POPULATION DYNAMICS AND THE DEMOGRAPHIC DIVIDEND IN ISRAEL

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Barbara Okun

POPULATION STRUCTURE AND ECONOMIC GROWTH
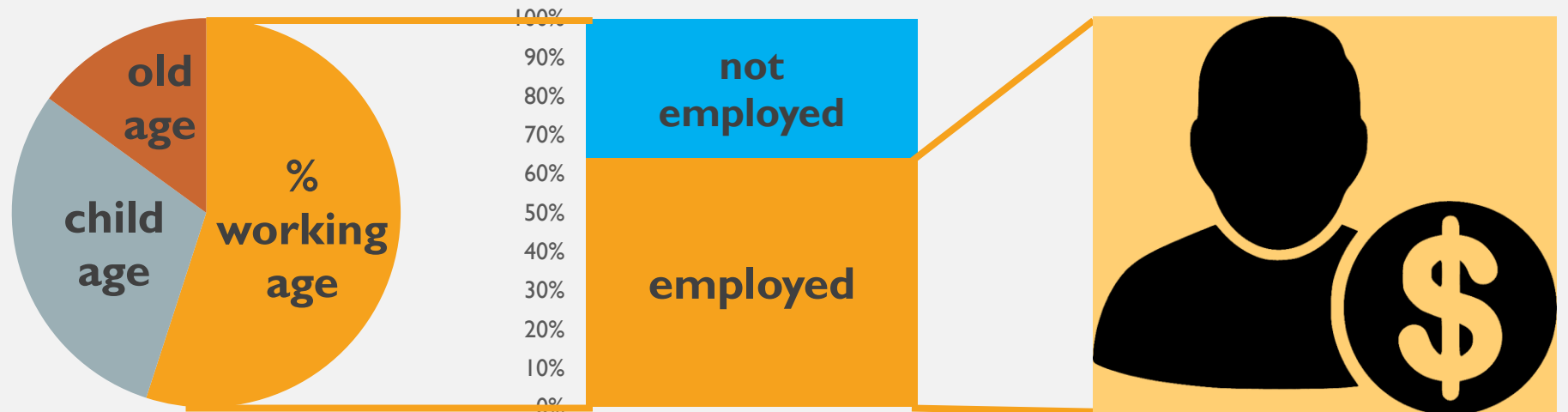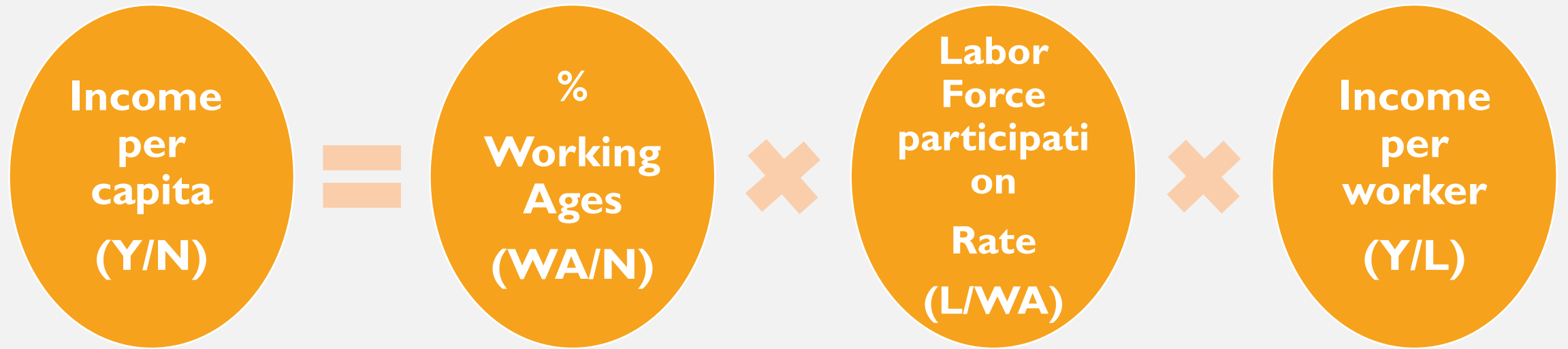
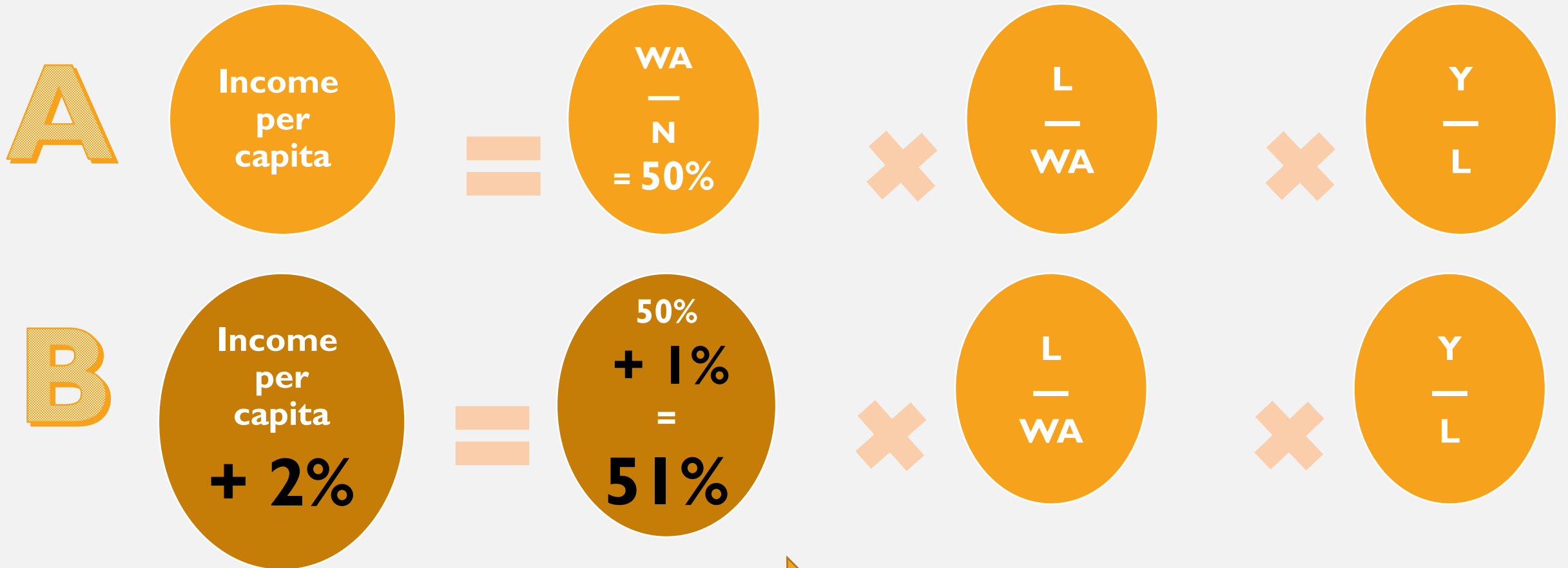**Demographic factors affect per capita income**

1. **Population Size**

2. **Population Growth-rate**

3. **Population Age-structure**

THE DEMOGRAPHIC DIVIDEND (DD) LOGIC

Income per capita (Y/N) = % Working Ages (WA/N) × Labor Force participation Rate (L/WA) × Income per worker (Y/L)

DD POTENTIAL MAGNITUDE

A

Income per capita = $\dfrac{WA}{N}$ = 50% × $\dfrac{L}{WA}$ × $\dfrac{Y}{L}$

B

Income per capita + 2% = 50% + 1% = 51% × $\dfrac{L}{WA}$ × $\dfrac{Y}{L}$

51 / 50 = 1.02 ➡ **2% increase**
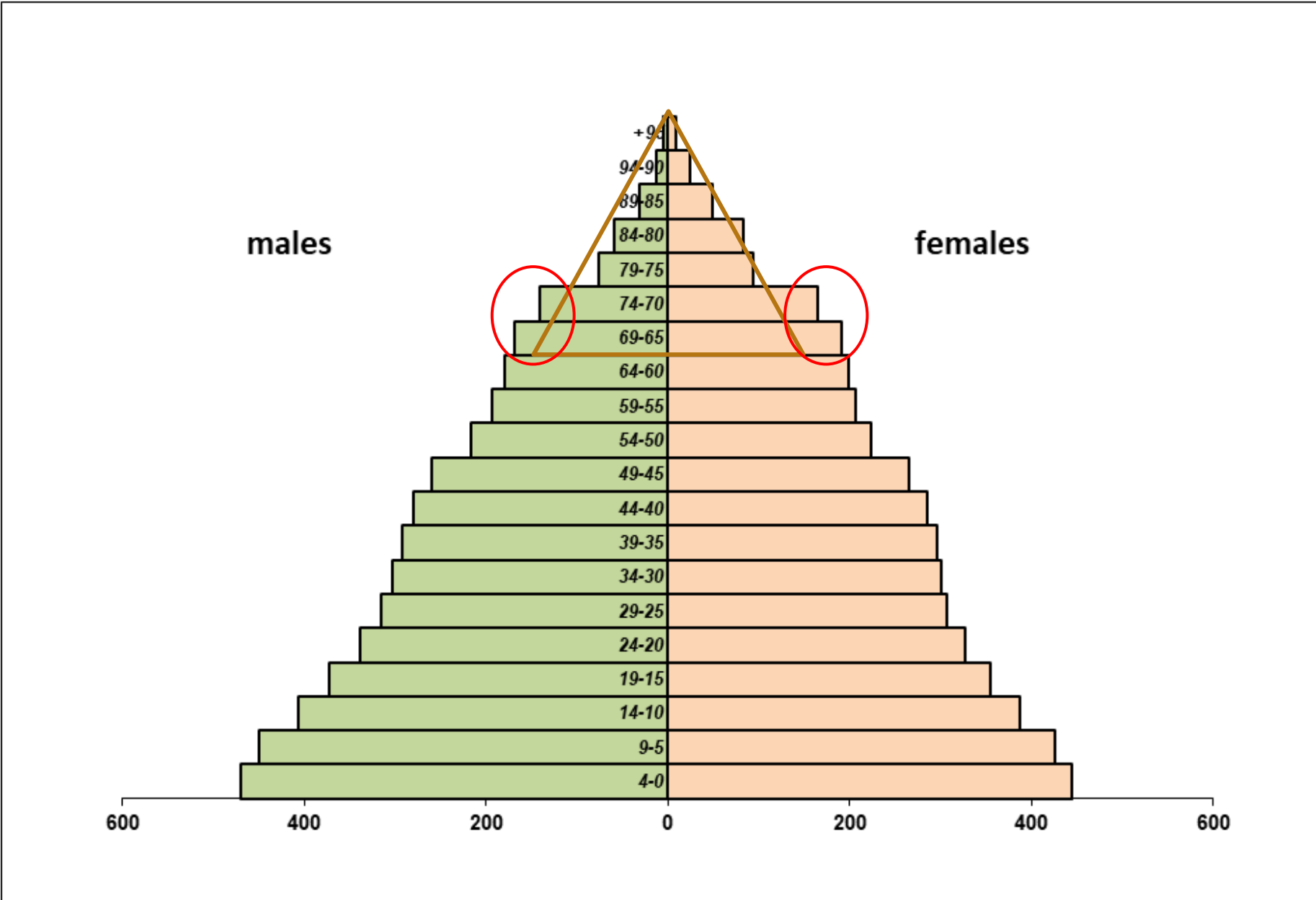
41 / 40 = 1.025 ➡ **2.5% increase**
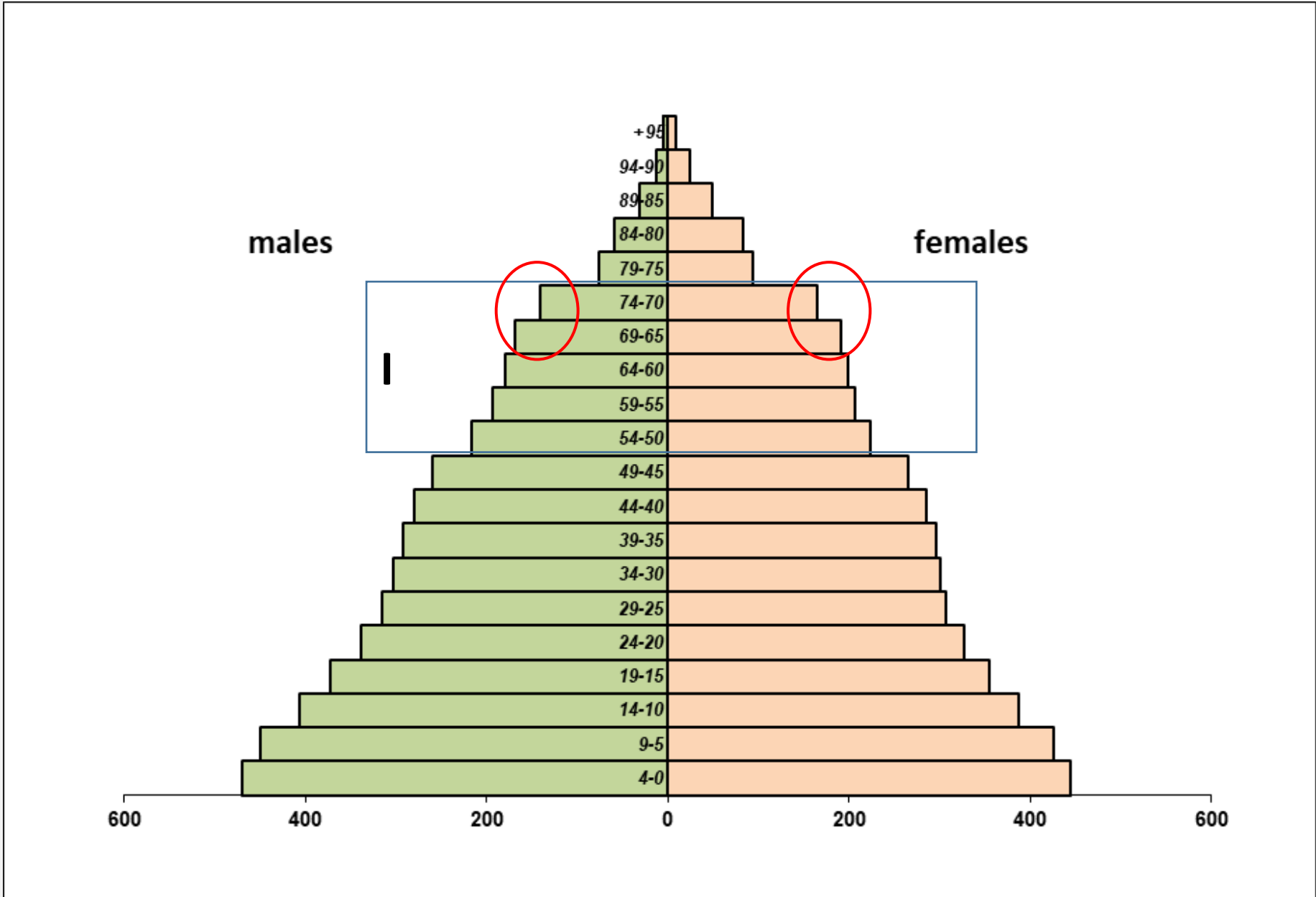
61 / 60 = 1.017 ➡ **1.7% increase**

ISRAELI MAIN DEMOGRAPHIC CHARACTERISTICS

- **Rapid population growth: 3.4% per year over 74 years**

- **Large waves of international migration**
  - **Mass Migration in the 1950's**
  - **One million former Soviet Union immigrants in the 1990's**

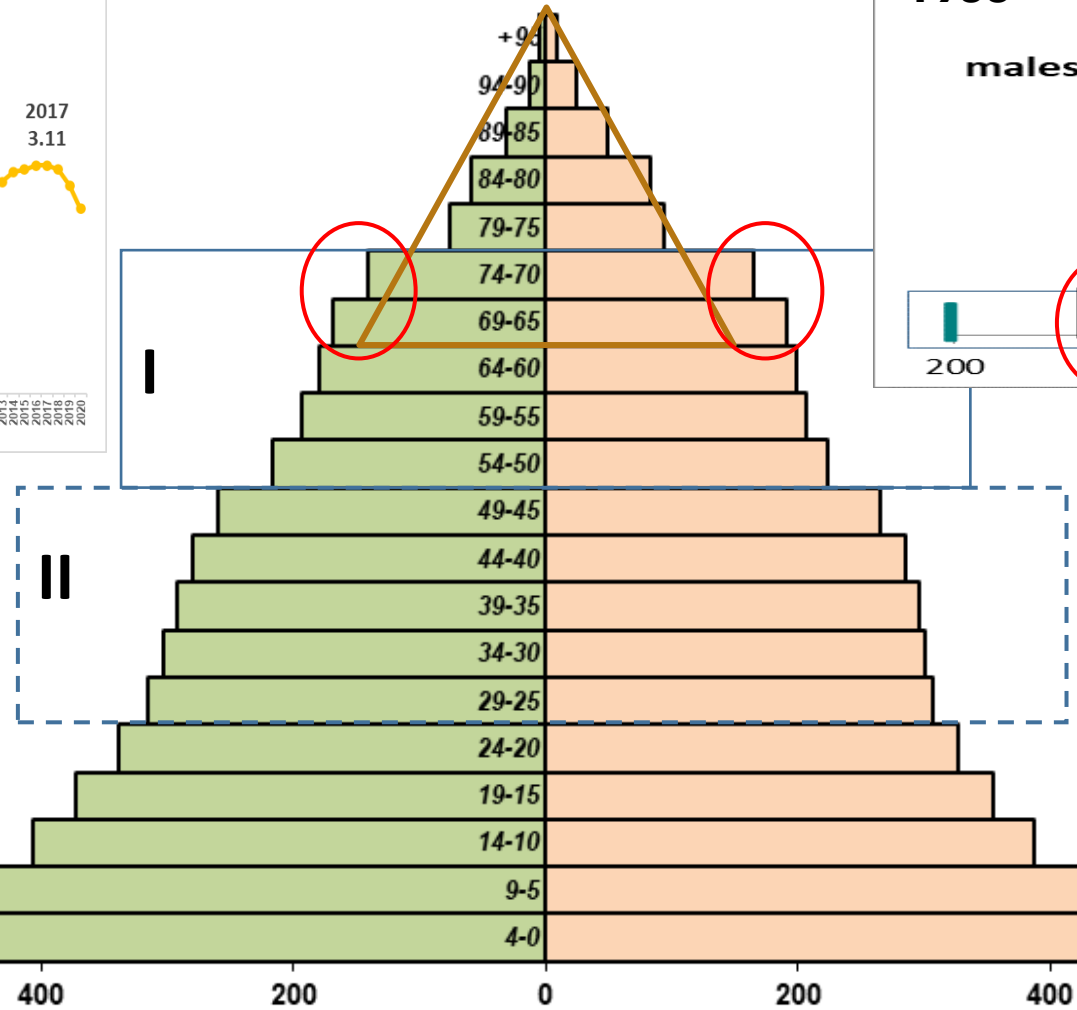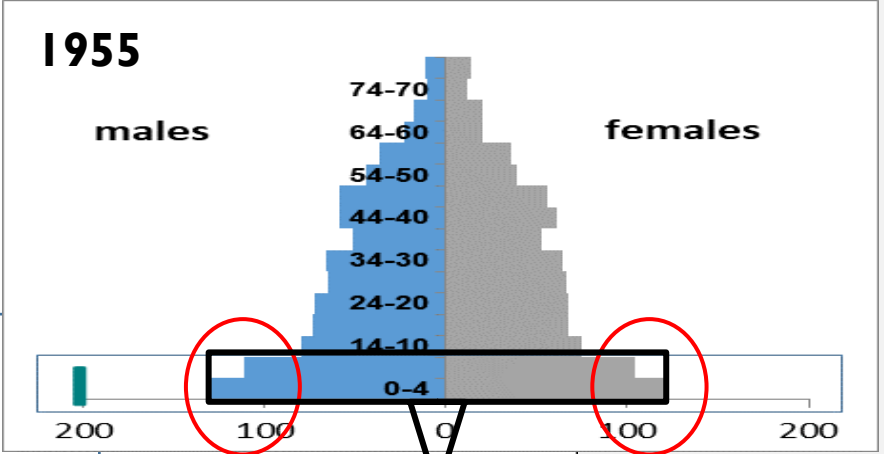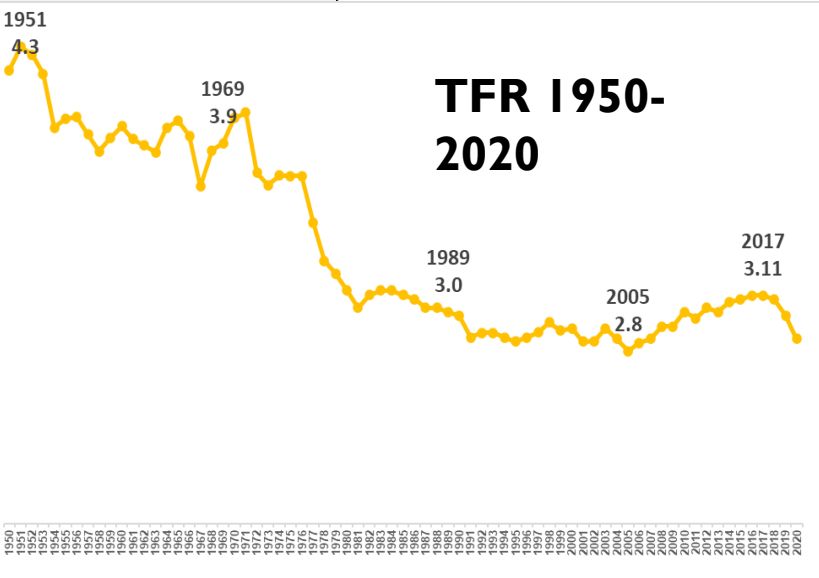- **High natural increase, high fertility levels: over 4.0 in the 1950's, 3.0 today**

PECULIAR AGE STRUCTURE DYNAMICS: 2020

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PECULIAR AGE STRUCTURE DYNAMICS: 2020

TFR 1950-2020

1951
4.3

1969
3.9

1989
3.0

2005
2.8

2017
3.11

1955

males   females

74-70
64-60
54-50
44-40
34-30
24-20
14-10
0-4

200   100   0   100   200

B 1945-54

+95
94-90
89-85
84-80
79-75
74-70
69-65
64-60
59-55
54-50
49-45
44-40
39-35
34-30
29-25
24-20
19-15
14-10
9-5
4-0

I

II
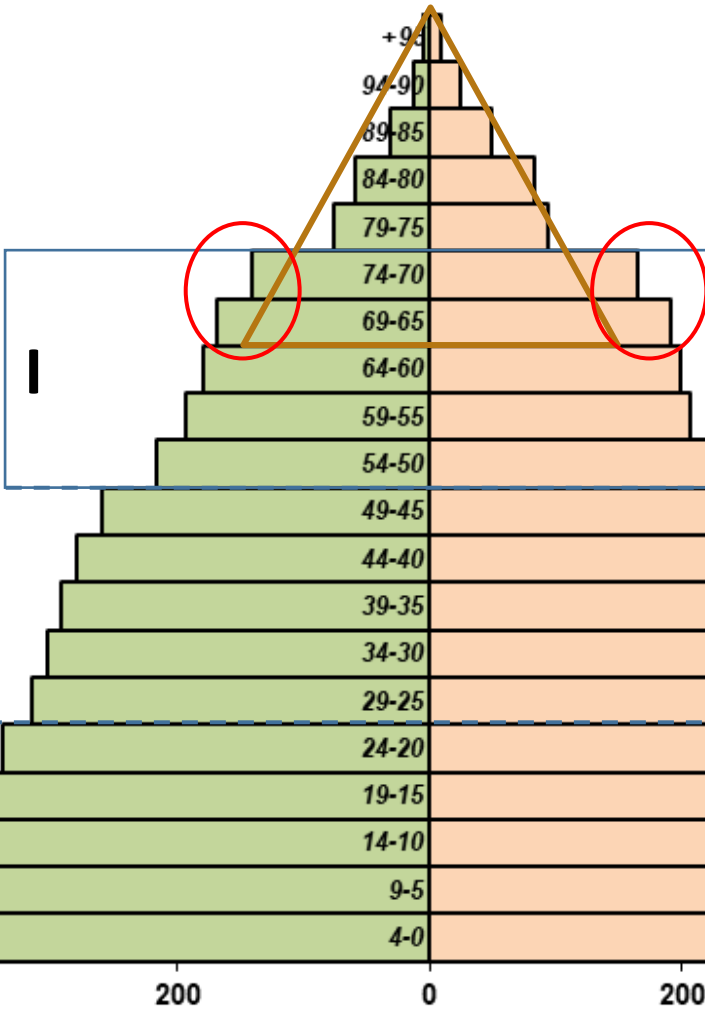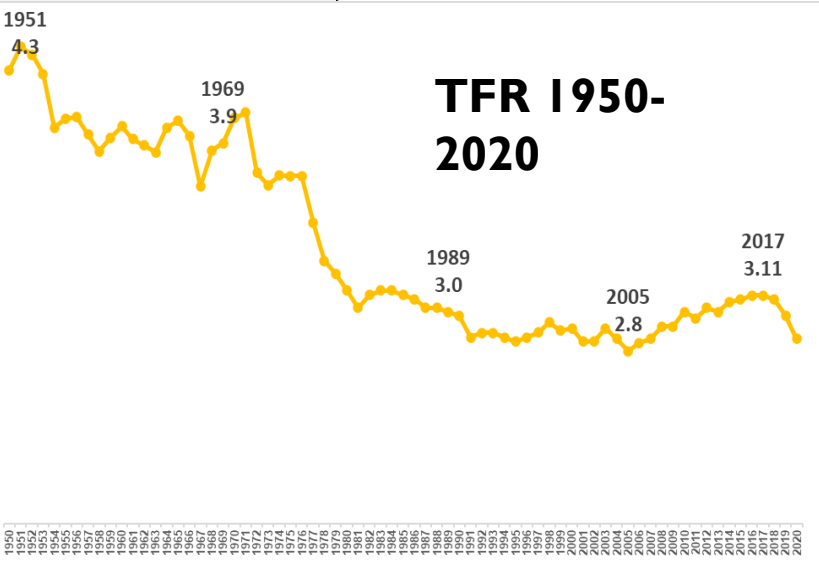
600   400   200   0   200   400   600

PECULIAR AGE STRUCTURE DYNAMICS: 2020

TFR 1950-2020

1951
4.3

1969
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males   females

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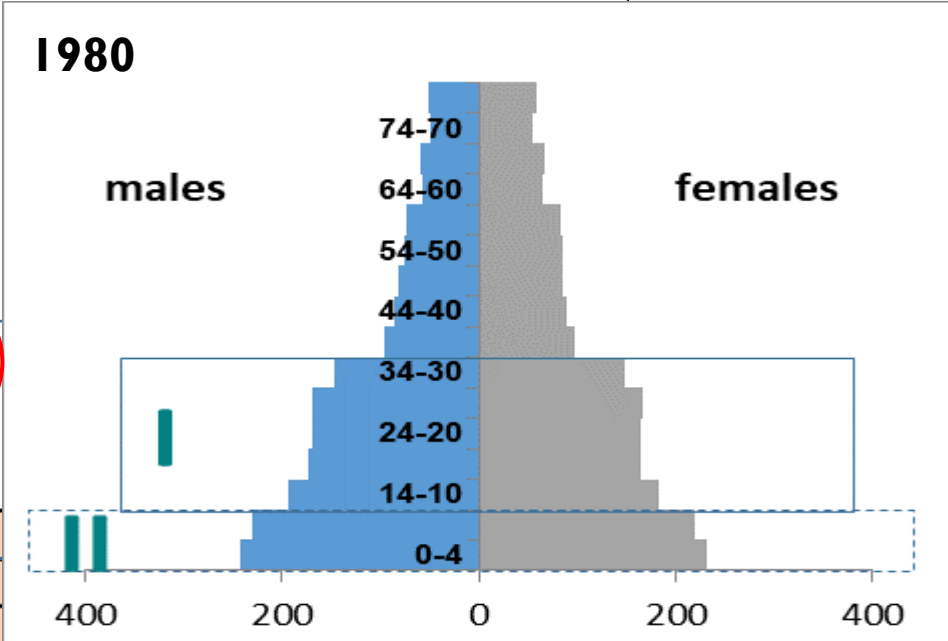9-5
4-0

600   400   200   0   200   400   600

I

II

PECULIAR AGE STRUCTURE DYNAMICS: 2020

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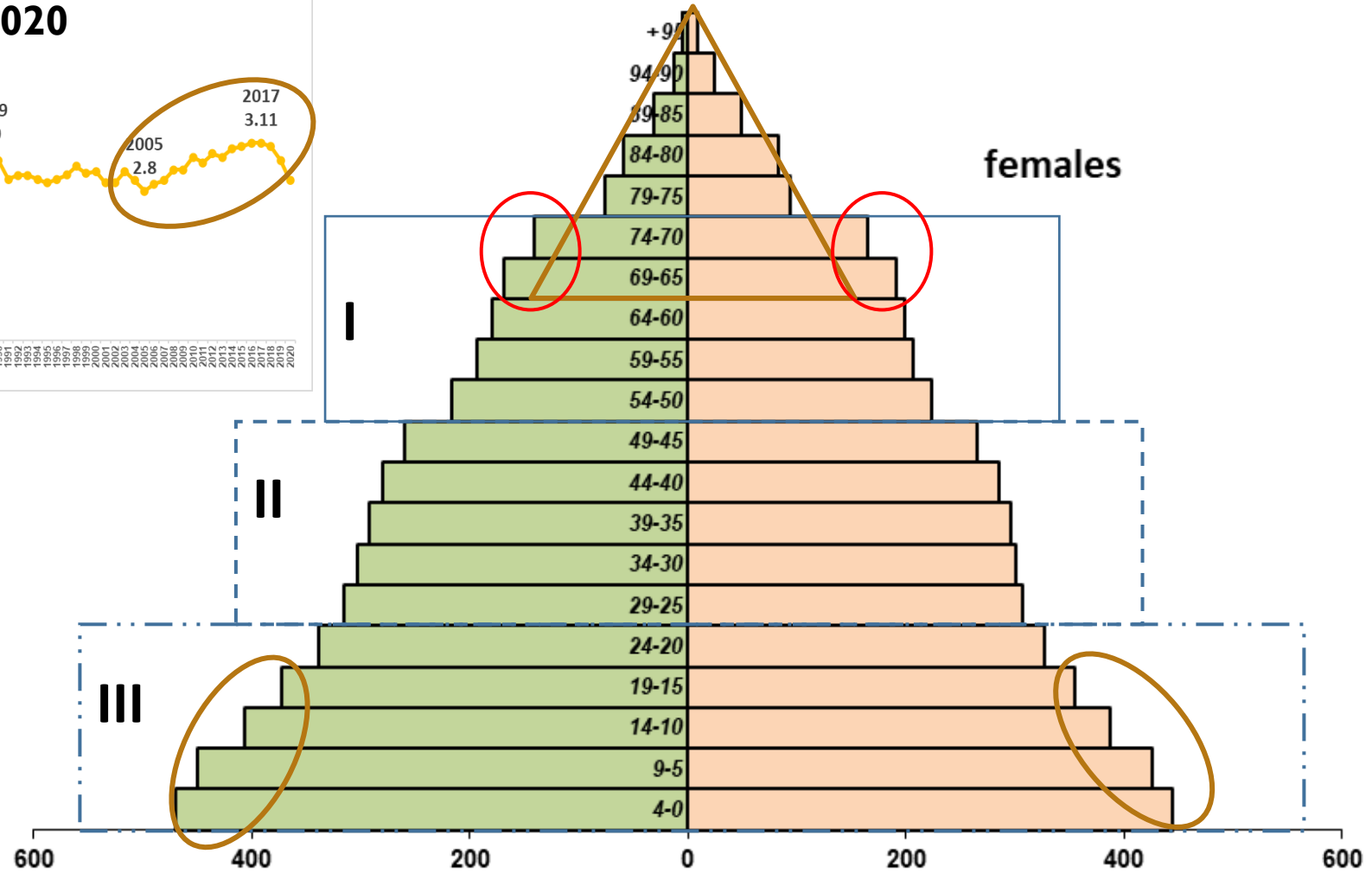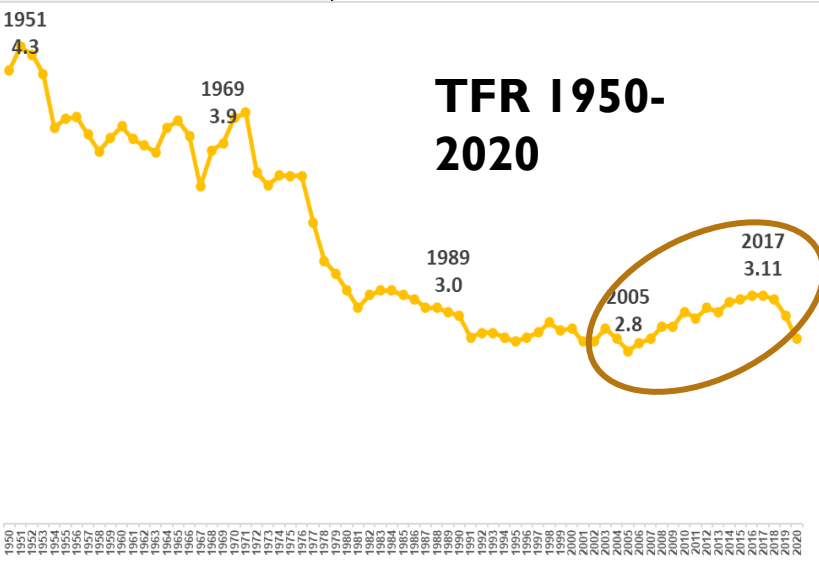
PERCENTAGE AT WORKING AGES

1950
55.6%

decline

1963
49.4%

stagnation

1989
49.9%

increase

2009
54.4%

2020
52.0%

decline

1

2

3

4

1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

1950
55.6%

1963
49.4%

1989
49.9%

2009
54.4%

2020
52.0%

decline

stagnation

increase

decline

45.1%

40.4%

41.1%

35.8%

36.0%

0-19

20-64

+65

9.0%

9.8%

12.1%

5.5%

4.0%

1   2   3   4

1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

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45.1%

40.4%

41.1%

36.0%

- - - 0-19

—— 20-64

—— +65

12.1%

4.0%

1

5.5%

2

4

TFR 1950-2020

1951
4.3

1969
3.9

1989
3.0

2005
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2017
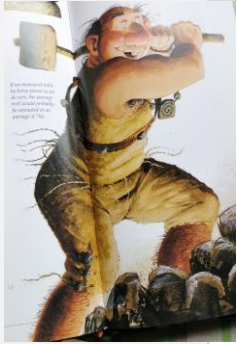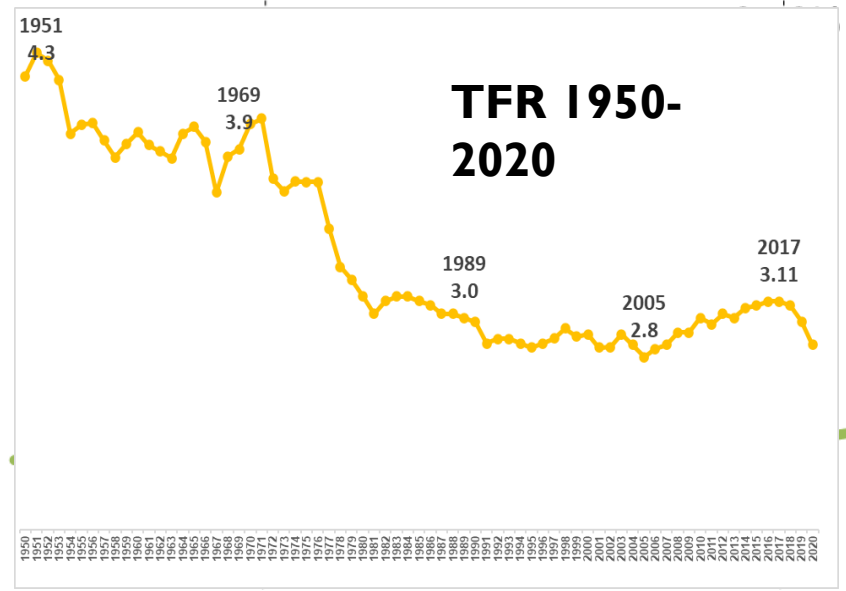3.11

1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
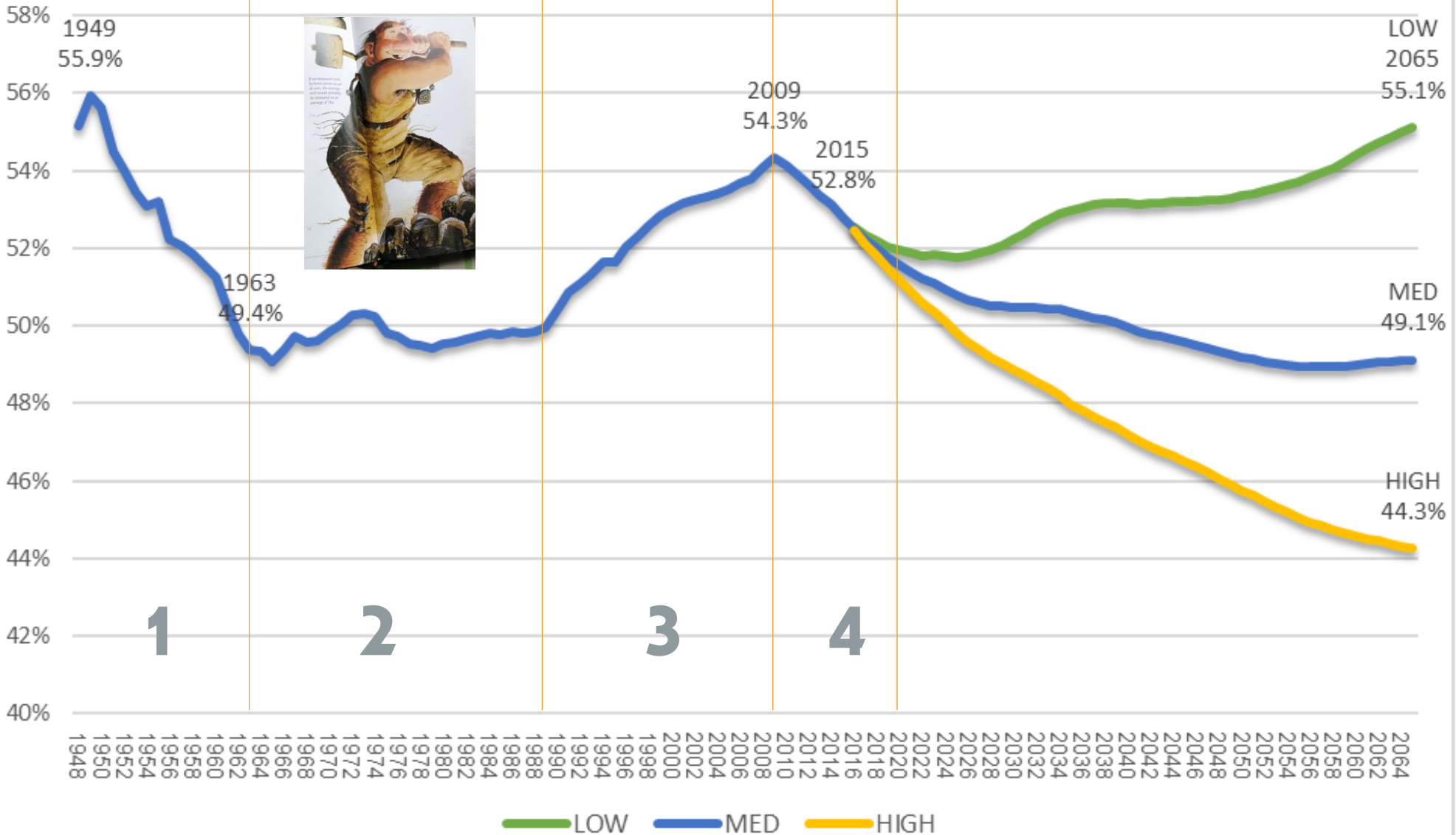
3 FUTURE SCENARIO'S BASED ON ICBS PROJECTIONS 2015-2065

- **HIGH** - low mortality, **TFR increasing** from 3.3 to 4.5

- **LOW** – higher mortality, **TFR decreasing** from 3.0 to 2.0

- **MEDIUM** – medium mortality rates, **TFR stable** around 3.2

Same migration assumptions in al three scenarios.

Based on three subgroups: Ultra-Orthodox Jews, Non Ultra-Orthodox Jews, Arabs

Proportion 20-64 - 1948-2015; projections 2016-2065 by scenario

1949
55.9%

2009
54.3%

2015
52.8%

1963
49.4%

LOW
2065
55.1%

MED
49.1%

HIGH
44.3%

1   2   3   4

LOW   MED   HIGH

% WORKING AGES - CONCLUSIONS

- **Large differences between scenarios**

- **The difference between LOW and HIGH is of 5% in 2032, and 11% in 2065, that may translate into a difference of 10% and 22% in GDP p. c. respectively**

- **Only LOW scenario keeps % at working ages at current levels**

DEMOGRAPHIC CHALLENGES, FERTILITY DECLINE AND DD

- **Fertility decline played a critical role increasing % at working ages**

- **This increase contributed to GDP p. c. increase via the DD mechanism**

- **Without fertility decline the proportion at working ages is expected to decline sharply**

- **The opportunity of actual high fertility**

- **Fertility decline is needed to face future challenges**

THANK YOU FOR YOUR ATTENTION