettsial diseases, schistosomiasis, Dracunculiasis, and Zoonotic diseases with direct implications for human health and indirectly through their effects on domestic animals. Included in this group are Hydatidosis, Fascioliasis, Anthrax, Brucellosis, Toxoplasmosis, and Rabies.

Intestinal Parasitic Infections

Intestinal parasitic infections associated with poor hygiene and transmitted usually by the "fecal-oral route" are widespread in Ethiopia [43]. Unfortunately, there is no national surveillance, or nation-wide study, to unravel the extent of the illness. The pictures that emerge from the scant in-depth research outcomes fail to give a holistic national picture of the disease burden as well as its socio-economic impacts. The most common pathogens identified in stool samples of Ethiopian adults and children include Amebiasis, Giardiasis, Intestinal helminths including Taeniasis, Ascariasis, Trichuriasis, and hookworm infection. Regarding Taenia infections, Belete and Kloos [43] add that the infection is widespread in Ethiopia due to the practice of eating raw meat "…and the

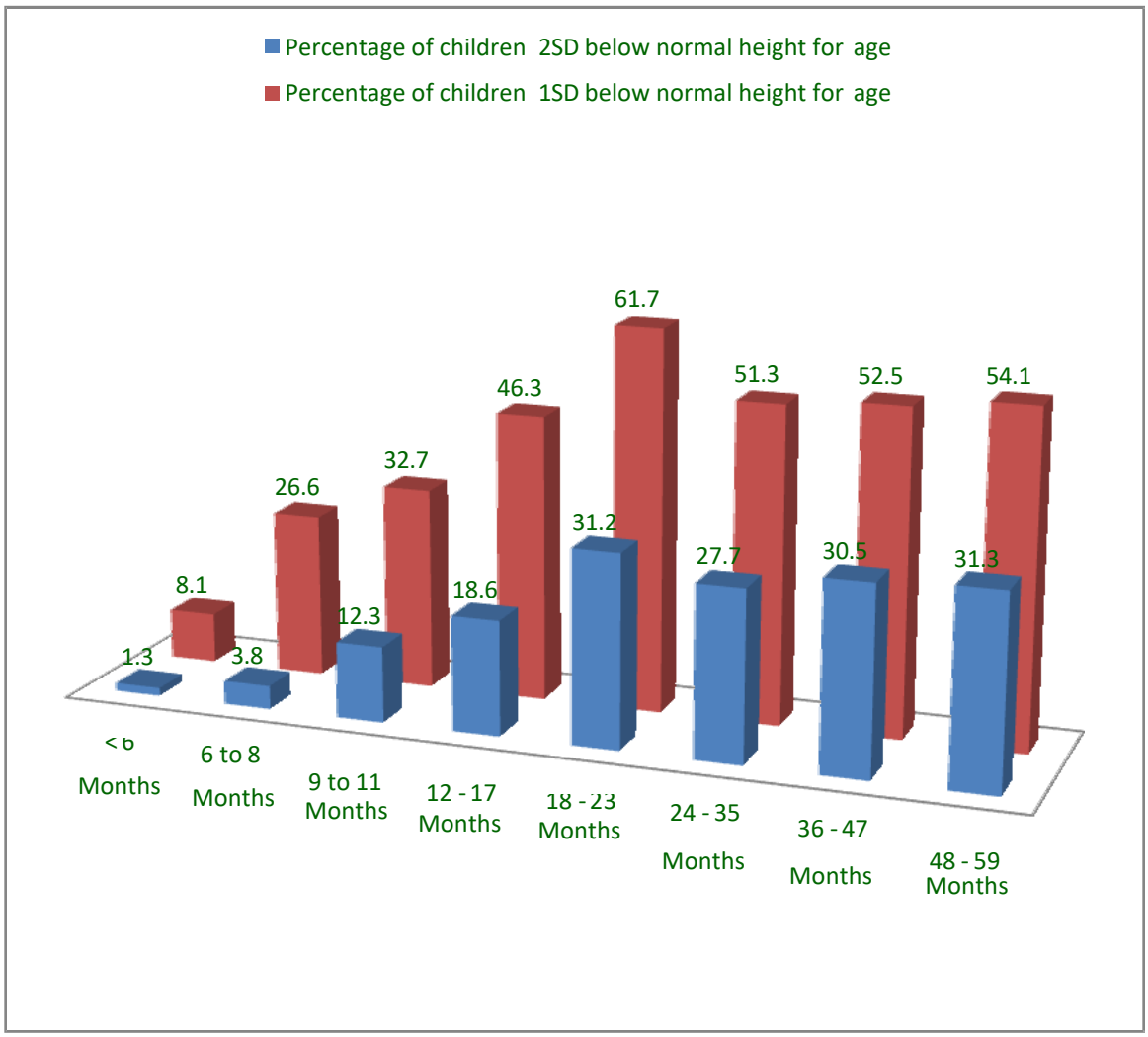
tradition of self-treatment is so well established that most people, especially in rural areas, treat them with various traditional plant medicines including *Kosso* (Hagenia abyssinica), *enkoko* (embelia schimperi) and *metere* (Glinus lotoides), usually every two months." [43].

Malnutrition

A recent World Bank report, details past efforts to monitor the evolution of child malnutrition over the past two decades. The authors were stuck by what they thought of as "…the sheer magnitude of the prevalence of malnutrition of children under 5 in Ethiopia". They also noted that "… the incidence of underweight children has been consistently reported at about 45 percent" and that "…more than half the children under five [are] stunted, with stunting rates most often attaining more than 60 percent". [44]. Insufficient food production, recurrent draughts and famine, falling GNP, infectious diseases, and political instability have been cited as the main contributing factors to the two categories of malnutrition in Ethiopia – protein energy malnutrition, and micronutrient deficiency disorders [45].

Figure 1.9 shows the percentage of children under five that are 1 and 2 standard deviations below the normal height for age by the number of months since birth. The graph clearly shows a major lag in growth starting at age 6 months where supplementary food (other than breast milk) needs to be introduced, to age 24 months, and then a gradual stabilization. The percentage of children 1 standard deviation below normal stabilizes at about 50 % starting at age 24 months and that of children 2 standard deviation below the normal height for age stabilizes at about 30% starting at the same age (Fig. 1.9).

Fig. 1.9 Percentage of children under five, 1 and 2 standard deviations below the normal height for age



Source: Based on [7]

Chronic non-infectious diseases

Chronic non-infectious disease (also referred to as life-style illnesses in the Western world) such as cardiovascular diseases, various malignancies, and diabetes mellitus, chronic liver diseases, nephritis and nephrosis, etc. are a relatively recent phenomena in Ethiopia and are mainly urban-based.

> "A prospective study of Ethiopian medical patients 60 years and older found cardiovascular diseases, especially hypertension and its complications in 20% of patients, neurological diseases

in 9%, liver diseases in 5% and malignancies in 6%. Of these elderly people, 9% were diabetic." [46].

The numbers of older Ethiopians with chronic non-infectious diseases are likely to rise for three reasons:

1) As the overall population size increases the number (not necessarily the percentage) of the elderly increases.
2) If the Ethiopian government's claim of an improving economy is to be believed, the adage "a rising tide lifts all boats" will apply, and more seniors will get to enjoy the amenities of a better economy which, as we have seen in the Western world, lead to a sedentary life style, weight gain, and all the attendant complications and ill-health.
3) An increasing number of the elderly have children in Diaspora, and are reaping the benefits of remittances sent back home, and have changed their consumption patterns to reflect recent increases in disposable income which can be spent on previously inaccessible food items such as meat and butter.

Terms You Need to Learn Quickly

The following section familiarizes you with technical terms often used in the study of demography/ population studies.

Technical terms you need to learn quickly in the next few days include the following [17]. To know the meaning of a term, visit: http://www.ined.fr/en/lexicon/ Remember to hit the "**back**" button on your navigator/explorer window to come back to this website. Good luck !

- A
- Age
- B
- Birth cohort
- Birth control
- Birth interval
- Birth order
- C
- Carrying Capacity
- Cause of death
- Census
- Citizenship
- Civil registration
- Cohort (birth cohort, marriage cohort, etc.)
- Completed fertility

- Consensual union
- D
- Demographic survey
- Demographic transition
- Demography
- Dependency Ratio
- Depopulation
- Divorce
- Doubling time
- E
- Epidemic
- Epidemiological transition
- Epidemiology
- Excess male mortality
- F
- Family
- Family planning
- Family policy
- Fecundability
- Fecundity
- Fertility Policy
- Fertility transition
- Fertlity
- Fertlity timing
- Filial relation
- Foeto-infant mortality
- G
- Gender
- H
- Health transition
- Household
- Human development index value
- I
- Immigrant
- Incidence of a disease
- Infant mortality
- Infecundity
- Infertility
- Internal migration
- International migration
- International Statistical Classification of Diseases and Related Health Problems
- L
- Legal status of a child
- Legitimation
- Life expectancy
- Life span

- Life table
- M
- Marital status
- Marriage
- Marriage probability
- Maternal mortality
- Mean age
- Median age
- Mid-year population
- Migration
- Migration policy
- Morbidity
- Mortality
- N
- Natality
- Natural increase
- Neo-natal mortality
- Net migration
- Nuptiality
- Nuptiality timing
- O
- Optimum population
- Overpopulation
- P
- Pandemic
- Parity
- Perinatal Mortality
- Polygamy
- Population ageing
- Population density
- Population Explosion
- Population growth
- Population policy
- Population projection
- Population pyramid
- Population Register
- Population Structure
- Post-neonatal mortality
- Prevalence of a disease
- Probability
- Probability of dying
- R
- Rate
- Reconstituted family
- Replacement of generations
- Reproduction rate

- S
- Sex ratio
- Single-parent family
- Stable population
- Standardized mortality rate
- Stationary population
- Sterility
- Stillbirth
- T
- Total fertility rate
- Total marriage rate
- U
- Urbanization
- V
- Violent death
- W
- World population
- Z
- Zero population growth

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