



## Methodology of Annual Population Estimation At The Department of Statistics

The Population and Housing Censuses conducted by the Department of Statistics are the prime and accurate source of population data on size and geographic and administrative distribution. Population censuses are the basis for estimating the annual number of population for the periods between censuses. The exponential equations are usually used, where dynamics of the population are almost stable and there are no sources of lead to sudden population changes. In this case, the annual rate of population growth for the period between two consecutive censuses is almost constant and estimated with high level of precision.

The annual rate of population growth between censuses is estimated using the formula:

$$r = 1/t \ln(P_t / P_0)$$

$r$  = annual rate of population growth

$P_t$  = Population size of the following Census

$P_0$  = Population size of the previous census

$t$  = period (in years) between the two censuses

Using the estimated annual rate of population growth ( $r$ ) from the previous step, the annual population size is estimated using the following formula:

$$P_1 = P_0 * e^{rt}$$

Where,

$r$  = annual rate of population growth



$P_1$  = Population size of the consecutive year

$P_0$  = Population size of the previous year

$t = 1$

Using this formula, the population size can be estimated for each year as long as the population dynamics are somewhat stable.

In cases where emerging population changes, take place for any reason including forced migration driven by insecurity due to armed conflicts or other reasons such as natural disaster leading to great losses of population groups, an additional dimension is considered in order to take such changes into account. In this case the growth-balance equation is used:

$$P_1 = P_0 + B - D + IM - EM$$

$P_1$  = Population size of the consecutive year

$P_0$  = Population size of the previous year

$B$  = number of births during the year

$D$  = Number of deaths during the year

$IM$  = Immigration to the country (arrivals)

$EM$  = Emigration from the country (departures)

Starting from 1952, where the first census was conducted, till 2015, the growth-balance equation was used to complement the exponential equation utilizing data from administrative records that provide aggregate data on population mobility. These data are generated by the Department of Border and Residence, the Department of Civil Status and Passports, Ministry of Labor and other institutions, in addition to specialized studies. Such data were used for population



estimation for years affected by emerging changes including 1967 and migration from the West Bank, 1990 and 1991 to take account of return migrants from the Gulf due to Iraqi occupation of Kuwait, the post 2003 migration of Iraqis to Jordan and finally the 2011 and after which witnessed migration of Syrians due to armed conflict. The total number of Syrians accounted for in the 2015 Population census amounted to about 1.3 million, with almost half as refugees.

For the post 2015 census, estimation of the population size in Jordan will be conducted using a combination of the exponential method as well as the growth balance equation that builds on the data generated from the administrative records.

#### Population Trend of Jordan, 1961-2015

Year	Population (000)	Annual Growth (%)
<sup>(1)</sup> 1961	900.8	—
1962	931.0	3.30
1963	962.2	3.30
1964	994.5	3.30
1965	1028.0	3.31
1966	1062.4	3.29
1967	1362.0	24.84
1968	1409.1	3.40
1969	1457.8	3.40



### Cont/ Population Trend of Jordan,1961-2015

Year	Population (000)	Annual Growth (%)
1970	1508.2	3.40
1971	1562.0	3.51
1972	1617.5	3.49
1973	1675.1	3.50
1974	1735.0	3.51
1975	1810.5	4.26
1976	1889.3	4.26
1977	1971.6	4.26
1978	2057.5	4.26
<sup>(2)</sup> 1979	2133.0	3.60
1980	2233.0	4.58
1981	2319.0	3.78
1982	2409.0	3.81
1983	2502.0	3.79
1984	2599.0	3.80
1985	2700.0	3.81
1986	2805.0	3.82
1987	2914.0	3.81
1988	3027.0	3.80
1989	3144.0	3.79
1990	3468.0	9.81
1991	3701.0	6.50
1992	3844.0	3.79



### Cont/ Population Trend of Jordan,1961-2015

Year	Population (000)	Annual Growth (%)
<b>1993</b>	3993.0	3.80
<sup>(3)</sup> <b>1994</b>	4139.4	3.60
<b>1995</b>	4264.0	2.97
<b>1996</b>	4383.0	2.75
<b>1997</b>	4506.0	2.77
<b>1998</b>	4623.0	2.56
<b>1999</b>	4738.0	2.46
<b>2000</b>	4857.0	2.48
<b>1993</b>	3993.0	3.80
<sup>(3)</sup> <b>1994</b>	4139.4	3.60
<b>1995</b>	4264.0	2.97
<b>1996</b>	4383.0	2.75
<b>1997</b>	4506.0	2.77
<b>1998</b>	4623.0	2.56
<b>1999</b>	4738.0	2.46
<b>2000</b>	4857.0	2.48
<b>2001</b>	4978.0	2.46
<b>2002</b>	5098.0	2.38
<b>2003</b>	5230.0	2.56
<b>2004</b>	5597.0	6.78
<b>2005</b>	5758.0	2.84
<b>2006</b>	5928.0	2.91
<b>2007</b>	6106.0	2.96



## Cont/ Population Trend of Jordan,1961-2015

Year	Population (000)	Annual Growth (%)
2008	6293.0	3.02
2009	6490.0	3.08
2010	6698.0	3.15
2011	6993.0	4.31
2012	7427.0	6.02
2013	8114.0	8.85
2014	8804.0	8.16
<sup>(4)</sup> 2015	9532.0	7.94

(1) Results of the First Population & Housing Census on Nov.18,1961

(2) Results of Housing & Population Census on Nov. 10,1979

(3) Results of Population & Housing Census on Dec. 10,1994

(4) Results of Population & Housing Census on Dec. 11,2015

\* Jordan was subject to international migration waves,1967,1990/1991,2011 till now

### Population Trend of Jordan 1961-2015





