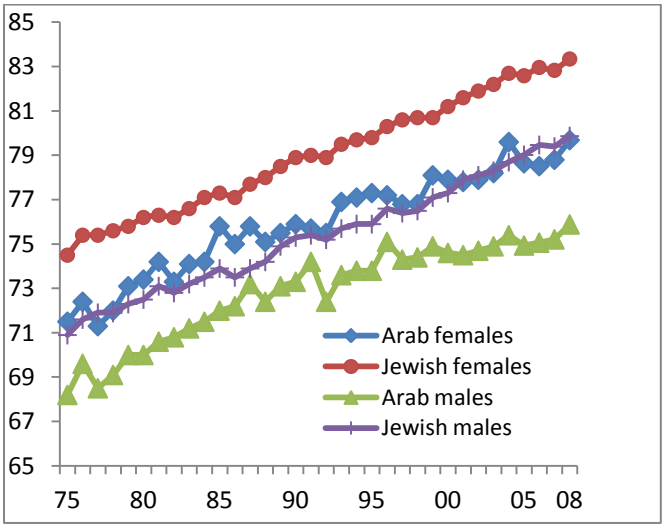
Trends in the Arab-Jewish life expectancy gap in Israel, 1975-2008

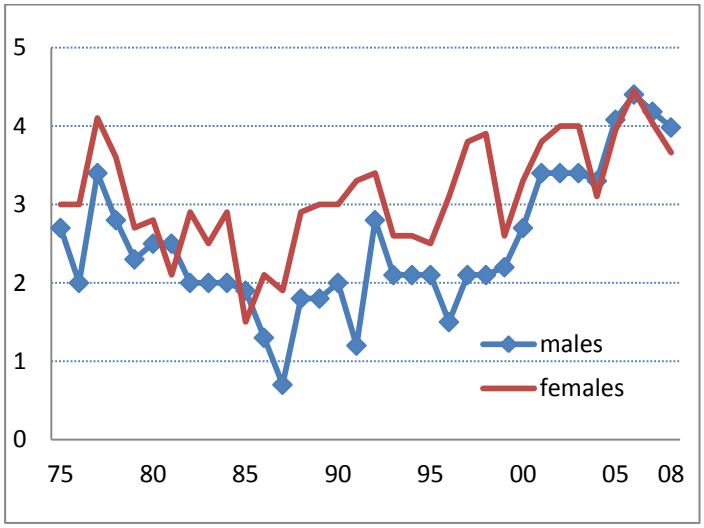
Extended abstract

In spite of significant gains in life expectancy at birth (e0) that both Arabs and Jews in Israel have experienced throughout the last 40 years, a gap ranging between 3 to 4 years has persisted between the two groups (see graph 1). For example, in 2009, life expectancy at birth for Arab females reached 80.7 years compared to 83.9 for Jewish females (a gap of 3.2 years), and for Arab males it reached 76.3 years compared to 80.5 years for Jewish males, a gap of 4.2 years (Israel Central Bureau of Statistics 2010). This is a lag of approximately two decades behind the Jewish population. In fact, the Arab-Jewish gap in e0 decreased during the 1970s and 1980s but starting from the early 1990s it has been gradually increasing (see graph 2). This paper examines reasons behind these temporal changes in the Arab-Jewish total gap in e0. First, it examines the contribution of mortality reductions in specific ages to gains in e0, for each ethnic group separately. Then, it estimates the contribution of specific age groups and specific causes of death to changes in the total gap.

Graph 1: Life expectancy at birth by sex and ethnicity, 1975-08



Graph 2: Gaps in e0, by sex, 1975-2008



DATA AND METHODS

Data for this study consists of annual death rates by age, sex, and ethnicity over the years 1975-2008 and annual death rates by cause of death for the period 1980-2007. Categories of causes of death include: perinatal causes, congenital anomalies, stroke, external injuries, infectious diseases, cancer, heart diseases, kidney disease, chronic liver disease, COPD, diabetes, and other diseases. The relative and absolute contribution of specific ages or specific causes of death to the total gap in e0 is estimated by the decomposition methods suggested by Arriaga (1984, 1989).

RESULTS

a. Decomposition of gains in LE over time (1970-2008)

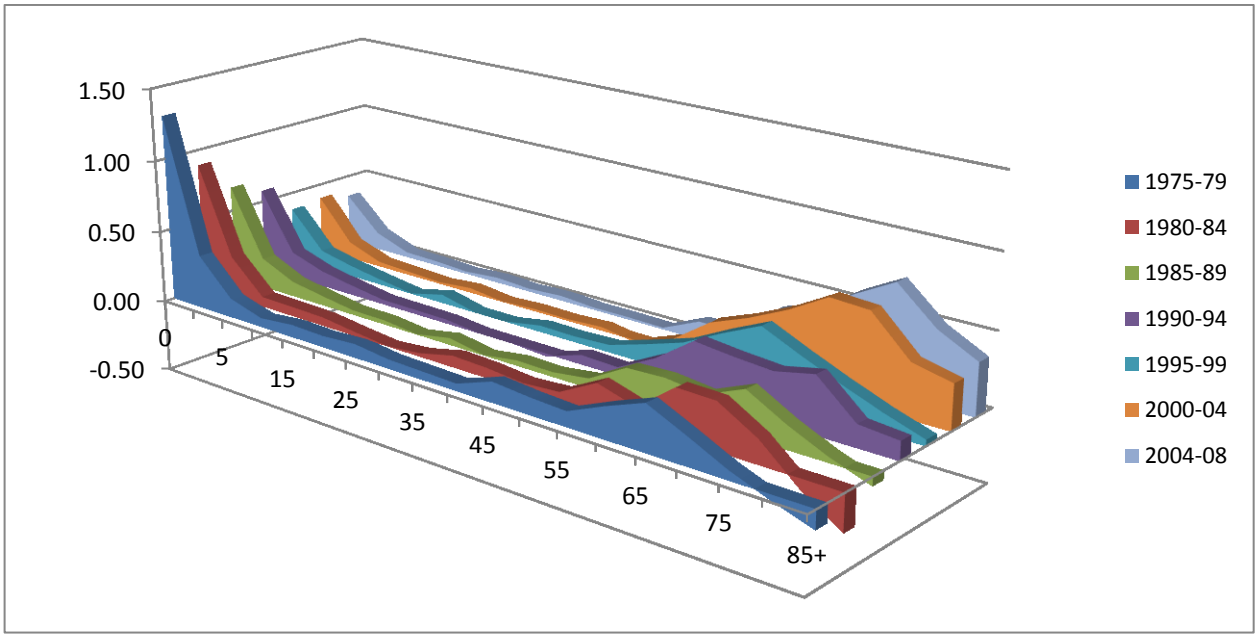
Declines in all-cause mortality over the years 1975-2008 resulted in more than six years gain in life expectancy for Arabs and in more than seven years gain for Jews. However, these similar gains in e0 resulted from different patterns of mortality reduction. In the Arab population, 60% of the gain was contributed by reduction in ages below 50, mainly reduction in infant mortality. In the Jewish population, most gain (70%) was contributed by reductions in ages 50 and above.

b. Decomposition of the Arab-Jewish total gap in e0

Ages 0-4

The absolute contribution of age groups to the total male Arab-Jewish gap over the period 1975-2008 is presented in graph 3. It shows the gradual decline in the contribution of ages 0-4 to total the gap, which decreased from 1.46 years in 1975-79 (58% of total gap) to .50 years (13%) in 2004-08. A similar pattern is observed among females as well. This trend is driven mainly by reduction in infant mortality rates in both population yet faster declines among the Arab minority. While the relative gap in infant mortality remained constant, its absolute size became smaller thus less significant to the total gap.

Graph 3: The contribution (in years) of age groups to the male gap in LE, 1975-2004



Ages 5-49

The contribution of ages 5-49 shows a similar but weaker trend to that of ages 0-4. In 1975-79, it is estimated as 0.86 years (34%) which declined in 2004-08 to 0.63 years (16%). The decline was more remarkable among females: from 0.76 years in 1975-79 (24%) to only 0.20 years (5%) in 2004-08.

Ages 50 and above

For both sexes, the contribution of ages 50 and above has grown and gradually became the major contributor to the total gap. In the 70s, it was responsible for only 0.22 years (9%) of the male gap and for 0.78 years (26%) of the female gap. Forty years later, it accounted for 2.7 years (70%) and 3.15 years (83%) of the male and female total gaps, respectively. Further, graph 3 shows that males >75 years old (and females >85 years) contributed negatively to the total gap due to lower death rates among Arabs. This minority advantage, however, had been gradually declining and eventually ages 75 and above became positive contributors to the total gap.

In sum, changes in the size of the Arab-Jewish gap in e0 reflect two opposing processes. During the 1970s and 80s, we see a modest decline in the total gap which is driven by converging infant and child mortality rates. Thereafter, when the effect of younger ages has stabilized and with the growing effect of older ages, changes in the total gap reflect mainly changes in older age mortality (see graph 4).

c. Decomposition of the Arab-Jewish LE gap by causes of death

A causes-of-death decomposition of the female gap shows that, over the entire study period, cancer has a negative contribution due to lower rates among Arab females. In the early 80s, differences in cancer mortality had contributed to suppressing the gap by more than one year. The magnitude of this suppression has diminished and reached about 0.3 years in 2004-08. This trend is mainly a result of changes in cancer death rates at ages 45 and 64 which show a clear decline among Jewish females accompanied by an increase among Arab females. Overall, cancer mortality which was a major suppressor of the total Arab-Jewish female gap has turned, recently, to almost a neutral factor.

Diabetes mortality shows a different course. The low rates in both populations during in 1980 have drastically increased yet with faster increases among Arab females. This trend is clearly reflected by the contribution of diabetes mortality to the total gap. The positive contribution of 0.56 years during the early 80s has grown to almost one year of the total 3.8 years gap during 2004-04 making diabetes a major contributor to the total gap.

Cancer male mortality shows similar patterns to ones observed among females. The negative contribution of cancer mortality during the 80s and 90s has turned into a positive one during the 2000s. Diabetes mortality, too, follow a similar pattern as observed among females. In addition, slower declines in the Arabs hearth mortality increased the contribution of heart mortality to the total gap in e0. It increased from .24 years (10%) of a total gap of 2.37 years during 1980-84 to 0.69 years (18%) of a 3.8 years gap in 2004-08.

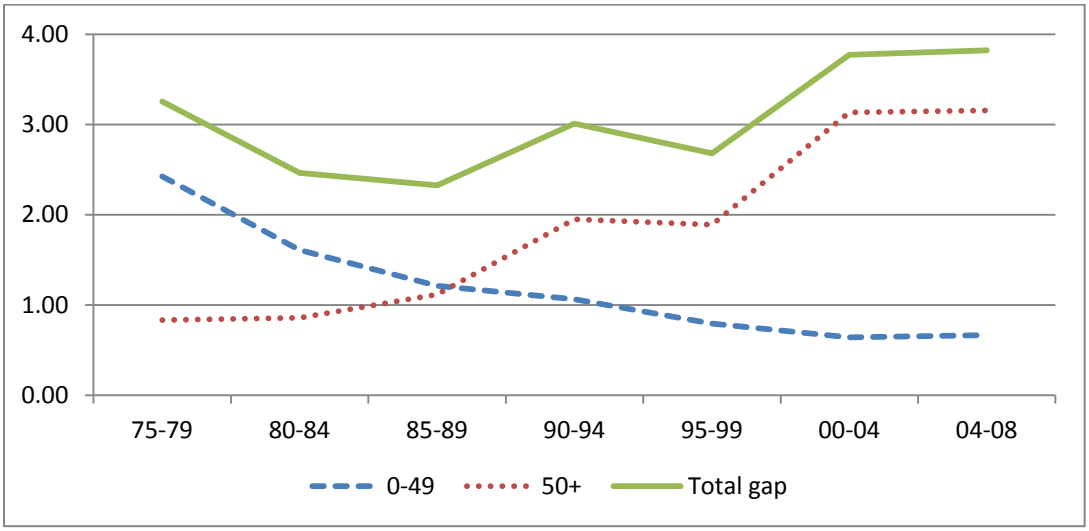
DISCUSSION

My findings reveal that the Arab minority has been persistently disadvantaged in mortality. Moreover, they show increasing inequalities among the elderly which today constitute the main contributor to the total gap in life expectancy. These inequalities are most likely rooted in inequalities between Arabs and Jews in social position, in access to and quality of healthcare as well as access to

other social and political resources. The residential segregation of the Arab minority is also suggested as a factor that contributes to the observed health gaps.

In addition, many indicators suggest that the Arab minority is undergoing an epidemiological transition (ET) where the burden of diseases is moving gradually to older ages as evident in reductions of infectious diseases and increase in the prevalence of chronic diseases (Tarabeia, Green, and Iraqi 2012). The previous analysis shows some implications for this ET on trends in the Arab-Jewish total gap in e0. In both sexes, the contribution of older ages to the total gap has been gradually increasing. As a result, the mortality disadvantage of the Arab minority, although still evident in infant mortality, has become concentrated mainly among the elderly. The results also invoke the general idea that experiencing an epidemiological transition coupled with a disadvantaged social position is expected to increase mortality gaps especially among the elderly.

Graph 4: trends in the absolute gap in e0 by age group, both sexes, 1975-2008



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