

**Demographic Analysis and Data
Assessment of Age and Gender Structure
of the Population**

Population and Housing Census, 2015

Working Group

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Introduction

Population studies have become one of the most important subjects for the countries because of their significant impact on the development of the foundations and features of population policies that conform to local conditions, and the planning of the socio-economic future of the countries. Population data is therefore vital for each country through which basic demographic information can be obtained periodically and accurately through population censuses, surveys and administrative records (vital registration: Births, immigration, marriage, divorce, etc.).

The Department of Statistics recently conducted Population and Housing Census which provided a wealth of statistical data from which to identify all aspects of population and housing. It focuses on analyzing "demographic characteristics and assessing age and gender structure" of the population in Jordan. It also analyzed the size, growth rates and distribution of population by age, nationality and population density. The papers also addressed their development with a view to make comparisons between censuses and demographic opportunity and future impacts. Various demographic methods have been applied to assess data of age and gender structure at the level of the total population in the Kingdom and of Jordanian populations within Jordan.

Director General

Dr. Qassem Saeed Al-Zoubi

The aim of the study

the importance of the study in identifying Jordan's population in terms of demographic, social and economic aspects, population size and distribution, by gender, age and nationality, was highlighted, In addition to the impact of population variables and their close association with society's characteristics, values and traditions, and government policies to intervene in solving its problems or changing trends and developments.

The importance of the study

The importance of studying the demographic characteristics and assessing the age and gender structure of the population in Jordan is generally the following:

- Population growth between censuses
- Identifying the population characteristics
- Assessing the accuracy and quality of age and gender structure data
- highlighting the demographic opportunity and its implications
- Presenting the future population projections

Methodology of the study

The descriptive analysis of data obtained from the 2015 Population and Housing Census has been followed, and comparisons will be made between current and previous census results to identify variations by using comparative distributions and averages, as well as tables of international comparisons of some key population indicators. Some mathematical measures (arithmetic and medial), and several scientific methods have also been used to evaluate age and gender structure data as the method of the United Nations Secretariat, the Weibel method and the Myers method.

Chapter I: Population in the Kingdom

Evolution of population size

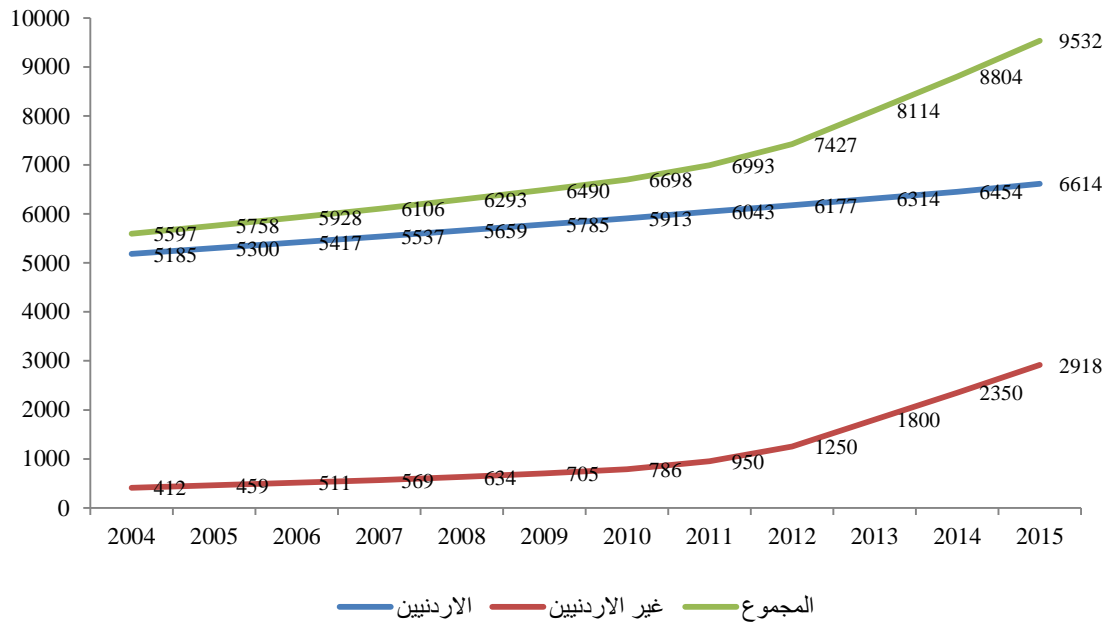
The results of the 2015 population and housing census, conducted by the Department of Statistics, showed that the total number of people actually counted was 9,531,712. The population of the Kingdom has evolved since the beginning of the 1960s, more than 10 times in 55 years, with the largest increase in the past decade, especially since 2011. The increase in population is due to successive waves of migrations to Jordan, including forced migration and asylum. The kingdom's total population reached 586 thousand in 1952, rising to about 900

thousand in 1961, and it continues to rise to 2.1 million in 1979 and 4.2 million in 1994. The 2004 census showed a rise in the population to 5.1 thousand.

The Jordanian population accounted for 95.8% of the total population in 1979, down from 92.4% in 1994 to 92.3% in 2004, indicating a slight increase. According to the results of the population and housing census conducted by the Department of Statistics in 2015, the Jordanian population was about 6.6 million, or about 69% of the total population of the kingdom, compared to about 31% of non-Jordanians, about half of them Syrians (1.3 million people), as a result of the forced migrations that resulted from political crises in the region and the attendant wars. These migrations have affected all aspects of life in Jordan and have put considerable strain on all resources.

Jordan's continued growth in population has been one of the biggest challenges for decades, and its limited natural and material resources have posed an additional challenge, leading to difficulties in meeting Jordan's development goals. Figure 1 illustrates the changes in the size of the kingdom's population during different periods of time.

Figure (1) The population of the Kingdom by nationality during the years 2004-2015



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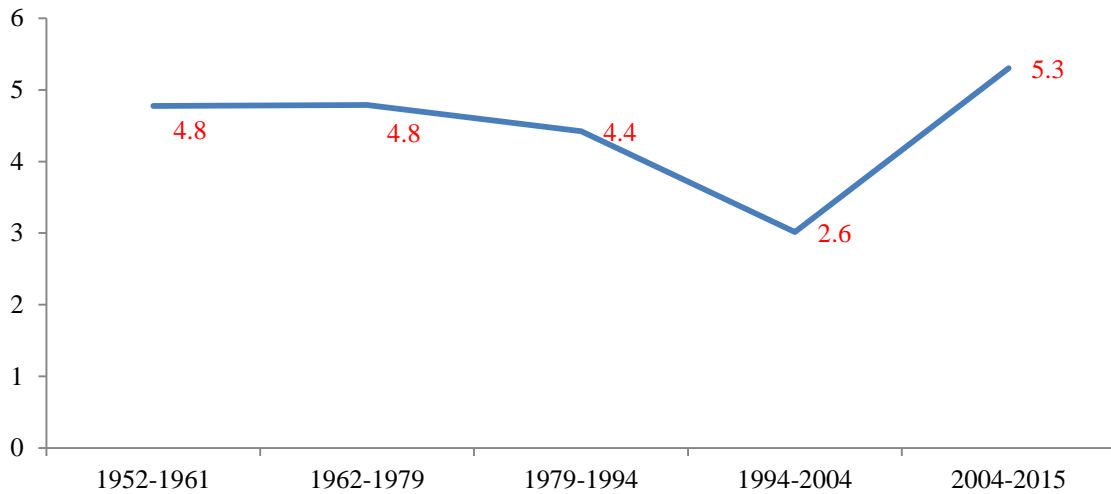
Source: Statistical Yearbook 2015

Population growth

Jordan's continued growth in population over the past decades has been a natural consequence of the substantial increase in population growth, one of the highest globally recorded rates. The population growth rate during the period 1979-1994 was about 4.4%, due to the high birth rates and the high numbers of non-Jordanians, especially migrant workers, during that period.

At the beginning of the 1990s, the population growth rate was gradually decreasing to 2.6% between 1994 and 2004, and the population growth rate increased sharply between 2004 and 2015 to 5.3% between 2004 and 2015. The main reason for the high rate of population growth was the forced migration into the kingdom as a result of the political conditions in the region which had led to the influx of hundreds of thousands of Syrian refugees since early 2011. According to data from the Office of the High Commissioner for Refugees (UNHCR), some 650,000 Syrians are registered as refugees, in addition to some 600,000 unregistered persons. In calculating the population growth rate of the governorates between the two censuses indicated, the governorates of Al Mafraq and Amman recorded higher rates of population growth than the Kingdom's overall rate of 7.0% and 6.2% respectively. The non-Jordanian population in the governorates of Amman and Zarqa was 42.1%, 15.5% and 15.1% of the total non-Jordanian population, respectively.

Figure (2) Population growth rates over selected periods of time



Source: Statistical Yearbook 2015

Internal migration

Internal migration reflects the spatial movement of individuals and groups between one place of residence and another place of residence for permanent residence. Internal migration contributes to a high rate of population growth in the reception area, while reducing the size of the population in the sending area. According to the results of the general population and housing census 2015, the internal migration rate among Jordanians based on current and former residence was 2.04%, and about 5.4 percent of Jordanians have changed their mother's residence at the time of their birth to stay elsewhere. This data indicates that the availability of services of various types contributed to the population stability of Jordanians.

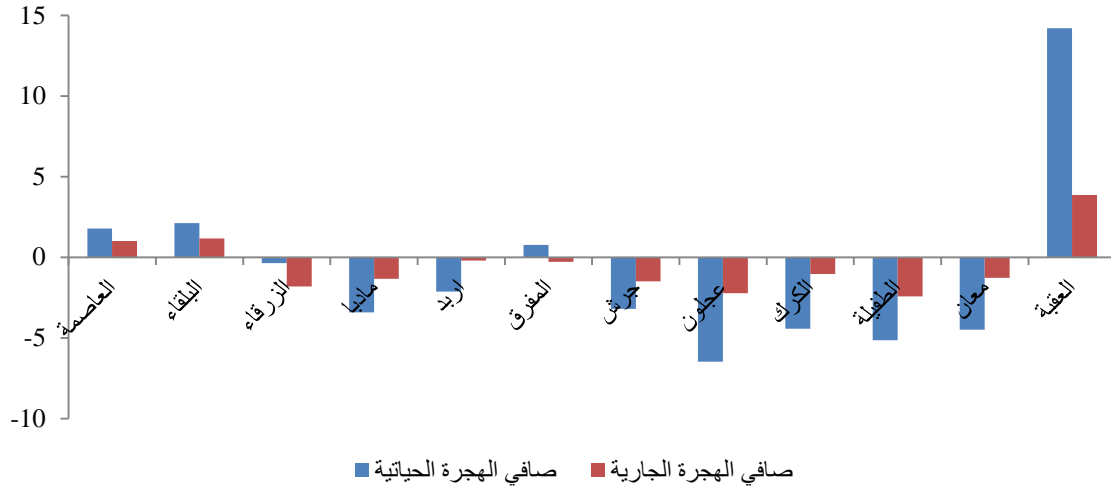
Table (1) shows the highest rate of immigration entering and leaving from and out of the governorates by place of current and former residence and by place of residence of the mother at the time of the individual's birth and current residence. It is that noted in Aqaba recorded the highest rate of in-migration and out-migration with 7.6% and 19.9% respectively. According to the current and former residence place, Tafila recorded the highest migration rate, which reached 4.2% while the lifetime migration rate reached 10.1%. According to the calculation of the net migration rate for governorates, most governorates were expelling the population according to the way of the current residence and the previous place of residence (current (ongoing) migration), except for Aqaba, Balqa and Amman that were attractive to the inhabitants, and these governorates in addition to Al-Mafraq are an attraction of the citizens according to the lifetime migration method.

Table 1: Current and current immigration rates of population by governorate, 2015

Governorate	Current migration rates		Lifetime Migration Rates	
	Entering	Leaving	Entering	Leaving
Amman	2.3	1.3	5.48	3.71
Balqaa	4.0	2.9	9.33	7.22
Zarqa	2.0	3.8	7.53	7.89
Madaba	1.5	2.9	5.09	8.52
Irbid	1.1	1.3	2.31	4.45
Mafraq	1.6	1.9	5.27	4.51
Jerash	1.2	2.7	3.71	6.92
Ajlun	1.1	3.4	3.48	9.95
Karak	1.5	2.6	3.92	8.36
Tafila	1.8	4.2	4.95	10.10
Maan	1.3	2.5	3.69	8.19
Aqaba	7.6	3.8	19.93	5.73
Total	2.04	2.04	5.43	5.43

Source: Internal and International Migration Worksheet 2015

Figure (3) the average net internal migration rate in the governorates according to current migration and lifetime migration, 2015



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Gender Rate

Demographic literature indicates that the rate of the type of birth time in any population is 105 males per 100 females, reaching 109.7 and 106.0 for all inhabitants of the Kingdom, according to census results 1979 and 2004. This rate did not differ much for the Jordanian population, ranging between 107 and 103 according to the results of the two censuses referred to. This rate of the non-Jordanian population increased to 199.7 according to the results of the 1979 census and continued to increase to 210.1, according to the results of the general population and housing census 2004, which indicates that most non-Jordanian residents are males. According to the results of the general population and housing census 2015, the rate of Jordanian gender was 103.8 compared to 135.5 for non-Jordanians, which confirms that the majority of non-Jordanians are males, while the rate of the population in the Kingdom was 112.5 males for every 100 females (Table 2).

Table (2) Rate of gender in population censuses by nationality

Year	Total	Jordanian	Non-Jordanian
------	-------	-----------	---------------

1979	109.7	107.0	199.7
1994	109.2	104.2	197.4
2004	106.0	103.4	143.7
2015	112.5	103.8	135.5

Source: Results of the population and housing censuses for the years mentioned

In calculating the gender rate of the population by age group, the proportion is 105.3 in the 0-14 age group, increased sharply after the 15-19 age group to 120.7 in the 25-29 age group. The data indicates that the gender rate in the 30-54 age group has fluctuated; with the lowest gender rate of 94.4 indicating that female life expectancy is higher than that of males (Table 3).

Table (3) Rate of gender by age and nationality, 2015

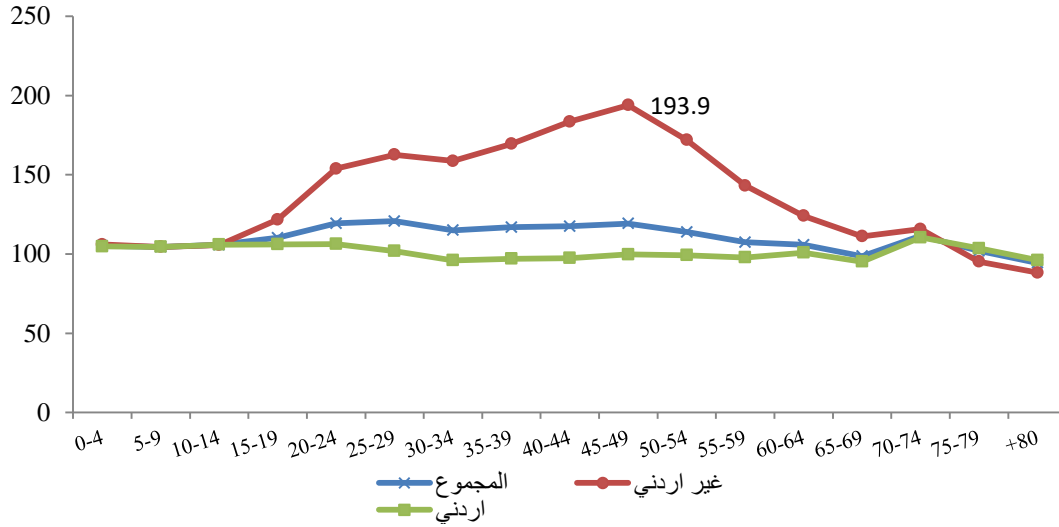
Age group	Male	Female	Gender rate the total of the Kingdom	Gender rate Non-Jordanian	Gender Rate Jordanian
4-0	532918	561280	105.3	106.0	105.0
9-5	571516	597975	104.6	104.5	104.7
14-10	490522	519876	106.0	105.7	106.1
19-15	449302	498519	111.0	121.8	106.7
24-20	426835	519140	121.6	153.8	108.0
29-25	370765	459841	124.0	162.6	104.4
34-30	338461	395939	117.0	158.7	97.5
39-35	298499	352691	118.2	169.5	98.0
44-40	256601	304330	118.6	183.5	98.2
49-45	214842	258567	120.4	193.9	100.6
54-50	162648	187189	115.1	171.9	100.2
59-55	117340	127359	108.5	143.1	98.6
64-60	80824	86254	106.7	124.1	101.5
69-65	68161	67492	99.0	111.2	95.5
74-70	47124	52668	111.8	115.7	110.7
79-75	31759	32428	102.1	95.2	103.7
+80	26771	25276	94.4	88.3	96.1
Total	4484888	5046824	112.5	135.5	103.2

Source: Department of Statistics

In calculating the gender rate of the non-Jordanian population by age group, table 3 shows that the rate was around 105.4 in the 0-14 age group, increasing sharply after the 15-19 age group to

193.9 in the 45-49 age group. The data indicates that the gender rate in the 20 to 54 age groups has fluctuated, with the lowest gender rate of 88.4 per female.

Figure (4) The rate of the gender in the Kingdom by nationality and age group, 2015

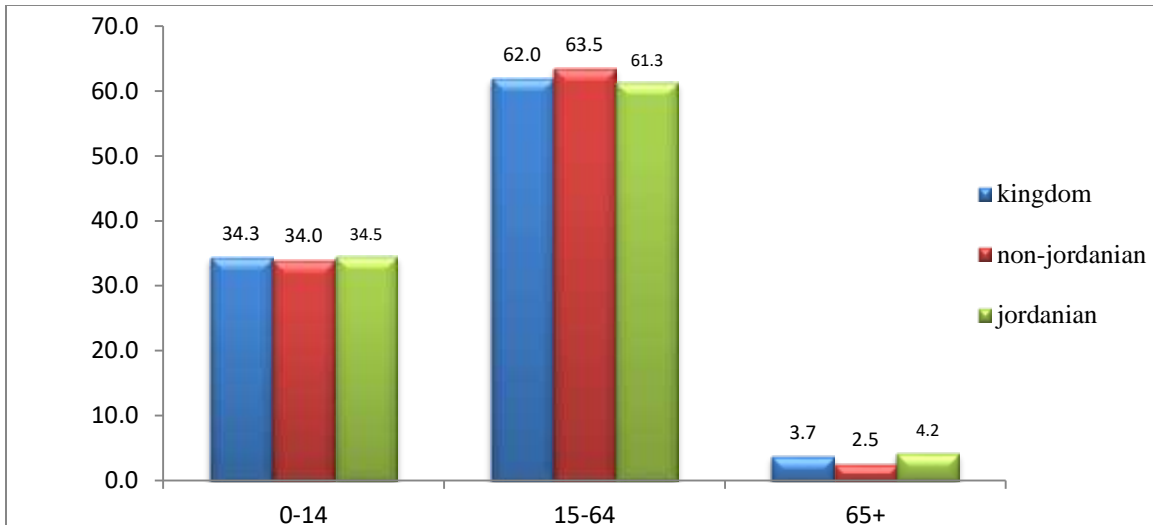


Source: Department of Statistics

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Population groups are divided by age into three age groups: The young (under 15), the human force (15-64), and the elderly (65 years and older). The age structure of the Jordanian population is a young structure in which young people make up a large proportion. The results showed a big similarity in the age structure of the Kingdom's citizens in comparison with the Jordanian citizens in all the demographic censuses except the aged (65 years and more) that showed an increase as a result of the improvement of the citizens' health conditions and the rise of life expectations for both sexes . The proportion of young Jordanians (under 15 years of age) was 34.5% according to the results of the general population and housing census 2015, while the proportion of those aged 15-64 years who constitute the stock of human forces stood at 61.3% and the proportion of older persons (65 years and older) was 4.2%. The age structure of non-Jordanian and Jordanian population is not very different from that of age.

Figure (5) the proportional distribution of population by broad age groups and by nationality for 2015

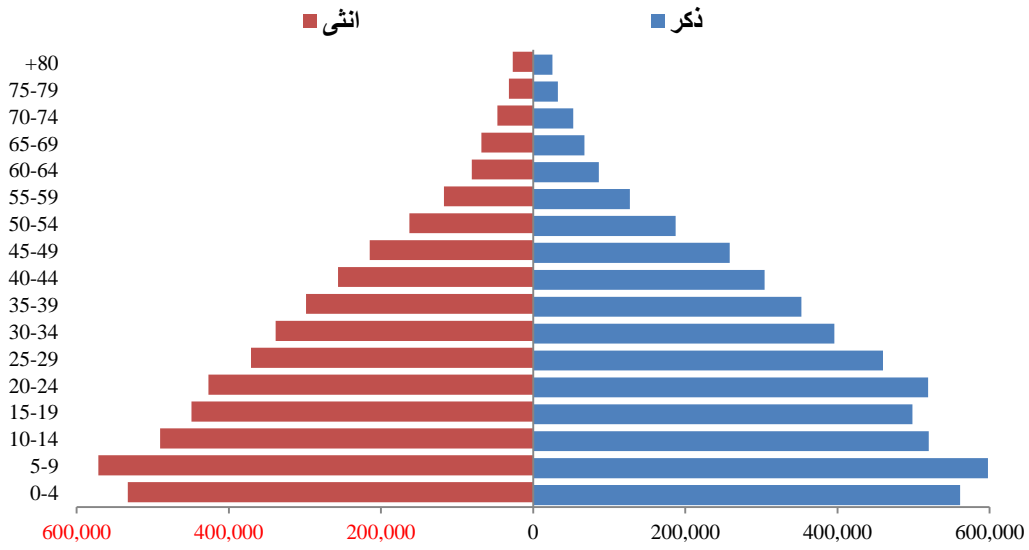


Source: Department of Statistics, census 2015

Population pyramid

The population pyramid shows the tendency of the pyramid to shrink compared to the subsequent age group (5-9), indicating a decline in the reproduction rates during the five years prior to the census. Population rates are falling after this age consistently among females, while male population ratios, particularly in the 20-24 age group, are increasing as a result of positive international migration. In addition, the pyramid's tendency toward decline is noted as a result of the high death rates in the advanced ages, and in general, the pyramid reflects the age structure of the young people of the Kingdom, which is broad in comparison with other age groups.

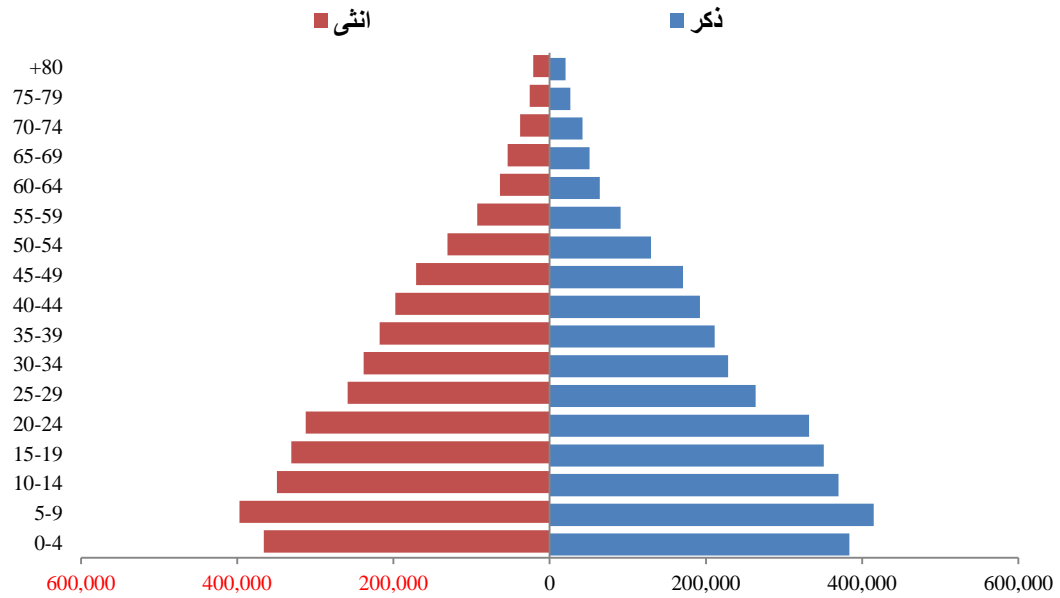
Figure (6) The population pyramid of the Kingdom in 2015



Source: Department of Statistics

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Figure (7) the population pyramid for Jordanians in 2015



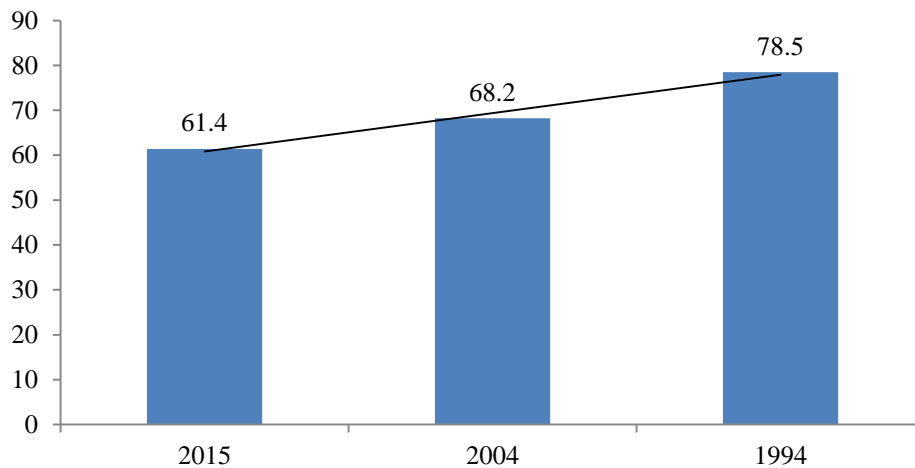
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As is expected from the population pyramid for Jordanians, the distribution of population by age group was normal and the same pattern was observed in previous censuses and the share of children less than five years of age had declined, due to low birth rates and late marriage age was also observed.

Demographic Dependency

The high rate of demographic dependency reflects the high burden borne by other young (under 15) and elderly (65 years and older) dependent persons. The dependency rate also reflects the age structure of the population, the rate height indicating young age structure and older age structure of the population. This rate reached 116 people per 100 people in productive ages (15-64 years) in 1979, and then decreased sharply to 82 in 1994. It continued to decrease to 68.2 in 2004 and 61.4 in the results of the population and housing census 2015. The sharp drop in the value of this index is undoubtedly due mainly to the substantial decline in the reproductive levels experienced by Jordan.

Figure (8) the rate of demographic dependency during the census years



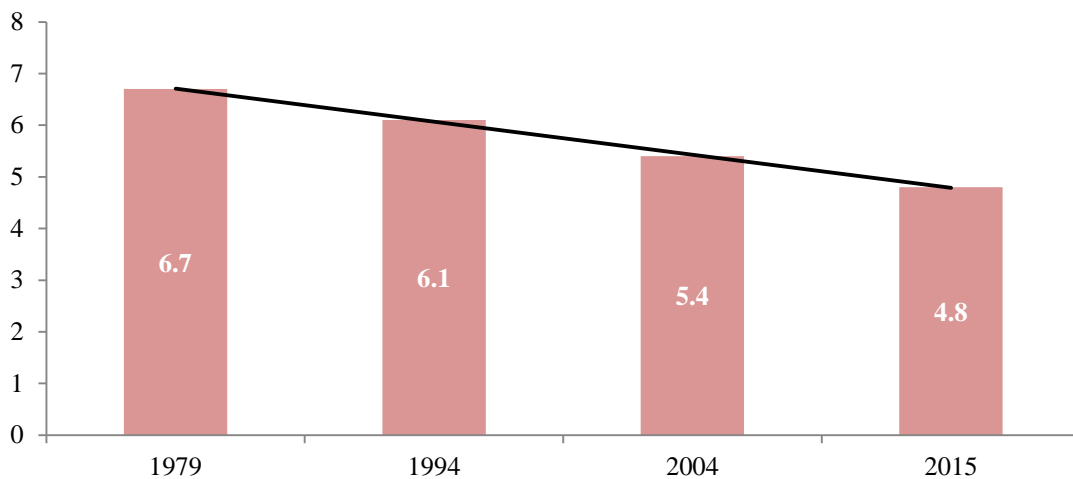
Source: Department of Statistics

Average size of Private Households

A household with a head of a family, which is one or more individuals occupying an independent housing unit (or part of it) and contributing together to expenditure from the income of the head or members of the family, and the family members may not be relatives and it is common for family members to participate in meals or some of them.

The results of the population and housing census 2015 showed that the average household size of the population in Jordan decreased to 6.7 in 1979 and 5.4 in 2004 at (19.4%). The observed decrease in the average size of the household may be due to low levels of reproduction in Jordan and to the economic pressures represented by the high cost of reproduction and the consequent expenditure on various aspects. The results showed that the number of households was 1,977,534, i.e. the average size of the household was 82.4 persons (a decrease of 10.0%). Compared to the average size of the households with previous censuses, the size of the household has continued to decrease gradually over the last four decades. Figure 9 shows trends in the size of households over the past four decades.

Figure 9: Trends in the size of Households in Jordan



Source: Department of Statistics

Geographical distribution of population

The geographical distribution of the population is influenced by many factors, the most important of which are internal and external migration and the varying level of socio-economic development in one region and another.

The figures in Table 4 indicate that about two-fifths of the population live in Amman alone, followed by Irbid and Zarqa 18.6% and 14.3% respectively, where they are attractions for the population because of the social and economic conditions which they have the opportunity to work in, and as important commercial centers in the Kingdom. According to the governorates, no significant differences in these percentages between males and females were observed.

This imbalance seems clear when the regions are taken into consideration, as about 8% of the population live in the southern region (Karak, Tafila, Ma'an and Aqaba governorates), and this region accounts for half of the total area of the kingdom, 28.7% of the population live in the northern region and only 16.2% of the total area of the kingdom is inhabited by two thirds of the population. The main reason for the increase in population concentration in this region is that it includes the capital Amman, which is considered to be an attractive administrative, commercial and economic center for the population, especially males, to search for better job opportunities.

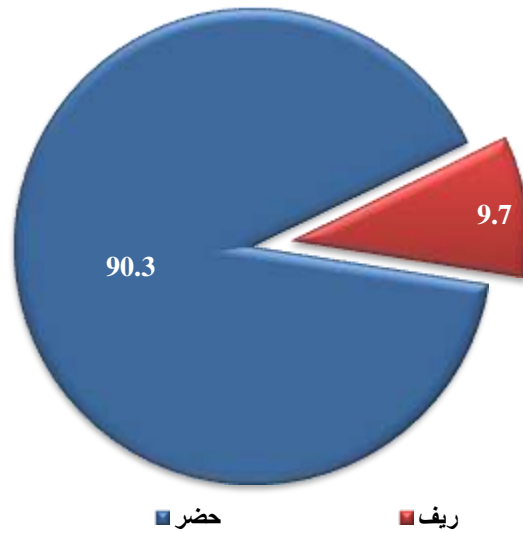
Table (4) the proportional distribution of population in the Kingdom by governorate and gender for 2004 and 2015 (number by thousand)

Governorate	2004			2015(1)		
	Males	Females	Total	Males	Females	Total
Amman	38.7	38.9	38.8	42.6	41.4	42.0
Balqa	6.7	6.6	6.7	5.2	5.1	5.2
Zarqa	15.0	14.9	14.9	14.3	14.3	14.3
Madaba	2.5	2.5	2.5	2.0	2.0	2.0
Irbid	17.7	17.9	17.8	18.1	19.1	18.6
Ma'fraj	4.7	4.6	4.7	5.6	5.9	5.8
Jerash	3.0	3.0	3.0	2.4	2.5	2.5
Ajlun	2.3	2.3	2.3	1.8	1.9	1.8
Karak	3.9	4.0	3.9	3.3	3.4	3.3
Tafila	1.4	1.5	1.4	1.0	1.0	1.0
Maan	1.9	1.9	1.9	1.5	1.5	1.5
Aqaba	2.2	1.9	2.1	2.1	1.8	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	2757.7	2592.3	5350.0	5047.0	4485.0	9532.0

Source: Department of Statistics, Population and Housing Census, 2004, 2015

Given the urban and rural distribution of population, urban and rural population increased from 59% in 1979 to 90.3% in 2015, exceeding 90% in Amman, Zarqa and Irbid, and ranging from 82% -85% in the governorates of Balqa, Ajloun and Aqaba, while the lowest percentage of the population in the urban of Maan at 54%. The rural population decreased from 41% to 9.7% in the two mentioned censuses, with only 3% in Amman and 4% in Zarqa, while 46% of population in Ma'an is in rural areas. This disparity is due mainly to the different definitions of urban and rural areas between censuses 1979 and 2015, changes in population growth rates, frequent changes in the administrative boundaries of many population groups, especially urban ones, and the fact that urban areas are attractive to the population in nature (particularly economic), see Figure (10).

Figure (10) The proportion of urban and rural in the Kingdom, 2015



Source: Department of Statistics, Statistical Yearbook 2016

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Chapter II: Assessment of age and gender data of the population

Introducing

After the population and housing census, we have population results and data on the age and gender structure of the population, there should be a procedure which all countries should follow on census data, a process that assesses their quality and accuracy, because these data will be generally reliable for the country in drawing future population plans and policies by making population estimates and projections on a sound scientific basis, the higher the level of accuracy is reflected on sound planning. With the growing interest of countries in demographic statistics, age and gender data have become a basic variable to describe the demographic structure and to properly plan the provision of all basic services and to optimize the proper utilization of the country resources.

There was a need to evaluate census data, which are often linked to a number of constraints, including:

- Errors in accuracy of registration in the area under study
- Methods used in data collection
- Social and cultural factors such as illiteracy or low level of education
- The efficiency of the methods of data collection applied either by conventional paper methods or by modern electronic methods
-
- Affected by customs and traditions especially females, or accurate recording of data
- The extent to which the human race that is providing data is particularly aware of the importance of this data to decision makers.
-

In addition, the age and gender distribution of the population is of great importance to the scheme in studying population changes and characteristics (education, health, marital or social, fertility changes in women, reproductive age or mortality and fertility rates), although these errors vary from region to region.

Assessment of age and gender structure data for the population of the Kingdom 2015 (Population and Housing Census 2015)

Age data assessment is identified as examining their internal consistency, i.e. between them, and external, i.e. with data from other previous censuses or surveys, noting the degree to which data are interrelated, the acceptability of such data, and the evaluation process in turn highlights trends and dimensions of error, helping to propose appropriate and necessary types of adjustments.

There are many ways to do this, but they vary in strength and accuracy, so the methods of revision and correction should be commensurate with the quality and manner of errors, and it should also be pointed out that there is no exaggeration and persistence in revising and modifying beyond reasonable and logical limits for fear of exposing data to new types of errors.

It is also important to look at both age and gender data, because age errors often vary by gender, show more strongly in the distribution of population by gender and are influenced by birth registration errors and deaths of different age groups.

In this research, we will examine the methods of testing the accuracy of population data by age and gender groups. Indeed, there are different methods of assessing age and gender data, which vary according to purpose and by population distribution categories. Measures vary according to the distribution of data by age or by age-five categories, so it is necessary to use the appropriate method to test the accuracy of the data that we consider to be accurate.

Data Quality Test Methods

The basic types of methods that can be used to test the quality of population data, whether the subject of processing is census data, vital statistics or migration data, are similar.

This similarity of processing is due, on the one hand, to the link between demographic phenomena and, on the other, to their association with economic and social phenomena.

The method used to test the accuracy of population data is to compare two or more sets of statistics that have a specific relationship such as the gender rate or assumed relationship, such as the construction weights in Myers' style, and to assess whether there is compatibility or incompatibility, and the steps required by the comparison are not the same and depend on the condition used.

Analysis of gender (sex) and age ratings based on data

Before we begin to examine the accuracy of age statistics, it is useful to calculate the following

- Gender per age group, which is the number of males in that group to every 100 females of the same category
- The rate of age per age group, which is the number of persons in that group to every hundreds of the average number of persons in the two neighboring groups for each gender.

The calculation of these two rates of all age groups enables us to judge the validity of our data and to detect errors that may occur in the numbers of certain categories.

Gender rate analysis (Sex Ratio)

It is defined as the number of males per 100 females and generally at birth is 105 males versus 100 females and the gender rate decreases with age. It may reach that eight out of ten are women in some countries of the world, and gender rates must not change from age to age except in a very low manner, primarily determined by the gender rate at birth and by sex mortality differences in different age groups they will then be offset by an increase in adult women.

The gender rate at birth can change only at a narrow range and typically corresponds to every 100 female births to 105 male infants, often with only the range (102-108%) and data outside of these limits being considered. It should be noted that it is very rare for gender reporting errors to occur. If they happen to occur and the gender rate is high, it is unlikely that the cause is misstated and even a lack of registration for either type is likely due, for example, to some habits that the responder has concealed the number of females.

Table 5 shows the gender type calculated from the 2015 census population and housing data by governorate, urban and rural, as well as Jordanians and non-Jordanians.

Table (5) Gender rate by governorate, rural, urban, and by nationality, 2015

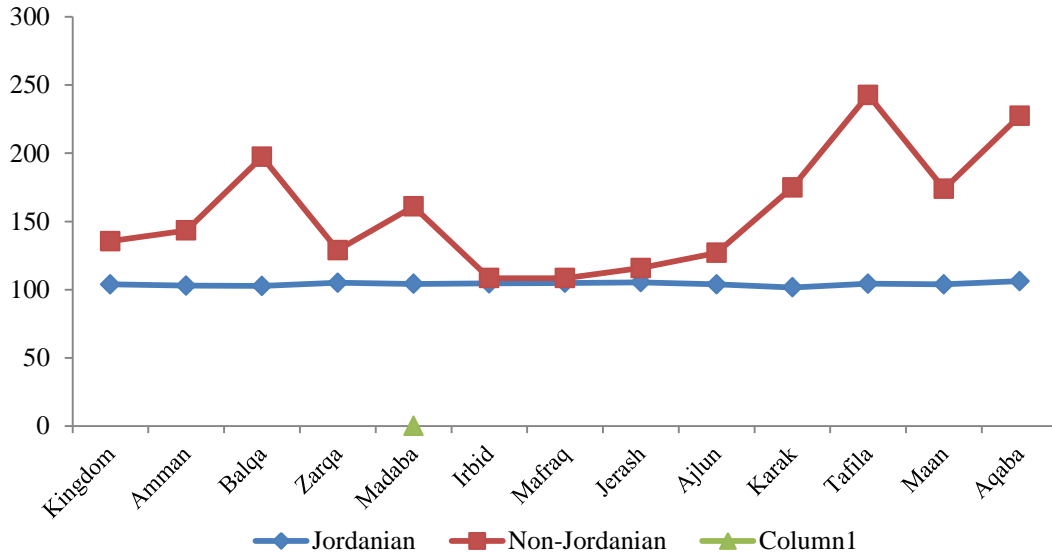
Governorate	Gender rate for Jordanians	Gender rate for non-Jordanian	Total of gender rate	Gender rate Urban	Gender rate Rural
Amman	102.9	143.4	115.9	115.9	117.9
Balqa	102.7	197.4	115.9	115.4	118.5
Zarqa	105	128.9	112.2	111.6	127.6
Madaba	104.2	161.0	112.1	112.6	110.2
Irbid	104.5	108.4	106.9	106.8	108.8
Mafraq	104.9	108.4	106.4	104.9	109.9
Jerash	105.4	115.8	108.3	107.7	110.3
Ajlun	103.8	126.9	106.1	105.7	108.2
Karak	101.6	174.9	109.4	113.4	103.9
Tafila	104.3	242.8	109.8	109.5	110.9
Maan	103.8	173.9	109.8	102.7	106.4
Aqaba	106.2	227.4	130.3	133.4	113.4
Kingdom	103.8	135.5	112.5	112.7	111.3

Source: Department of statistics

In an analysis of the above table, we note that the gender rates for Jordanians in Jordan were below 108, and this percentage decreases within the acceptable range specified in the period (102-108), while the non-Jordanians in Jordan are larger than 110 and are outside the accepted range mentioned above, except for the governorates of Irbid and Mafraq, it is possible that the completion of data at the exclusive and counting stages in the above governorates has reached a high degree of accuracy, as well as the presence rates in those camps in those regions. As for the indicator of the rate of the total gender, it is within the accepted range in the governorates of Irbid, Al-Mafraq, Jarash, Ajlun, Karak and Tafila, while the other governorates (Amman, Al-Balqa, Zarqa, Madaba and Aqaba) are outside the usual range due to the non-Jordanians gender rate as in the above table, which affects the rate of the whole. It is noted that the gender rate of Jordanians in Jordan is approximately 103, and that for non-Jordanians the gender rate is approximately 135. In urban and rural areas, the gender rate is somewhat acceptable, as it is recorded in urban areas 112.7 and in rural areas 111.3.

The table above shows an acceptable balance in gross gender rates for Jordanians within governorates, generally in the period (102-108) and almost equally between rural and urban areas, which indicates a high degree of accuracy in recording gender data, particularly in the governorates of the north and south except Aqaba, due to the fact that Aqaba is a special economic area, this increases the attraction of male migrant workers, especially those of Egyptian nationality, whose presence is not in the form of private families. In general, the governorates experienced the best recording of the gender data, and the results showed the quality of the gender data in general, and the results are acceptable and reflect the accuracy and care of the count's coverage and can be trusted and fairly distributed in the governorates, especially for Jordanians, Figure 11 shows the comparison between governorates to gender rates by nationality.

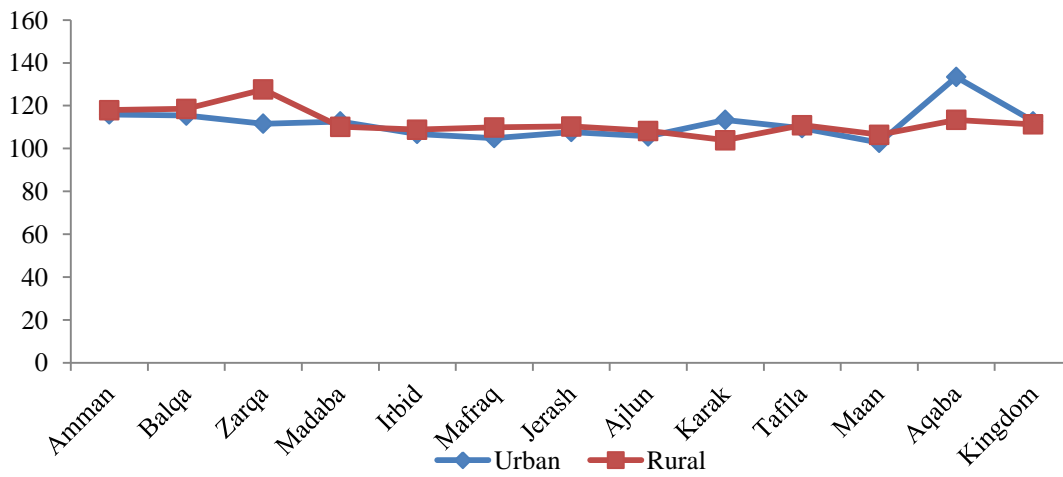
Figure (11) Percentage of gender by governorate and by nationality, 2015



Source: Department of statistics

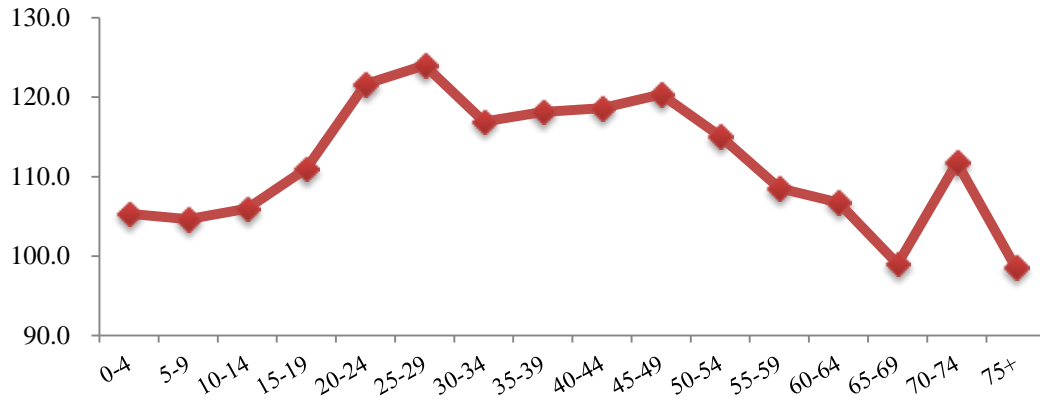
The figure above confirms that the gender rate in Jordanians in all governorates is within the accepted range 102-108.

Figure (12) gender rate by governorate, rural and urban areas, 2015



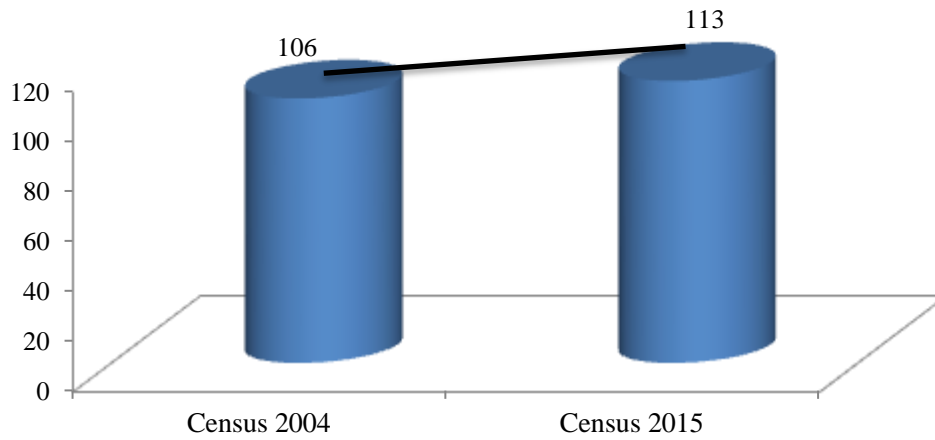
Source: Department of statistics

Figure (13) gender rate of Kingdom by age group, 2015



Source: Department of statistics

Figure (14) Comparison of the Kingdom's total gender rates from the 2004 and 2015 census



Source: Department of statistics

Table (6) Percentage of gender by age group, Kingdom 2015

Age groups	Gender		Total	Gender rate
	Females	Males		
1>	101733	107042	208775	105
4-1	431395	454473	885868	105
9-5	571791	598252	1170043	105
14-10	490863	520194	1011057	106
19-15	449104	498541	947645	111
24-20	426586	518875	945461	122
29-25	370469	459481	829950	124
34-30	338378	395712	734090	117
39-35	298500	352692	651192	118
44-40	256600	304330	560930	119
49-45	214844	258560	473404	120
54-50	162647	187185	349832	115
59-55	117340	127361	244701	109
64-60	80824	86259	167083	107
69-65	68157	67493	135650	99
74-70	47124	52669	99793	112
79-75	31753	32423	64176	102
80+	26782	25280	52062	94
Total	4484890	5046822	9531712	113

Source: Department of statistics

Note from Figure 14 above that there is a significant disparity in the gender rate between the 2004 and 2015 censuses, with the 2015 census rising by seven points from the 2004 census, and the 2015 gender rate by five-year age group, the results are as shown in Table 6 above:

Table 6 also shows that age-group rates are much closer to an acceptable age limit and there are no significant deviations to support and confirm that age and gender data have been accurately updated.

Data at these ages outside the accepted limit (102-108) may be suspicious but can be accepted because females are more likely to be misrepresented than males, which is well known in all censuses.

Age Rate

When the population is classified in equal height age groups (five-year or ten-year) by dividing the population in each age group by the average population in the previous and subsequent categories, the projected value of the age rate (the optimal value) is 100, and any deviation from this rate indicates errors calculated for all age groups except the first and last, so the gender rate must be less than 100, except for the advanced ages, if the difference is a little, and vice versa, incorrect data are usually given on age questions in the census form, mainly due to a lack of experience of the enumerators and may be due to illiteracy among the population as well, most of them do not retain age-based documents, and parents do not remember the date of birth of some members of their households, even in statistically advanced countries with varying degrees of accuracy in this statement, where there is a tendency for some not to accurately mention age or give false data.

Problems caused by errors in age are not only due to the frequency in their occurrence, but also to the error of demographic characteristics of populations in age groups, for example, when used to build life tables, to prepare population projections and estimates, and to install birth, deaths and other indicators.

Table (7) Age and gender rates of the Kingdom by age groups, 2015

Age groups	Gender Rate	Age rate		Age rate Total	Age deviation rate		Age deviation rate Total
		Males	Females		Males	Females	
<1	105						
1-4	105	129	128	128	28.9	28.1	28.5
5-9	105	123	124	123	22.8	24.0	23.4
10-14	106	95	96	95	-5.1	-3.8	-4.5
15-19	111	96	98	97	-4.0	-2.1	-3.1
20-24	122	108	104	106	8.3	4.1	6.4
25-29	124	100	97	99	0.5	-3.1	-1.2
30-34	117	97	101	99	-2.6	1.2	-0.9
35-39	118	101	100	101	0.8	0.3	0.6
40-44	119	100	100	100	-0.4	0.0	-0.2
45-49	120	105	102	104	5.2	2.5	4.0
50-54	115	97	98	97	-3.0	-2.1	-2.6
55-59	109	93	96	95	-6.8	-3.6	-5.3
60-64	107	89	87	88	-11.5	-12.9	-12.1
65-69	99	97	107	102	-2.8	6.5	1.7
70-74	112	105	94	100	5.4	-5.7	-0.1
75-79	102	83	86	85	-16.8	-14.1	-15.5
80+	94						
Total	113						

Source: Department of statistics

All age data for the age groups should be distributed so that each age group has the same opportunity as in other groups, and that the number of males is close to or equal to the number of females as being equal to every 100 male. The above table shows a deviation of female and male age rates from 100, and age rates are very similar to males and females and are smaller than 100, which confirm the accuracy of age data.

Table (8) Comparison of age rates for both sexes by gender rate between 2004 and 2015

Age groups	2015			2004		
	Gender rate	Gender rate Females	Gender rate Males	Gender rate	Gender rate Females	Gender rate Males
0-4	105			105		
5-9	105	112	111	105	102	102
10-14	106	96	95	105	101	102
15-19	111	98	96	106	98	97
20-24	122	104	108	107	107	106
25-29	124	97	100	111	96	99
30-34	117	101	97	108	103	102
35-39	118	100	101	108	101	101
40-44	119	100	100	106	98	97
45-49	120	102	105	105	92	92
50-54	115	98	97	102	90	90
55-59	109	96	93	96	105	96
60-64	107	87	89	112	101	112
65-69	99	107	97	107	99	98
70-74	112	74	84	101		
75+	99			97		

Source: Department of statistics

In comparison to the 2004 and 2015 census, we note a change in the rate between the two censuses due to the presence of Syrian asylum and the political and economic situation in the region.

Demographics analysis techniques in assessing age and gender data

Analysis techniques vary in evaluating age and gender data that can be used to measure the extent to which preferences exist for individual age groups, noting that some of these methods are intended to measure the age preference rather than determining the accuracy of the age statement and in this research we will address three ways that are key to the evaluation of age and gender data.

- 1- Weibel's Index
- 2- Myer's Index
- 3- United Nations Age – Sex Accuracy Index

Weibel's Index

A measure of accuracy of the age registration in the census shows the age preference in figures beginning to be zero or five and aims to measure the accumulation at age 23 to 62 years, and the numerator is limited to the numbers of the population written at ages ending with zero or five within that range, and includes 20% of the total population recurrence of these ages, see attachment.

The value of a directory or a webmaster scale is between 100 and 500. If the value of 100 indicates that there is no bias or preference for numbers 0 and 5, if the value of 500 indicates that it has only been reported for ages ending 0 and 5. The following classification of data accuracy is proposed for the Weibel indicator:

Less than 105	highly accurate
105 to 109.9	medium accuracy
From 110 to 124.9	age delivery is approximately correct
From 125 to 174.9	age delivery is Inaccurate (Poor)
From +175	age delivery it is not accurate at all

Weibel is an effective measure of age accuracy and enables us to reveal the preference of some numbers and is easily calculated, but the main disadvantage of this index is that it measures only the preference of numbers, and that it only reveals preference for numbers 5 and 0.

Table (9) Weibel's Index by Gender and Nationality, 2015

Nationality	Males	Females	Total
Jordanian	106	107	107
Non-Jordanian	122	118	121
Total	112	110	111

Source: Department of statistics

Table (10) Comparatives of the Weibel's Index by Population Censuses

Census	Males	Females	Total
2015	112	110	111
2004	100	101	101
1994	99	101	100
1979	110	120	110

Source: Department of statistics

We note from the above tables that the Weibel index value of the Kingdom is 112 for males, 110 for females and 111 for males and females, and is close to 100, i.e. ages are accurately reported for males and females. The Weibel index for Jordanians notes that the indicator value for females is greater than for males and this means that the age data for males has been accurately reported higher than for females, and it is noted from Table 9 that the index value of the Weibel index for non-Jordanian males is greater than for non-Jordanian females, i.e. ages are more accurately reported in females than males.

It is noted from Table 9 that the index value of non-Jordanian males is greater than that of a non-Jordanian females, meaning that the ages were accurately reported in females than males. The Weibel Index shows that age limits are zero and five compared to previous years, but this bias is acceptable according to Weibel standard.

Myers's Index

If we look at each of the groups ending with a number of ten (0-9), we find that the number in each group tends to decrease as the final number progresses, for example, the total population in the group ending with zero is greater than the total population in the group ending with one number, which in turn is greater than the total population in the group ending with two, ... Etc.

This is because the number of inhabitants in each subsequent group is one year larger than the population in the previous group, meaning that zero is biased against the rest of the numbers and until the effect of this bias is removed, the rest of the figures must be given the same opportunity as zero, which is the basis of the Myers Guide in other words, that this number indicates preferences or non-preferences for each of the ten digits (0 to 9), To determine this preference, we must take consecutive totals in each of the ages ending with a number of ten and note that this indicator does not give us accurate results, because moving from one number to another makes these totals tend to decrease and to avoid this defect the totals are multiplied by some number (weights), so the result for each digit is roughly equal to the other digits, so each sum of these totals must be approximately 10% of the total. By taking the absolute values of the totals of ten totals we get Myers. If the value of the Myers indicator is zero, we rule that there is no preference for any of the 10 digits, but if the value is between (0 and 90), we rule out a preference for some numbers but if it is greater than 90 then this data cannot be trusted.

Table (11) Myers indicator results by gender, 2015

Nationality	Males	Females	Total
Jordanian	2.96	5.27	3.24
Non-Jordanian	7.92	8.85	7.63
Total	4.51	6.21	4.51

Source: Department of statistics

Table (12) Myers indicator results for both sexes based on census results

Census	Males	Females	Total
2015	4.5	6.2	4.5
2004	1.9	2.9	2.3
1994	2.2	3.8	2.9
1979	4.4	10.5	7.3

Source: Department of statistics

Although engaging in the culture of asylum and arrivals, according to the Myers Index, the collection of age data has been highly accurate according to the current circumstances, which shows a high level of awareness and training and a serious follow-up to the stages of listing, demarcation and counting, where results have been good and deviations have been minimal.

United Nations Age – Sex Accuracy Index

This indicator is based on the calculation of both gender and age and is summarized in a single value that reflects both age and gender and the purpose of using this indicator is to provide statistical data disaggregated by age and gender for the population in five-year age groups, the presentation of ages in the form of five-year age groups reduces the rate of errors in preference to the digital age of individuals, but does not eliminate all errors in comprehensiveness and content. This method relies primarily on the calculation of three indicators of gender and age rates of the male and female population in five age groups, In the case of gender rates, the difference between each age group and the next is observed regardless of the signal (absolute product whether negative or positive), whereas in the case of age rates for both males and females, deviations and differences from the number 100 are observed for calculating a manual for determining the level of data quality, this method is used where age data are not available and requires population distribution by age group of five years, which would help to reduce the net misreporting of age proposed by the United Nations Population Division to measure the accuracy of age and gender data and is one of the most successful measures, especially when comparing two, multiple or more regions of the same country. While all previous methods require age-specific population distribution, the grouping of numbers into five-year age groups has been found to help reduce net age reporting error. Therefore, the United Nations proposed a general criterion calculated by combining three times the absolute values of changes in the rates of the species between one age group and another age group, followed by the absolute values of deviation of each age group from half the total of the two age groups of the male and female.

This indicator is different from the previous one, in its application when we do not have age-specific data, but only age-specific data are available, and features of this indicator are also that it is at the same time affected by cross-cutting errors, age errors, preference at particular ages, and thus reflect a clearer picture of how accurate the age structure in general is and give us a general idea of error, and is useful for comparing data. The quality of the data using this indicator is as follows:

- If the value of the index is less than 20, the data are described as being reasonably familiar.
- If it is between 20-40, then the data are described as medium-trusted.
- If it is greater than 40, then the data cannot be trusted.

One of the advantages of the United Nations method over the Weibel and Myers methods

is that the figure we receive is influenced by differences in the coverage of the census in different age groups, by intentional errors in stating age and by preference for some figures, thus reflecting a clearer picture of the accuracy of the overall age distribution.

Table (13) UN Secretariat Index Results in comparison with previous censuses by nationality, urban, rural and gender, 2015

Indicator	Census 2015				Previous Censuses		
	Urban	Rural	Jordanian	Total	1979	1994	2004
Age indicator Males	4.6	4.4	4.5	4.7	6.1	5.1	4.2
Age indicator Females	4.1	4.3	4.5	4.2	5.5	4.8	3.6
Gender indicator	4.2	5.1	3.1	4.6	5.4	7.9	3.3
UN indicator	21.2	23.9	18.4	20.5	27.7	33.5	17.9

Source: Department of statistics

The UN Secretariat's approach indicates that there is a medium degree of accuracy and quality in the age and gender registration data, and regarding the UN Secretariat's only index for Jordanians living in Jordan, the result was very high accuracy and reliable in conducting future population estimates, the overall result was 20.5 with all the conditions and obstacles that were very close to high accuracy, an achievement added to the census efforts.

Chapter III: Population Opportunity

The concept of demographic opportunity or "demographic gift" dates from a period of time when the demographic evolution of a country has clearly shown greater than the proportion of the "economically active" working age group than the younger age groups (under 15 years) and older (over 65 years), and the period of demographic opportunity continues between (30-40 years) according to certain indicators that vary from country to country.

Limitations of demographic opportunity

1. The rate of the population at the age of human forces is at its highest level.
2. The Rate of age support in the lowest rate.

In order to know Jordan's position of demographic opportunity between the 2004 and 2015 census of population and housing, the following variables must be identified:

1. The size of the Jordanian household.
2. The rate of demographic dependency.
3. Overall reproduction rates.

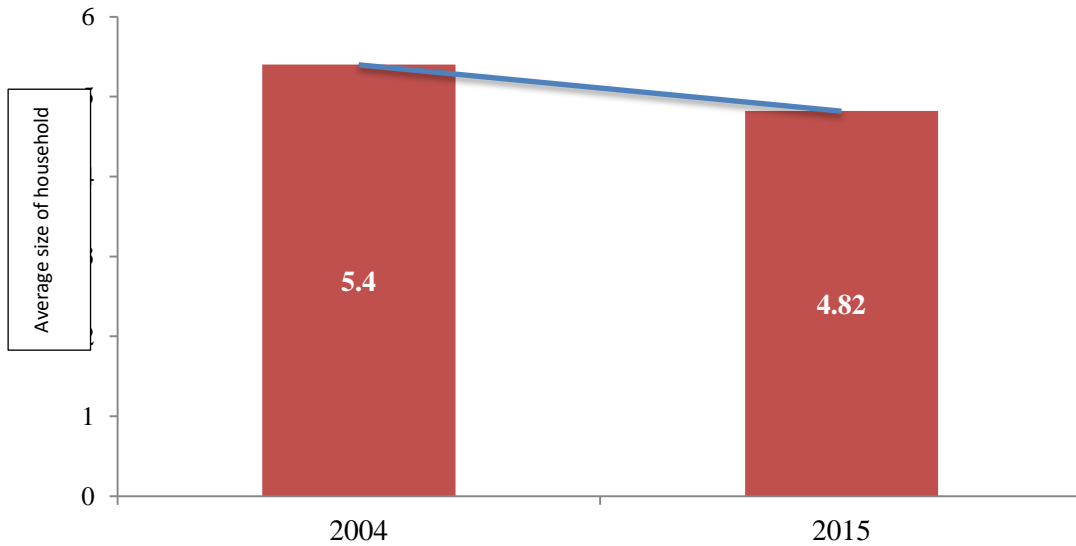
A. The size of the Jordanian Household

The results of the general population and housing census 2015 showed that the Jordanian household size decreased compared to 2004, as the average number of Jordanian household

members reached 4.8 in 2015 against 5.4 members in 2004, recording a drop of 10.7%, which indicates that Jordan is moving toward demographic opportunity.

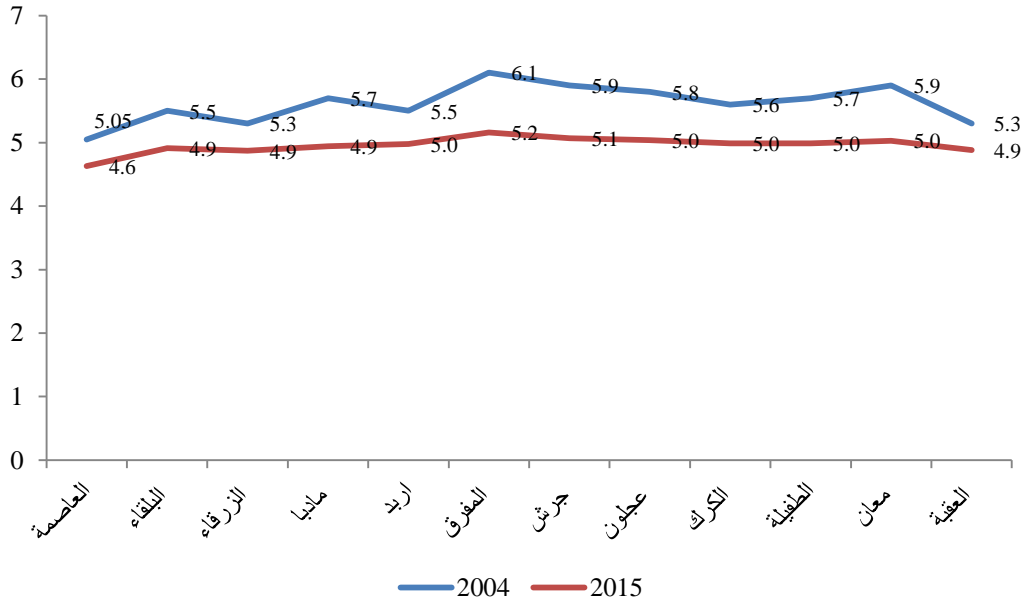
The capital was the smallest household size, with an average household size of 4.6 members, followed by Zarqa with an average of 4.8 members, while Ajlun and Mafraq recorded the highest average household size, with an average household size of 5.16 and 5.07 respectively.

Figure 15: the average size of the Jordanian Household was from the results of the 2004 and 2015 census



Source: Department of Statistics, 2004 & 2015 Census

Figure 16: Average size of the Jordanian Household by governorate from the results of the 2004 and 2015 census



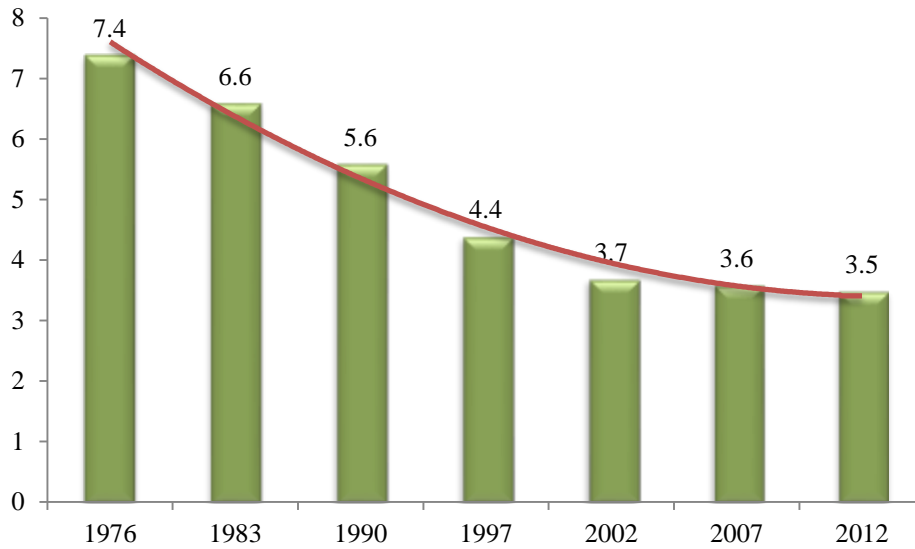
Department of Statistics, 2004 & 2015 Census

العربي غير قابل للتعديل للانجليزي

B- Total Reproduction Rates

The decrease in the size of the Jordanian household is due to the decrease in the total reproduction rate in the Kingdom, which reached about 3.5% in 2012 compared to 7.4% in the 1976 survey, as Jordanian society benefited from the social and economic changes that contributed to important changes in the traditional high reproductive patterns in the Kingdom, as well as the decline in early marriage phenomenon from the past and the increase of women's contribution to economic activity.

Figure (17) Total reproduction rates in the Kingdom during the years 1976-2012



Source: Population and Family Health Survey 2012

C. The rate of demographic dependency

The low average number of household members and the low birth rate in Jordan result in a decrease in the rate of the under-age population under 15, offset by an increase in the size of the working-age population (15-64) and thus achieve the concept of demographic opportunity. The results of the general population and housing census 2015 indicate a decrease in the rate of people aged less than 15 compared to 2004, at 34.6 in 2015, compared with 37.3 in 2004. The results showed an increase in the rate of working-age population (15-64), with 61.1 in 2015, compared with 59.4 in 2004, which was also accompanied by a slight increase in the rate of population aged over 65 from 3.3 in the 2004 census to 4.2 in the 2015 census.

Table (14) Distribution of Jordanian population in governorates by broad age groups of 2015 census results

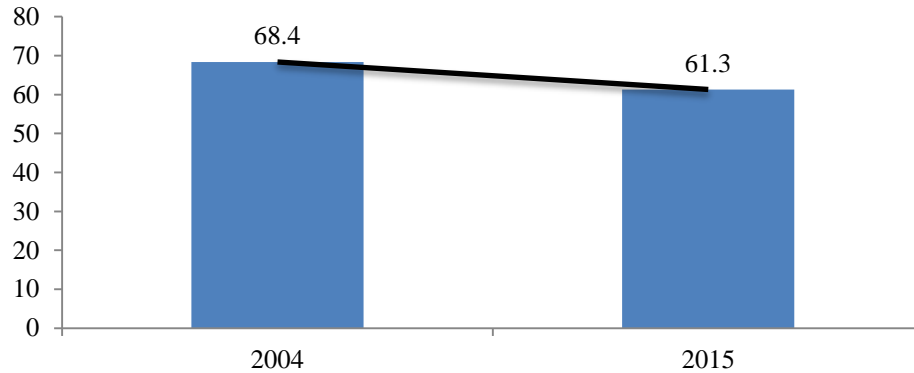
Governorate	2004			2015		
	Less than 15 Years	64-15	65+	Less than 15 Years	64-15	65+
Amman	35.1	61.4	3.5	5.0	62.4	32.7
Balqaa	37.9	58.8	3.3	4.0	60.9	35.1
Zarqa	38.9	58.0	3.0	3.8	60.6	35.6
Madaba	38.0	58.8	3.3	3.8	61.3	34.8
Irbid	37.8	58.9	3.4	4.0	60.9	35.1
Mafraq	40.9	56.3	2.8	3.3	58.2	38.5
Jerash	40.8	56.3	2.9	3.3	59.8	36.9
Ajlun	40.1	56.2	3.7	3.9	59.9	36.1
Karak	36.9	59.5	3.6	4.0	60.1	35.9
Tafila	41.1	56.1	2.9	3.2	59.5	37.3
Maan	39.0	58.1	3.0	3.6	59.6	36.8
Aqaba	38.6	59.2	2.2	2.2	59.6	38.2
Total	37.3	59.4	3.3	34.6	61.1	4.2

Department of Statistics, 2004 & 2015 Census

The results of the 2015 Population and Housing Census show that the population of the ages of the human forces is growing from 15 to 64 years, greatly outstripping the growth of the dependents at 15 years of age and over 64 years, that is, our Jordanian society is now young, and there is an increase in the size of the workforce.

The increase in the size of the labor force requires the creation of a strong and flexible labor market, preceded by an educational and training system capable of adapting the labor market to invest the changes in the structure of Jordanian society that confirm Jordan's move toward demographic opportunity. Looking at the demographic dependency rate according to the 2015 census results, comparing it to the 2004 census results, we notice a decrease in the dependency rate at the Kingdom level, where the dependency rate was 61.4% for 2015, compared to 68.4% for 2004. That is, 61 people are dependent for every 100 people of working age in 2015, while 68 people were dependent for every 100 in 2004, as the demographic dependency rate is the rate of the young population under 15 years of age plus the rate of the elderly population over 65 years of age to the total population aged 15-64 years.

Figure (18): The average dependency rate in the Kingdom, according to the results of the census of 2004 and 2015



Department of Statistics, 2004 & 2015 Census

Low dependency rates will increase public and private savings, investment and capital, which will require maintaining overall capital stability (price control) and provide an efficient financial market to mobilize savings and channel them toward investment to make optimal use of demographic opportunity.

The results of the 2015 Population and Housing Census indicated that Amman had the lowest dependency rate, 55%, followed by Balqa Governorate at 59.8%. Mafraq and Aqaba governorates recorded the highest rate of dependency, where it reached 79% and 75.2% respectively.

Table (15) dependency rates in the governorates during the 2004 and 2015 census

Governorate	2004	2015
Amman	62.9	55.0
Balqaa	70.2	59.8
Zarqa	72.3	66.4
Madaba	70.1	61.0
Irbid	69.9	66.4
Mafraq	77.7	79.0
Jerash	77.7	69.9
Ajlun	78	67.9
Karak	68	62.7
Tafila	78.4	65.3
Maan	72.2	66.4
Aqaba	68.9	75.2
Kingdom	68.4	61.3

Department of Statistics, 2004 & 2015 Census

In order to maintain the reduction of dependency rates, it is necessary to work on community-level investments in rural and development areas, strengthen family planning, raise awareness on population issues, invest in education and higher education, match educational outcomes with the labor market and improve the professional orientation of students in secondary schools.

We have also noted that the results of the population census of 2015 indicates that Jordan is on the verge of demographic opportunity, as there is a decrease in the size of families, a decrease in the rates of reproduction and a decrease in dependency over the past 10 years, and therefore we must take advantage of this period, which may last for many years, as European countries have been experiencing this phase, which has led to the building of strong economies in this period, where Europe today is economically advanced, Whereas the age structure confirms the ability of the current generation in the Jordanian society to care for and provide the necessary care for the former generation, which the European society lacks. In addition to the ability of Jordanian society to open new fields of production such as industry, agriculture and other productive fields that need youth group.

Policies to benefit from demographic opportunity

1. Expanding the labor market and increasing its flexibility.
2. Improve the compatibility between the higher education systems with workplace needs.
3. Enhancing attitudes toward vocational and technical training and increasing training programs.
4. Strengthening the role and contribution of the private sector in policy formulation and priority-setting.
5. Continue to improve the Social Security Act to achieve the highest level of participation in the labor force.
6. Increase economic openness that attracts active labor force investment.
7. Increase scientific research and transfer of technology.
8. Entering into the international agreements to boost Jordanian exports in the international market.
9. Improving the investment environment and increasing competitiveness.
10. Expanding social protection and welfare policies.

Preparing for the post-demographic opportunity phase

1. Emphasize the need to cover older persons in social security initiatives.
2. Support efforts to develop new insurance, such as unemployment insurance and maternity insurance.
3. Engage in pension salary reforms to make them sustainable.

Chapter IV: Future population projections

Population projections reflect potential changes in the size and composition of future populations based on specific assumptions about future trends in fertility, mortality and migration. Projections provide different results based on different assumptions. A change in population growth elements is usually assumed as a projection scenario and also as evidenced by other scenarios and by the views of the Technical Committee.

The importance of population projections lies in:

- Demographic factors are influential elements in economic, social and environmental changes in any region and are influenced by economic, social, environmental and other circumstances
- Population projections are used for many purposes, such as planning, social, economic and health, and the expected increase in the labor force and trends.
- Projections of administrative divisions are of high importance in local development at governorate, district and sub-district levels to determine development priorities.
- Support the policy makers and program managers in planning and priority-setting
- Accuracy in future population data for future planning of all sectors.

Population projections and estimates

Population projections are similar to population estimates, but the difference between them is only in application. In estimates current population is calculated based on the results of the last census carried out and in the current circumstances (i.e. without effective abnormal factors). Projections in which the population is estimated over a future period of time that may extend to long years to come (for example, 50 years) The demographic researcher is establishing a number of scientific hypotheses about a number of factors affecting the size of the population, including:

1. Population by age and gender in the base year.
2. Total reproduction rate.
3. Expectation of life by gender
4. Net volume of international migration.

5. Gender rate at birth.
6. The appropriate life schedule for the area under study.
7. The appropriate fertility pattern for the area under study.

These assumptions are entered and the results obtained through the SPECTRUM system which contains the RABID software, thus extracting a large number of population indicators such as population numbers, distribution by age, fertility rates, substitution, mortality rates, age dependency etc. for the years previously determined by the researcher.

The previous program has been used to extract a number of the most important population data, including:

Results of future predictions

After population projections during the period 2015-2050 for the Jordanian population, it was suggested that the Jordanian population would increase by one third between 2015 and 2030 and increase by 68% during the projected period 2015-2050, which would require a doubling of efforts to provide the population with all the requirements as this increase would affect all aspects of life in the country. The gender rate of the Jordanian population will remain within the current range.

Table (16) Number of Jordanian population by gender during population projections period 2015-2050 (population in million)

Year	Males	Females	Total
2015	3.31	3.20	6.51
2020	3.68	3.56	7.24
2025	4.04	3.91	7.95
2030	4.37	4.24	8.61
3035	4.69	4.54	9.24
2040	5.00	4.84	9.84
2045	5.30	5.12	10.42
2050	5.57	5.38	10.95

The results indicated that the percentage of Jordanian population in the younger age groups will decrease to one quarter by 2050, i.e. there is a decrease in the birth rates in the Kingdom, and the rate of those in the economically productive age group will increase to 65.6%, which requires additional job opportunities to reduce unemployment rates that can result from this rise if things are not corrected and population policies are properly planned.

As a result of the health improvement in the Kingdom, the proportion of the population aged 65 and above will double by 2050. The State will have to provide special needs for this population.

The demographic dependency rate is one of the population indicators, with age data reaching 64.0 in 2015 and will be reduced by the end of the population projection period to 53.0, i.e. about half of the population in the Kingdom is economically responsible for individuals outside the 15-64 age group.

Table (17) Percentage of Jordanian population by age group and demographic dependency rate during projection period 2015-2050

Year	Age group			Demographic dependency rate
	14-0	64-15	65+	
2015	34.6	61.2	4.2	63.5
2020	33.3	62.4	4.3	60.1
2025	31.1	64.2	4.7	55.7
2030	29.8	64.5	5.7	55.0
3035	27.5	65.6	6.9	52.5
2040	25.8	66.2	8.0	51.1
2045	24.8	66.3	8.9	50.8
2050	24.1	66.4	9.5	50.6

Attachment (1) Tables

Table (18) Comparison of Weibel 2015 index results with Weibel 2004 index results by governorate for both sexes

Governorate	2015			2004		
	Total	Female	Male	Total	Female	Male
Amman	114.0	112.8	115.0	101	101	100
Zarqa	110.4	108.8	111.8	101	102	100
Balqa	111.4	110.3	112.2	101	103	100
Madaba	113.8	113.1	114.5	99	99	99
Irbid	106.8	106.9	106.7	101	101	101
Mafrq	112.1	111.9	112.3	100	99	100
Jerash	109.2	109.3	109.1	102	103	101
Ajlun	105.6	105.3	105.9	101	102	100
Karak	106.1	104.7	107.4	99	99	98
Tafila	105.8	106.7	105.0	95	95	95
Maan	110.4	108.9	111.8	100	101	100
Aqaba	115.0	112.1	116.8	102	103	102
Kingdom	111.4	110.3	112.3	101	100	101

Source: Department of Statistics

Table (19): Comparison of Myers indicator results 2015 and Myers indicator results 2004 by governorate and gender

Governorate	2015			2004		
	Male	Female	Total	Male	Female	Total
Amman	5.38	6.45	5.30	2.20	2.80	2.50
Zarqa	4.25	6.0	4.12	1.50	2.70	2.10
Balqa	4.60	6.63	4.61	1.70	3.50	2.60
Madaba	5.72	7.02	5.44	2.10	4.20	3.00
Irbid	3.73	5.64	3.95	1.50	2.50	1.80
Mafrq	4.84	7.61	5.14	2.90	4.80	3.80
Jerash	3.68	6.38	4.15	1.70	3,3	2.10
Ajlun	2.78	4.97	2.62	2.10	2.70	2.30
Karak	3.74	5.35	3.82	3.10	3.50	3.20
Tafila	3.69	5.05	3.49	2.40	4.00	3.00
Maan	5.58	5.83	5.11	4.60	4.30	4.40
Aqaba	6.04	6.96	5.51	3.00	4.90	3.70
Kingdom	4.51	6.21	4.51	1.90	2.90	2.30

Table (20) Results of the (UN) Secretariat Index for Jordanians by governorate for 2004 and 2015

Governorate	2015		2004
	Jordanian	Total	Total
Amman	19.4	26.4	20.8
Zarqa	23.3	23.8	21.5
Balqa	21.2	29.1	19.5
Madaba	18.8	22.3	26.1
Irbid	16.7	18.1	16.1
Mafraq	31.2	24.9	26.8
Jerash	23.4	24.6	16.1
Ajlun	23.1	21.9	19.8
Karak	20.6	26.8	24.9
Tafila	26.7	29.6	23.8
Maan	42.2	40.3	28.9
Aqaba	32.1	47.0	46.0
Kingdom	18.4	22.7	17.9

Source: Department of Statistics

Table (21) Results of the (UN) Secretariat Index for Jordanians by gender and nationality, 2015

Kingdom	Gender	Weibel index	Myers index	UN Total
Jordanian	Male	106	2.96	18.4
	Female	107	5.27	
	Total	107	3.24	
Total	Male	112	4.51	22.7
	Female	110	6.21	
	Total	111	4.51	

Source: Department of Statistics

Table (22) Results in comparison to results of selected Arab countries

Country	Gender	Myers index	Weibel index	(UN) Secretariat Index
Jordan-2015	male	4.5	112	22.7
	female	6.2	110	
	total	4.5	111	
Palestine-2007	male	2.0	100	19.2
	female	3.7	102	
	total	2.6	101	
Kuwait-2005	male	3.7	105	13.3
	female	3.1	105	
	total	3.4	105	
Syria-2004	male	4.7	105	16.6
	female	7.5	107	
	total	6.0	106	
Moroco-2004	male	7.9	108	33.6
	female	12.2	118	
	total	10.0	113	
Egypt-2006	male	25.2	150	24.5
	female	38.5	2018	
	total	31.5	197	
Sudan-2008	male	41.0	218	42.9
	female	45.4	235	
	total	43.3	227	
Yemen-2004	male	43.5	249	38.9
	female	51.3	271	
	total	47.2	260	

Table (23) Arab countries' comparison of the results of the UN Secretariat Index

Country	(UN) Secretariat Index
Syria 2004	16.5
Palestine 2007	19.2
Jordan 2015	22.7
Egypt 2006	24.5
Morocco 2004	33.6
Yemen 2004	38.9
Sudan 2008	42.9

Attachment (2) Definitions

- Population growth: The difference is the sale of the number of births and the number of deaths in addition to the net migration of the population.
- Natural population growth: The difference between the number of births and the number of deaths.
- Gender rate: Male number per 100 females.
- Demographic dependency rate: The proportion of young people (under 15 years of age and older 65 years and older) to the total population aged 15-64 years.
- Crude birth rate: The annual number of births per thousand of the population.
- Crude mortality rate: The annual number of deaths per thousand of the population.
- Average size of household: This measure represents the number of individuals in society divided by the number of families in that society
- The concept of migration: Migration means the movement of individuals from one region to another. Whether within the State borders, which is called internal migration, or emigration outside the State borders, which is called international migration. Migration may take place legally, or may be effected through the illegal entry of the migrant into the destination country.
- Internal migration: The movement of individuals and groups from their habitual residence to another place within the State's borders for permanent residence, with the exception of nomadic Bedouins, tourists, workers and employees who move from their homes to their place of work daily. In Jordan, an individual is considered an internal migration if he spends at least six months in the current place of residence, according to what was approved in the 2015 census.
- Life migration: The migration of an individual from the place where he was born to another place within the borders of the State.
- Current (ongoing) migration: Based on current and former residence, within the State boundaries.

- Annual net migration: This indicator is defined as the contribution of migration to overall population growth; net migration is defined as the difference between the volume of emigration and the volume of immigration entering.

Attachment (3) Measurement Equations

Population growth rate =	$\frac{\text{number of births - number of deaths + net migration}}{\text{Population}}$	X100
Population's natural growth rate =	$\frac{\text{number of births - number of deaths}}{\text{Population}}$	X100
Gender rate =	$\frac{\text{number of Males}}{\text{number of females}}$	X100
Demographic dependency rate =	$\frac{\text{Number of population less than 15 + population 65 and above}}{\text{Population at age (15-65)}}$	X100
Crude birth rate =	$\frac{\text{number of births}}{\text{Population}}$	X1000
Crude deaths rate =	$\frac{\text{number of deaths}}{\text{Population}}$	X1000
Average household size =	$\frac{\text{number of families}}{\text{Population}}$	
Total migration rate =	$\frac{\text{In-migration size + out-migration size}}{\text{Total population}}$	X100
In-migration rate =	$\frac{\text{In-migration}}{\text{Total population}}$	X100

$$\text{Out-migration rate} = \frac{\text{Size of migration}}{\text{Total population}} \times 100$$

$$\text{migration net rate} = \frac{\text{Migration net size (in-migration size) - (out-migration size)}}{\text{Total population}} \times 100$$

How to calculate the Weibel Index

The calculation and formula used is:

$$K = \frac{\sum_{a=5}^{12} P(5a)}{\frac{1}{5} \sum_{x=23}^{62} Px} \cdot 100$$

This number is obtained by dividing the total number of persons with age ending by either number 0 or 5 by five, the total number of persons aged 23 to 62. The value of this indicator ranges from 100 to 500. A minimum of 100 (then there is no concentration on ages ending 0 or 5) and a maximum of 500 (there is a complete bias for ages ending by 0 or 5). Weibel is an effective measure of age accuracy and enables us to reveal the preference of some numbers and is easily calculated, but the main disadvantage of this index is that it measures only the preference of numbers, and that it only reveals preference for numbers 5 and 0.

How to calculate the Myers index

In practice, the composition of the Myers gauge can be summarized as follows:

1. The population is taken by age at a given age range from 10 years of age
2. Total numbers are calculated at all ages ending with a number of us for two categories of workers, for example 10 or more, 20 or more
3. The first category totals are multiplied by 1, 2, The second category totals are multiplied by 0, 1, ... And 8.9
4. By combining the output of the previous two processes, we get the mixed population for each number.
5. The proportion of the group in each number shall be calculated to the total and then the output shall be multiplied by 100
6. The absolute deviations from the rate are 10%, so we get the Myers guide.

To apply this to the 2015 census data, tables are as follows:

Points from 1-2 show the following results:

Table (24) Population of the kingdom according to single year of age and nationality,2015

Single year of age	females		Single year of age	males		Single year of age	total	
	10-90	20-90		10-90	20-90		10-90	20-90
0	420011	315949	0	477154	367483	0	897165	683432
1	371807	271938	1	421882	315694	1	793689	587632
2	363091	263113	2	412162	307667	2	775253	570780
3	453961	252744	3	400264	298899	3	746750	551643
4	318215	225344	4	370015	271858	4	688230	497202
5	366326	271513	5	423265	321344	5	789591	592857
6	301103	214861	6	347722	254622	6	648825	469483
7	308827	221098	7	349858	255558	7	658685	476656
8	292460	203906	8	340082	240284	8	632542	444190
9	289303	197339	9	342357	232957	9	631660	430296
total	3485104	2437805	total	3884761	2866366	total	7262390	5304171

Table (25) results of Myers Index according to single year of age (females),2015

Single year of age	females		weight	weight	Column*weight	Column*weight	Total of weights	Rate of total weight out of the total	rate *100	10-rate	Absolute value
	10-90	20-90	10-90	20-90	10-90	20-91					
0	420011	315949	1	9	420011	2843541	3263552	0.109	10.94	-0.94	0.94
1	371807	271938	2	8	743614	2175504	2919118	0.098	9.78	0.22	0.22
2	363091	263113	3	7	1089273	1841791	2931064	0.098	9.82	0.18	0.18
3	453961	252744	4	6	1815844	1516464	3332308	0.112	11.17	-1.17	1.17
4	318215	225344	5	5	1591075	1126720	2717795	0.091	9.11	0.89	0.89
5	366326	271513	6	4	2197956	1086052	3284008	0.110	11.00	-1.00	1.00
6	301103	214861	7	3	2107721	644583	2752304	0.092	9.22	0.78	0.78
7	308827	221098	8	2	2470616	442196	2912812	0.098	9.76	0.24	0.24
8	292460	203906	9	1	2632140	203906	2836046	0.095	9.50	0.50	0.50
9	289303	197339	10	0	2893030	0	2893030	0.097	9.69	0.31	0.31
total	3485104	2437805					29842037	1	100.0		6.21

Table (26) results of Myers Index according to single year of age (males), 2015

Single year of age	Males		weight	weight	Column*weight	Column*weight	Total of weights	Rate of total weight out of the total	rate	10-rate	Absolute value
	10-90	20-90	10-90	20-90	10-90	20-91		*100			
0	477154	367483	1	9	477154	3307347	3784501	0.111	11.06	-1.06	1.06
1	421882	315694	2	8	843764	2525552	3369316	0.099	9.85	0.15	0.15
2	412162	307667	3	7	1236486	2153669	3390155	0.099	9.91	0.09	0.09
3	400264	298899	4	6	1601056	1793394	3394450	0.099	9.92	0.08	0.08
4	370015	271858	5	5	1850075	1359290	3209365	0.094	9.38	0.62	0.62
5	423265	321344	6	4	2539590	1285376	3824966	0.112	11.18	-1.18	1.18
6	347722	254622	7	3	2434054	763866	3197920	0.093	9.35	0.65	0.65
7	349858	255558	8	2	2798864	511116	3309980	0.097	9.68	0.32	0.32
8	340082	240284	9	1	3060738	240284	3301022	0.097	9.65	0.35	0.35
9	342357	232957	10	0	3423570	0	3423570	0.100	10.01	-0.01	0.01
total	3884761	2866366					34205245	1	100.0		4.51

Table (27) results of Myers Index according to single year of age (total), 2015

Single year of age	total		weight	weight	Column*weight	Column*weight	Total of weights	Rate of total weight Out of the total	rate	10-rate	Absolute value
	10-90	20-90	10-90	20-90	10-90	20-91		*100			
0	897165	683432	1	9	897165	6150888	7048053	0.111	11.08	-1.08	1.08
1	793689	587632	2	8	1587378	4701056	6288434	0.099	9.88	0.12	0.12
2	775253	570780	3	7	2325759	3995460	6321219	0.099	9.94	0.06	0.06
3	746750	551643	4	6	2987000	3309858	6296858	0.099	9.90	0.10	0.10
4	688230	497202	5	5	3441150	2486010	5927160	0.093	9.32	0.68	0.68
5	789591	592857	6	4	4737546	2371428	7108974	0.112	11.17	-1.17	1.17
6	648825	469483	7	3	4541775	1408449	5950224	0.094	9.35	0.65	0.65
7	658685	476656	8	2	5269480	953312	6222792	0.098	9.78	0.22	0.22
8	632542	444190	9	1	5692878	444190	6137068	0.096	9.65	0.35	0.35
9	631660	430296	10	0	6316600	0	6316600	0.099	9.93	0.07	0.07
total	7262390	5304171					63617382	1	100.0		4.51

****Disclaimer:**

This guide often shows the preferences or non-preference of all 10 (0-9) age groups. There is a preference for 5 in particular, both sexes, especially females, and for female preference, but also for 1/6/9, especially for females, in that women, especially those who live in numbers 1/6/9 usually have zero-zero or five-zero-digit and similarly calculates the Myers indicator for rural and urban areas.

Myers Index Equation

*- الأساس النظري لقياس مايرز إذا فرض أن P_j هي مجموع الأضخام الذين يبلغون عن أعمار تنتهي بالرقم (j) في مدى (n) من السنوات، فيعد (m) من السنوات الأولى مبتدئين بالعمر (m+x) نجد أن المجموع المختلط للسكان.

$$P_j \sum_{i=0}^9 i P_j \quad (j = 0, 1, 2, \dots, 9)$$

حيث:

P_j - العدد المختلط من السكان في المجموعات العشرة للمجامع التي تنتهي بالرقم (j).

$i P_j$ - المجموع الذي ينتهي بالرقم (i) في كل مجموعة (j).

إذا كانت $N(x)$ ترمز إلى عدد السكان في العمر (x) نجد أن:

$$p_j = (j+1)N(m+j) + 10 \sum_{k=0}^7 N(m+j+10k) + (9-j)N(m+n+9+j)$$

ومن هنا نستنتج تراكم الأعمار (kj) المنتهية بالرقم (j).

$$k_j = \frac{P_j}{\sum_{i=0}^9 P_j}$$

حيث يعتبر المقام عن إجمالي عدد السكان. ولقد بين ماير أنه إذا ذكرت الأعمار بدقة في التعداد، فإن كلاً من هذه النسب تكون متساوية تقريباً وقريبة من ١٠% من مجموع السكان. لذلك يكون مجموعها دليلاً على الخطأ.

Method of calculation of the United Nations Secretariat Index

1. The proportion of the population shall be calculated in the normal manner for each age group.
2. The consecutive differences of these proportions exist, with the reference omitted.
3. The proportion of age of the population for each species is taken out separately (taking into account the incalculable first and last categories) and then the consecutive differences between these proportions are also found.
4. Consecutive mean differentials in gender rate are also calculated as averages and consecutive differences in the proportion of men age, averages and consecutive differences in the proportion of women age.

5. The proposed measure consists of the following total:

$$M = 3A + B + C$$

Where:

A: The average rate of type

B: Male average age

C: Average age for females.

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