

Seculars in a Religious Society: Fertility of Jews in Israel

Barbara S. Okun
Dept. of Sociology and Anthropology
Demographic Studies
The Hebrew University of Jerusalem

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Abstract

Israel is a rare example of a modern, affluent democracy in which there is extensive overlap between civil and religious authorities, and in which the majority of the adult population characterizes itself as traditional or religious. Israel thus presents a fascinating case study of the role of religion and religiosity in demographic processes; in this paper, we examine the family demographic behavior of seculars within this religious society. We document that in many respects, this group, like most affluent national populations in Europe, N. America, Oceania and parts of Asia, exhibits patterns of behavior that are consistent with the Second Demographic Transition (SDT). However, we also demonstrate that native-born secular Jews have consistently maintained unusually high levels of fertility relative to these national populations, with the most recent data available suggesting that cohort and period fertility is at or above replacement-level. Strikingly, among native-born seculars with completed fertility, one-child families are very rare and three-child families are the mode; these are two characteristics which distinguish the 1960s birth cohorts of native-born secular Jews from analogous groups in the U.S. and all European countries considered. We suggest that two interrelated factors may be the proximate causes of the unusual parity distribution among native-born secular Jews with completed fertility: (1) high ideal family sizes and (2) low (albeit increasing) levels of marital dissolution and non-marriage. We suggest that the high ideal family size and the related centrality of marriage among seculars in Israel may be understood through a triple nexus of effects involving religion, familism and nationalism (Inglehart and Wezlel 2005), values which conflict with those associated with the low fertility common to SDT populations (Lesthaeghe 2010). In light of this discussion, we explore possible changes in the future fertility of native-born secular Jews in Israel.

1. Introduction

Israel has often been discussed as a traditional, 'family-oriented', pro-natalistic society, even as it is considered a politically and economically modern one (Fogel-Bijaoui 1999, Glickman et al. 2003, Peres and Katz 1980, Lavee and Katz 2003, Raz-Yurovich 2010, Smooha 2005, Toren 2003). Certainly, based on aggregate statistics, the population of Israel, as compared to all or most European, North American, and many East Asian countries, has very high levels of period fertility, and low levels of non-marital fertility and divorce. For example, period total fertility stood at 2.96 in 2009, higher than all or nearly all developed societies. Even among the majority Jewish population, total fertility was 2.90 in 2009 (Israel Central Bureau of Statistics 2010). Also, among Jews, extra-marital births are uncommon and divorce rates are also relatively low (ICBS 2010; Raz-Yurovich 2010). These aggregate figures are consistent with the oft-cited 'centrality' of the family in Jews' lives in Israel. Moreover, these indicators, together with its relatively high levels of social and economic development (see section 2 below), puts Israel on the map as an outlier in terms of many aspects of its family demographic behavior.

However, there is great difficulty in studying aggregate demographic measures of this type, since it is widely acknowledged that Israel is an extremely heterogeneous society, with family formation patterns differing greatly across numerically important social groups. There are significant differences in demographic patterns between the minority Arab (primarily Muslim) population and the majority Jewish population (Friedlander et al. 2010). Moreover, there is great heterogeneity in demographic patterns within the Jewish population; most strikingly, as Friedlander and Feldmann (1993) discussed nearly 20 years ago, fertility patterns differ in very substantial ways by level of religiosity. However, because of a lack of data which directly identifies religiosity in official statistics, little is known about the basic demographic characteristics of the different religiosity groups, including the numerically largest among them - the secular population. Thus, it has not been possible to disaggregate fertility, marriage, divorce, and cohabitation data, in order to see whether the high-fertility levels and 'family-orientation' usually ascribed to the Jewish population of Israel also fits the secular Jewish population.

A study of the secular Jewish population of Israel is interesting for a few reasons. Contemporary Israel is a rare example of a modern, affluent democracy in which there is extensive overlap between civil and religious authorities. Religious authorities and religiously-based political parties exercise direct and indirect influence over the education and social welfare systems, and religious courts have sole authority over issues of marriage and divorce, and are involved with other important aspects of life such as custody of children and burial rites. The State of Israel funds religious services and religious schools, and, within Judaism, recognizes only Orthodox and ultra-Orthodox affiliations. Most public transportation is inoperative on the Sabbath and Jewish holidays, and religious symbols and content are ingrained in public schools and the mass media (Smooha 2005). Moreover, despite the fact that seculars are currently the numerically largest group among the adult Jewish population, seculars lives in a society in which most adults define themselves as either religious or traditional (Israel Central Bureau of Statistics 2010). Inglehart and Welzel note that religious traditionalism versus secular rationalism is one of the major dimensions related to differences in values across

different societies (book); Lesthaeghe has further argued strongly that these values are closely related to family demographic behavior over the last several decades. Thus, Israel presents a fascinating case study of the role of religion and religiosity in demographic processes, and in particular, it is interesting to examine the demographic behavior of seculars within this religious society.

In this paper, we provide, for the first time, a portrait of changes in the family demography of native-born secular Jews in Israel. We show that in many respects, this group exhibits patterns of behavior that are consistent with those of the Second Demographic Transition (SDT), which has typified European, N. American, Oceanic and industrialized Asian populations (Lesthaeghe 2010). However, we also show that secular Jews have consistently maintained unusually high levels of period and cohort fertility, well above those of nearly all other developed populations. Moreover, from a completed cohort perspective, as well as from a period perspective, the most recent data available suggests that fertility is above the replacement-level. Thus we find that secular Israeli Jews are outliers, in that they maintain unexpectedly high fertility despite showing signs of incipient STD behavior and enjoying the socio-economic status of many affluent, democratic countries. We explore possible reasons behind the unusually high fertility of this population.

Throughout the paper, we compare the native-born secular Jewish population with the non-secular, native-born Jewish population in Israel, and with other developed populations, at the national level. All immigrants to Israel, including the large number of immigrants from the Former Soviet Union, are excluded from the analyses as immigrant marriage and fertility often occurred prior to immigration, in their countries of origin, and are known to differ significantly from those of the native-born (e.g. Friedlander and Goldscheider 1978; Okun and Kagya 2010). Given that measures of demographic behavior in European and U.S. populations reflect the heterogeneity in those nations in terms of immigrant status, religion, and religiosity, we suspect that our comparisons with other developed populations at the national level are likely to *understate* the differences in demographic behavior between the secular, native-born Jewish population of Israel and secular, native-born European populations. That is, if we had had information on the family demographic behavior of secular native-born Europeans and Americans, the gaps vis a vis what we document about secular native-born Israeli Jews would most likely be even larger than what we report.

We also note that within the non-secular Jewish population, there is great heterogeneity in demographic behavior by level of religiosity. However, it is beyond the scope of this paper to discuss that heterogeneity, and our sole purpose in presenting indicators of demographic behavior among non-seculars is to contrast it with the behavior of seculars, who are the focus of the paper.

2. The Israeli Context

Israel is ranked by the United Nations Human Development Index as among the "very high human development countries" in terms of income, education and health (United

Nations 2011). For example, its income (GDP per capita of approximately \$27,000 in 2009) puts it at about 75% of the OECD average, just below Korea, and just above Portugal (ICBS 2011). In terms of education, Israel is ranked near the highest among OECD countries in terms of proportions of persons aged 25-64 with tertiary level education (45% among persons aged 25-64 in 2009), higher than that in the United States and Japan, and significantly above the OECD average. (OECD 2011). Women's labor force participation is also high, particularly among mothers with young children; Mandel and Semyonov (2006) found that only 8 out of 22 developed countries had higher labor force participation rates among mothers with pre-school aged children. Moreover, Raz-Yurovich (2011) reports that, based on analysis of 27 countries that participated in the 2002 ISSP surveys, only seven had a more egalitarian division of household labor than Israel. Life expectancy in Israel is also very high, 83 years for women and 80 for men, thus matching or exceeding that of many Northern, Western and Southern European countries. Infant mortality is also correspondingly low in Israel (ICBS 2011).

In terms of population, Israel's totaled 7.7 million in 2010, of whom 6.1 million were Jews¹ and 1.6 million were Arabs, mostly Muslims (Israel Central Bureau of Statistics 2011). The Jewish and Arab populations respectively grew 3.6% and 3.8% annually on average since 1948, the year the State was founded. Despite the relatively small difference in the average growth rates between the Jewish and Arab populations, the sources of population growth differ. While net migration accounted for 44.5% of Jewish population growth during the period 1948-2008, among Arabs net migration was negligible since 1948 (Israel Central Bureau of Statistics 2009). As the demographic behavior of the Jewish population and the Muslim populations differ dramatically, we focus our attention in this paper on the former.

2.1 Religiosity within the Jewish population of Israel

The Jewish population of Israel comprises religiosity subgroups that are numerically important and that vary widely in fertility and family behavior. Based on the 2009 Israel Social Survey, a majority (58%) of the adult Jewish population in Israel (aged 20 and over) self-identifies as at least somewhat religious or traditional: with 8% defining themselves as Ultra-orthodox, 12% as religious, and 38% as traditional. The largest group of adult Jews, at 42%, self-defines as secular (Israel Central Bureau of Statistics 2010). Despite the significant proportions of different religiosity groups among Jewish adults, it has not been possible until very recently to construct measures of demographic and family behavior across groups from official government statistics because direct data on religiosity is not collected in census or vital registration systems. This is a major shortcoming of official statistics, as religiosity appears from previous research, as well as casual observation, to be one of the most important factors in explaining religiosity differentials in Israel. For example, using various techniques of indirect estimation, Friedlander and Feldmann (1993) estimated total fertility rates of ultra-Orthodox Jews and religious Jews at around 7 and 4.5 in the mid-1980s, while they suggested that secular total fertility during that period was in the range of 1.6 to about 2.0 (below-

¹ The population of Jews includes roughly 300,00 people who are non-Arab Christians or people with no classified religion.

replacement).² More recently, Hleihel (2011) estimated that period total fertility rates during 2007-2009 were 6.5 for ultra-Orthodox Jews, 4.3 for religious women, and 2.1 for secular women. While some more recent research has focused explicitly on the very high-fertility population of ultra-Orthodox Jews, in attempts to estimate indirectly and analyze their demographic characteristics (e.g. Gurovich and Cohen_Kastro 2004, and Manski and Meyshar 2003), almost no research since Friedlander and Feldmann has focused specifically on the secular Jewish population. We focus on the population of secular Jews, as theory posits that secularization is one of the preconditions of the SDT (Lesthaeghe 2010). We also examine to what extent the secular population was and remains a “traditional, and family-oriented” group, as has been suggested in the literature.

3. Data

We analyze a series of eight annual data files from the Israeli Social Survey (ISS), 2002-2009. The Israel Social Surveys are conducted annually by the Israel Central Bureau of Statistics (ICBS) on a sample of men and women aged 20 and over. The Social Survey questionnaire has two main parts: the first is a core questionnaire, repeated every year, containing about 100 items covering the main areas of life such as details of household members, fertility, information on dwelling and ownership of automobile, household help, religion and religiosity, army service, other national service, employment, economic situation, and education. The second part of the questionnaire differs from year to year and contains a module devoted to one or two topics in-depth. Particularly relevant for our project are the modules on religious observance and family life in the 2009 Survey. Questionnaires are administered by ICBS staff in face-to-face interviews with about 7,500 individuals annually (referred to as main respondents). In addition to information collected about the main respondents, basic demographic and socioeconomic information is also collected on their household members, thus making it possible to link spouses and children with their parents. Survey response rates are over 80%, and weighting measures are undertaken to make sure that the sample is representative of the adult population of Israel. In our analyses, information is taken based on the questionnaire administered to female main respondents, supplemented with more limited data taken from other household members. Unless otherwise stated, statistical measures are weighted in order to provide as close a portrait as possible to the Jewish adult female population in Israel.

The most important demographic, social and economic information which can be garnered from the ISS includes information on main respondents' (male and female) children ever born, age and sex of children living in the household, current marital status, number of times married, and year of marriage/marital disruption.³ Additional information includes socio-economic information regarding the main respondents. In addition, the 2009 module contains questions relating to SDT attitudes and values (discussed below).

² The figures reported by Friedlander and Feldmann (1993) focus primarily on the European-origin (Ashkenazi) groups, rather than on the Asian-African (Sephardi) groups.

³ For divorced or remarried women, we don't have information on age at first marriage. Therefore, we will not be to conduct a formal analysis of marriage patterns. In addition, our analysis of the first birth interval will be conducted on either currently married women in their first marriage, or on all women.

In terms of religiosity, all of the ISS contain information on self-defined religiosity at the time of the survey, which is chosen by Jewish main respondents in one of five categories: (1) ultra-Orthodox, (2) religious, (3) traditional-religious, (4) traditional - not religious, or (5) secular. Moreover, the 2009 module also includes a wide range of self-reported information from main respondents on their religious practice, synagogue attendance, and the importance of religious rituals.

In all cases, we measure religiosity as self-defined by the main respondent at the time of the survey. Changes in religiosity over the life course may cause problems in terms of estimating demographic behavior by level of religiosity, because we do not have data on religiosity at every point in time. However, Hleihel (2011) shows that this issue has minor impact, at least on estimated period total fertility, for the secular Jewish population (Appendix 2a). The effects of changes in religiosity over the life course on estimated levels of period total fertility are more significant for the non-secular groups.

In all, it is rare to find a rich source of data on religiosity which is coupled with detailed fertility and other social, demographic and economic variables. Moreover, no other recent, micro-level data source, such as the ISSP or ESP, provides large enough sample sizes to be able to estimate accurately demographic measures by religiosity. I will be the first to use *recent, micro-level data* that measures religiosity directly in order to document demographic aspects of the family behavior of secular native-born Jewish adults, in comparison with the non-secular Jewish population, and other developed society populations. Moreover, we utilize the 2009 module to test the relation between SDT behaviors and attitudes at the micro-level among seculars.

Our analyses focus primarily on quinquennial birth cohorts, centered around 1950, 1955, 1960 and 1960. The first quinquennial birth cohort begins with 1948, the year of the foundation of the State of Israel. Thus, the birth cohorts are defined as: 1948-1952, 1953-1957, 1958-1962, and 1963-1967. In some cases, we are able to consider the birth cohort of 1968-1970. Younger birth cohorts were too young during the period 2002-2009 to have reached the end, or near the end, of the childbearing years, so cannot be considered in terms of analysis of completed fertility. For purposes of examining trends in age at first birth and other demographic behaviors, we sometimes also consider younger birth cohorts.

4. Diverse dimensions of family behavior in the Second Demographic Transition

In the last twenty years, there has been growing evidence of the spread of family demographic behavior, known as the Second Demographic Transition, from its origins in Northern and Western Europe, to other parts of Europe, North America, Asia and Oceania (e.g. Lesthaeghe 2010, Sobotka 2008, van de Kaa 1987). The characteristics of the Second Demographic Transition usually include below-replacement period fertility levels, but also go beyond this in terms of family structure, and the timing and sequence of life course events.

Perhaps the change which is first and foremost associated with the Second Demographic Transition is the postponement of fertility to older ages, which has often been associated with depressed period total fertility, to below-replacement levels. Decreases in age-specific period fertility below ages 25 or 30 are clear indicators of this type of behavior. As cohorts who previously postponed fertility age and begin to compensate for delayed fertility, period total fertility does often recuperate, although it usually remains below, or just-below, replacement level (Goldstein et al. 2009). In addition to cohort increases in age at first birth, other cohort indicators of SDT fertility behavior include declines in cohort completed fertility rates to below- or just-below replacement levels and increases in childlessness (Sobotka 2008).

In terms of marriage behavior, SDT is characterized by increases in non-marriage and in the age of marriage for those who do marry; a rise in non-marital cohabitation, increases in divorce, and declines in remarriage following marital dissolution. Associated with the decline in marriage is an increase in non-marital fertility, which is often a lagging indicator of SDT behavior, because it often conflicts with prevailing morality (Lesthaeghe 2010).

There are various explanations of the diverse types of behavioral SDT changes, particularly postponement of parenthood and sub-replacement fertility. These explanations include women's increased participation in non-familial activities such as higher education and the labor market, disparities between women's status in the public and private spheres, institutional factors associated with work/family compatibility, economic uncertainty, modern consumption patterns, and increasing costs of raising 'quality' children, (Caldwell and Schindlmayr 2003; McDonald 2000; Kohler et al. 2002). Other explanations have focused on the impact of the contraceptive revolution, which have allowed women increasingly perfect control over their fertility and the ability to invest further in careers (Murphy 1993; Goldin and Katz 2002). In addition, Lesthaeghe and others have stressed the importance of changing culture, in terms of a growing emphasis on post-materialistic values such as personal autonomy, self-realization and recognition, and have emphasized that the motivation for fertility during the second demographic transition is related to these ends. These cultural changes have been closely linked to processes of secularization (Lesthaeghe 2010). Below we consider various behavioral dimension of SDT in the context of native-born secular Jews in Israel.

4.1 Period measures of fertility: TFR, fertility postponement and recuperation

Recently, Hleihel (2011) has published period age-specific fertility estimates by level of current religiosity, based on information on Israel Social Survey data, linked to information on births from vital registration.⁴ Table 1, based on Hleihel (2011), suggests that the secular Jewish population in Israel, like many other OECD populations, has

⁴ Unfortunately, period data on age at first birth by level of religiosity is not available. Data published for the overall Jewish population shows that in 2009, the period average age at first birth among Jews was 27.9, an increase from 27.7 in 2006 (ICBS 2007, 2010). Interesting, that in terms of age at first birth, Israeli Jews do not enter parenthood at a particularly young age (Council of Europe 2005, p. 87). The same can probably be said for secular Jews.

followed a pattern of period fertility postponement. Beginning from the earliest period documented (early 1980s) and continuing through 2007-2009, there have been large declines in period fertility rates at ages 20-24 and 25-29; declines at these ages were particularly steep during the 1980s and 1990s. Continued declines at ages 20-24 and 25-29 are apparent through the latest period available, 2007-2009; these continued declines are suggestive of continuing fertility postponement, although there may be a recent deceleration in the rate of postponement. In contrast, at ages above 30, little systematic change in fertility rates among seculars is apparent during the 1980s and early-to-mid 1990s. However, beginning in the mid-1990s, increases in fertility at ages 30 and above become apparent.

Declines in fertility at ages 20-29, followed by a later increases in fertility at ages 30 and above is consistent with the pattern of delayed fertility and later recuperation among seculars. Together, these trends led to declines in the period total fertility rate from 2.36 in 1980-1982 to a low of 1.69 in 1989-1991, followed by a subsequent increase to 2.07 in 2007-2009. During the period 1989-2003, total fertility among secular Jews was at a below-replacement level (below 2.0). Since 2007, total fertility among seculars has increased to just above this level (2.07). It is important to note that since 1990, there are large proportions of immigrants from the FSU who are enumerated as part of the secular Jewish population. This immigrant group is known to have extremely low fertility, particularly in the years immediately following immigration (Okun and Kagya 2010). Thus, if the data used by Hleihel had been limited to native-born secular Jews, the estimated values of TF would have been somewhat higher, particularly during the 1990s, thus shortening, or perhaps nearly eliminating the period of sub-replacement fertility.

Among the non-secular Jewish population, trends of this type are either non-existent or much more moderate in size (figures not shown here). For example, among ultra-Orthodox women, total fertility actually increased during the period 1980-1982 to 2007-2009 from 5.96 to 6.53, reaching a peak in 2004-2006 at a level of 7.51. Among religious women, total fertility increased during the same period from 3.60 to 4.26. Among the two groups of traditional women (those who define themselves as traditional/religious and those who define themselves as traditional/not religious), total fertility has declined steadily during the same period, but has never reached below-replacement levels.

Thus, evidence suggests that in terms of period measures, secular Israelis have followed the patterns of SDT, in terms of fertility delay and later recuperation, leading to temporarily below-replacement fertility, followed by a moderate increase in total fertility. Other religiosity groups do not show these same trends. We note that, despite seculars having the same typical pattern of SDT delay, recuperation and temporarily below-replacement fertility, total fertility was, throughout the periods examined, and remains above that of nearly all other OECD populations (Frejka and Sobotka 2008).

4.2 Cohort Measures of Fertility

4.2.1 Fertility postponement

We first examine the average age at first birth among native-born, parous women in completed or near completed fertility cohorts born during the mid-1960s. Table 2 shows that the average age at first birth, based on women aged 40 at the time of the surveys of the 1963-1967 birth cohorts is 27.1, among secular women.⁵ This is high, and close to levels in Ireland, Sweden, Denmark, Spain and Italy. Most other European countries have lower ages at first birth in these cohorts. The only country with higher ages at first birth in these cohorts is the Netherlands (Council of Europe 2005). It is possible that age at first birth is delayed by mandatory military or civil service of roughly 2 years for women, which usually begins at age 18. Also, because Israel has high levels of tertiary education, particularly among young cohorts, this can also further delay the onset of parenthood.

For non-secular women, the Table shows that the average is still fairly high, but lower: 25.3, and for the overall Jewish population, 26.1. The difference in average age at first birth among seculars and non-seculars (1.8 years) is statistically significant at the 5% level of significance in a two-sided test. For non-secular women and the overall Jewish population, the averages are fairly close to most Northern, Western or Southern European pops for those cohorts, and higher than for most Central and Eastern European cohorts.

We now investigate change in the age at first birth among native-born women in the birth cohorts 1962-1984. Table 3 presents estimated coefficients from Cox regression of the first birth, by level of religiosity. In these analyses, women who have not had a first birth by the year of the survey are treated as censored cases. In all cases, women are right-censored at age 40. The table shows that there is increasing postponement of the first birth in all secular cohorts since the early 1960's, through the 1980-84 birth cohort. For example, the first-birth rate of women born in the latest birth cohort is 70% lower than for women born in the earliest birth cohort $(1-.30)*100$. We see that among non-secular women and all Jewish women, there has also been increasing age at first birth since the 1960s birth cohorts, but the change is much less dramatic.

4.2.2 Cohort Completed Fertility (CF) and Final Parity Distributions

As discussed above, SDT behavior is thought to be related to below- or just-below-replacement cohort fertility (as well as period fertility). Table 4 reports estimated values of CF for the total Jewish population, the non-secular population, and the secular population, for quinquennial birth cohorts starting from 1948-1952 through 1963-1967, and also for the birth cohort 1968-1970. With the exception of the last birth cohort, only

⁵ The information on age at first birth is derived using the own child method, based on information of the oldest child in the household and woman's current age (give refs). We do not include in our sample women aged 41 and older at the survey date, since it is more likely that these women have an older child who has already left the household. We also include only women for whom we have correspondence between number of children found in the household and reported number of children ever born. The proportions with this correspondence is well over 90%. Thus, because of data limitations, we cannot consider earlier birth cohorts.

women who were at least 40 years of age during the survey year were included in the analyses in this section and in sections 4.2.3, 4.2.4, and 4.2.5., so that CF reflects completed, or nearly completed fertility. For the 1968-1970 birth cohort, women were aged 37 and over during the survey year, so their completed fertility may be slightly underestimated.

Table 4 reports that the CF values of native-born Jewish seculars around 1950, 1955, 1960, 1965, and 1969 were 2.7, 2.6, 2.5, 2.3 and 2.3 respectively. The figures show a decline in CF, and values from later birth cohorts differ significantly from that of the earliest birth cohort. Still, in all birth cohorts considered, the CF among secular Jews in Israel is higher than in the U.S. and nearly every European nation (values are close to those in Ireland and Iceland in some cohorts) (Council of Europe 2005). In Europe around 1950 and 1955, CF rarely exceeded 2.2 or 2.3. Typical W. or N. European levels are just around 2.0. In Europe in 1960 and 1965, CF generally did not exceed 2.1, with most levels a bit below 2.0 (lows were 1.6). For example, in the UK cohort fertility for the birth cohort of 1955, 1960, and 1964 was 2.0, 2.0 and 1.9 respectively (Office of National Statistics, 2010). In the U.S., Cohort Completed Fertility for Whites for the birth cohorts of 1955, 1960 and 1965 were 1.9, 2.0 and 1.9. (U.S. Center for Disease Control). We note that given that national values of CF in European and U.S. populations reflect the heterogeneity in those nations in terms of immigrant status, religion, and religiosity, we suspect that the CF values in those countries would be even lower than they are, if they were computed based on native-born secular populations only. Thus, our comparisons with European and U.S. populations are likely to *underestimate* the differences in fertility measures between the secular Jewish population of Israel and secular, native-born European populations.

When we consider the total Jewish population, CF values are nearly constant over birth cohorts, at a level of 3.0. These values are extremely high when compared with European figures (Council of Europe 2005). Some of the highest CF levels in Europe for the 1965 cohort are found in France (2.03), Norway (2.07), and Ireland (2.19), all significantly below the 3.0 level documented among Jews in that cohort. However, the table reveals that the constancy in overall CF masks differing patterns in the secular and non-secular groups. Among non-seculars, CF values are high and nearly unchanging, near 3.5. Total Jewish CF remains unchanged because of the increasing relative size of the non-secular group over the birth cohorts.

We now turn to Table 5, which presents parity distributions by level of religiosity for quinquennial birth cohorts.⁶ Stability as well as change characterizes the secular population, which experienced a large shift out of 4+ families (from 16.1% in the earliest cohort to only 7.0% in the latest cohort) and a small, but statistically significant increase in childlessness (discussed below in 4.2.4). There is little or no consistent change in the proportions of seculars with exactly one, two or three children. Still, in terms of international comparisons, the secular Jewish population has high cohort fertility, high proportions with large families (3 or more), and low proportions with one-child families.

⁶ The sample of native-born secular women born during 1968-1970 was too small to allow for detailed analysis of final parity distributions, because data was limited to survey years in 2007 and onwards.

For example, the proportion of secular Jewish women with 3 or more children stood at 50% for the 1963-1967 birth cohort, while the corresponding figure for U.K women in the 1964 birth cohort is 29% (Office of National Statistics, 2010). No European country had proportions of more than 40% with 3 or more children among the 1965 birth cohort, and most had 30% or less with 3 or more children (Frejka 2008). This is discussed below in section 4.2.3. In terms of one-child families, the proportions among native-born secular Jews around the 1965 birth cohort (8.7%) are very low compared to European populations, which range from a low of about 12% in England and Wales to a high of 37% in the Russian Federation, with typical values from 15%-25% (Frejka 2008).

Again we note that the trend over birth cohorts among seculars differs from that of the overall population. The parity distributions for non-secular Jews and for the total Jewish population show a remarkable stability over time, with the exception of a significant increase in the per cent of women with 7 or more children. This increase reflects primarily the behavior of the ultra-Orthodox population.

4.2.3 Continuing dominance of the three-child ‘norm’ in cohort completed fertility among secular Jews.

A striking difference in modal family size between secular Jewish Israelis and European national populations is probably the most noteworthy distinction in fertility patterns we have uncovered. Among native-born, secular Jews in Israel, the three-child family is clearly the modal family, in all four birth cohorts centered around 1950, 1955, 1960, and 1965, with just over 40% of women having exactly three children. Proportions with exactly two children are much lower, close to 30% (Table 5).⁷ In contrast, in all of Europe, the two-child norm has been firmly entrenched for decades, and is very common for birth cohorts of the 1950s and 1960s (Frejka 2008), with roughly 40% or more of women with completed fertility having exactly two children.⁸ For example, even in a relatively high-fertility setting such as the U.K., the two-child family has been the modal family since at least the birth cohort of 1920, including the birth cohort of 1964, with about 40% of women having exactly two children in recent cohorts. For birth cohorts over the last half century, only roughly 20% of women have had exactly 3 children. Again, if we had data on native-born secular Europeans, the differences in parity distribution vis a vis secular Jewish Israelis might be even larger.

Again, the completed parity distribution of non-secular Jews in Israel differs dramatically from that of seculars. Among non-secular Jews, 40% or more have at least 4 children in all birth cohorts (Table 5).

⁷ What’s surprising is that very large families (4+) are slightly more common in the UK than among the secular Jews in Israel. 10% of the 1964 birth cohort in the UK have 4+ children in 2009, while only 7.3% of secular Jews in the 1965 birth cohort at 4+ in 2005-2009. This probably reflects the greater heterogeneity of the UK population, in terms of ethnicity, religion, socioeconomic status and demographic characteristics, as compared to the Jewish secular population.

⁸ That being said, there are some signs of the incipient decline of the two-child family, with increasing childlessness and one-child families in some areas.

4.2.4 Very low proportions of one-child families

In terms of one-child families, the proportions among native-born secular Jews around the 1965 birth cohort (8.7%) are very low compared to European populations, which range from a low of about 12% in England and Wales to a high of 37% in the Russian Federation, with typical values from 15%-25% (Frejka 2008). As Table 5 indicates, the proportions with exactly one child is statistically significantly higher in the cohort around 1965 as compared with the first cohort born around 1950. Thus, one-child families among seculars remain rare, but are on the rise.

Secular women in birth cohorts 1948-1969 with exactly one child have either experienced marital dissolution, or were never married, to a disproportionate extent. Among women with exactly one child, 35% had experienced marital dissolution, and an additional 21% were never-married. Among all other women, these percents were only 18% and 7%. These findings suggest that the one-child family among secular Jews is not normative, but rather is often the result of marital dissolution or non-marriage (discussed below). We suggest that with increasing non-marriage and marital dissolution, the proportion of secular women with exactly one-child may continue to increase in future.

4.2.5 Low levels of childlessness

As Table 5 shows, for Jewish secular women, proportions childless in cohorts around 1955, 1960 and 1965 are 6.3%, 6.5% and 10.4%. Despite the statistically significant rise in childlessness in the last secular cohort examined, these proportions childless among the 1965 cohort remain on the low end, relative to most of Europe, where proportions childless ranging from a low of 5.1% in Portugal to a high of 24% in Italy, with typical values from 10%-20% (Frejka 2008). Low levels of childlessness among seculars in Israel, in addition to the dominance of the three-child family and small proportions with one child, contribute to high completed fertility among this group. Levels of childlessness among the non-secular Jewish population of Israel are also low and generally similar to levels of the seculars, except that among non-seculars there is no apparent increase in childlessness in the last birth cohort examined.

4.3 Marriage and cohabitation

4.3.1 Low but increasing levels of non-marriage among women aged 40 and over

Table 6 shows a substantial increase across cohorts in non-marriage by age 40 among that secular Jewish women. Non-marriage among seculars, while rare in the earliest birth cohorts (4.4% among the 1948-1952 birth cohort) increases during the early and mid-1960s, reaching 13.5% in the birth cohort centered on 1965. Non-marriage also appears on the rise in most European countries, during the 1960s birth cohorts (Council of Europe 2005, pp. 71+). In many Northern and Western European countries, non-marriage began increasing during the 1950s cohorts, and reached levels of 20% and higher in the 1965 birth cohorts. The decline in marriage started later in most Southern, Central and Eastern European countries - during the 1960s birth cohorts - reaching levels of 10-15% in most countries by the 1965 birth cohort. Thus, in the dimension of non-marriage among women aged 40 and over, secular Jews in Israel appear similar to populations in countries such as Italy, Spain, and Hungary. Marriage, while clearly no longer nearly universal among secular Jews, is still a predominant form of behavior

among women born during the 1950s and 1960s. Among non-seculars, there is no significant change in non-marriage among non-seculars across cohorts.

4.3.2 Marriage Postponement and Increasing Non-marital Cohabitation among Young Adults

Table 7 reports proportions never-married among women and men aged 20-29, by sex and period.⁹ The Table reveals statistically significant increases in proportions never-married among young, secular women and men between the periods 2002-2005 and 2006-2009, from 75.6% to 80.5%. These increases in proportions never-married are consistent with marriage postponement (and/or avoidance) among young secular adults, as predicted by SDT. We did not find comparable OECD data with which to compare proportions never-married at these ages. We note that non-secular Jewish women have also shown signs of significant marriage postponement between the two subperiods, but their proportions never-married remain very much lower than those of secular women. Non-secular men showed no significant change in proportions never-married between the two subperiods.

Table 8 reports proportions currently cohabiting and currently married among women and men aged 20-34 at the survey date, broken down by year of survey and religiosity.¹⁰ We present proportions currently cohabiting and currently married in this age group, for men and women together, in order to ease comparisons with published data (OECD 2010b). When we consider secular Jews only during the period 2002-2009, 7.6% were cohabiting and 31.9% were currently married. The proportion of native-born secular men and women who were currently married fell from 33.0% to 30.7% between the subperiods 2002-2005 to 2006-2009 (change not statistically significant at the 5% level); thus, proportions currently married in this age group remained around the average of 31.4 for the OECD-25 countries in recent years. The proportion cohabiting among seculars increased significantly from 6.3% in 2002-2005 to 9.2% in the period 2006-2009, but remains below the OECD-25 average of 12.4% in recent years (OECD 2010b). This upward trend in cohabitation is consistent with SDT, and the overall levels of cohabitation are not very low relative to European standards, although most Northern and Western European countries have much higher levels. Current levels of cohabitation among seculars are close to those in some Southern and Eastern European populations, which had lagged transitions to cohabitation (Lesthaeghe 2010). These increases in cohabitation among seculars are consistent with attitudinal data based on the ISSP surveys, which show increases between 1994 and 2003 in approval of non-marital cohabitation among secular Jews in Israel (Glickman et al. 2003).

Among all native-born Jews during the period 2002-2009, 4.6% were currently cohabiting and 42.2% were currently married. Compared with European countries, the

⁹ The data do not allow us to ascertain age at first marriage for all ever-married adults, because there is incomplete information regarding the timing of first marriage for persons no longer in their first marriage.

¹⁰ The Social Surveys do not contain direct information on cohabitation. Thus, information on current cohabitation is garnered indirectly as follows. Women who are not currently married, but are living with a partner, are considered to be cohabiting non-maritally. To the extent that some long-term cohabitators report that they are married, we may be underestimating proportions cohabiting, particularly among the secular group.

overall figure of 42.2% married is strikingly high – much greater than the OECD average of 31.4% -- and exceeded only by the proportions married in Lithuania, Romania, and Cyprus (OECD 2010b). The overall figure of 4.7% cohabiting is low – much lower than the OECD average of 12.4%. Thus, overall, the Jewish population appears to be holding on to traditional marriage behavior with low levels of cohabitation, although as seen above, the picture for seculars differs dramatically.

4.4 Low but increasing marital dissolution

Here we examine marital dissolution by level of religiosity. The data we use are limited by the fact that they do not contain information on the timing of dissolution for all separated or divorced women. However, in all years from 2003 and onwards, the data contain information on current marital status and number of times married. Based on this information, we compute the proportion of ever-married women (currently married, separated or divorced) who have ever-divorced, or who are currently separated. In our first set of analyses, we exclude widowed and never-married women, since widowhood is rare in the cohorts we examine, and never-married women are not exposed to marital dissolution.

We carry out the first analysis for women broken down by birth cohort (1948-1952 through 1968-1969) and by level of religiosity. In the *absence* of an upward trend in marital dissolution rates, we would expect that the proportion ever-divorced or separated among ever-married women would *decline* across the birth cohorts because women in later birth cohorts have shorter exposure to dissolution up to the survey date. However, if dissolution rates are significantly *trending upward* over birth cohorts, we would expect to see fairly *constant* proportions ever-divorced or separated among ever-married women, across birth cohorts. This follows because higher dissolution rates among later birth cohorts would tend to cancel out the effects of their shorter exposure to dissolution.

Table 9 presents the proportions of ever-married women who have ever-divorced or who are separated, by birth cohort and level of religiosity. The last birth cohort we examine are women born in 1968-1969 because later birth cohorts are in their 30s during the survey period and have very partial exposure to divorce. The Table shows that that among secular Jewish women, there is almost no change across birth cohorts in the proportions who have ever divorced (proportions are roughly constant at between 22.0%-22.6%). Change over the secular birth cohorts are not statistically significant according the Chi-square statistics at the 5% level. The fact that the cumulative proportion ever-divorced or separated is nearly constant over 20 years of birth cohorts is an indicator of higher dissolution rates among younger birth cohorts than among older birth cohorts. That is, dissolution rates have increased. This increase in marital dissolution among seculars is consistent with attitudinal information based on ISSP data, which shows increases in tolerance for divorce and single-parent families among secular Jews between 1994 and 2003 (but no change among more religious sectors of the population) (Glickman et al. 2003).

In contrast, among non-secular Jews, and among all Jews, there are statistically significant declines over birth cohorts in the proportions ever-divorced or separated.

Among non-secular Jews, proportions ever-divorced or separated decline from around 17-18% in the earlier birth cohorts to 12-14% in the latest birth cohorts. In particular, the proportions in the last two birth cohorts are statistically significantly different than in the the 1953-1957 birth cohort, at the 5% level. This decline in proportions ever-divorced or separated is consistent with a relative constancy in dissolution rates across birth cohorts. Thus, the findings reported in Table 9 suggest that dissolution rates among seculars have been increasing, while analogous rates among non-seculars have been either increasing less, or have remained fairly constant over time. An examination of probabilities of divorce for all native-born couples married in Israel shows that divorce probabilities have been increasing (Israel Central Bureau of Statistics 2011). Our analyses here suggest that the increase in overall divorce rates among Jews in Israel is being driven primarily by the behavior of secular Jews.

The limited information on divorce in the Social Surveys do not allow us to make direct comparisons between the secular Jewish population of Israel and European or other populations. Moreover, a dearth of comparative international statistics on divorce rates limits us further to the use of crude divorce rates. However, we may be able to come some general conclusions about the comparative divorce rates of secular Jews indirectly, as follows. Official statistics of Israel report the numbers of divorces by religion, so that we are able to compute a crude measure of the divorce rate per 1,000 Jewish population, including seculars and non-seculars. In 2009, there were 1.93 divorces per 1,000 Jewish population (ICBS 2011). However, as shown above, divorce is more common among seculars than among the overall Jewish population. We now use the information on proportions ever-divorced by religiosity among all women (regardless of current marital status) to construct rough correction factors that will provide a range of plausible values for the crude divorce rate among secular Jews.¹¹

In particular, the ISS data for 2003-2009 indicate that for all women in the birth cohorts 1963-1969 – women who are probably near their peak divorcing ages during the survey period - proportions ever-divorced are 15%-30% higher among seculars than among all Jewish women (author calculations). Thus, if we increase the crude divorce rate for all Jews in 2009 by about 15-30%, we will have a rough indicator of the crude divorce rate among seculars during 2009.¹² By this process, we estimate that the crude divorce rate per 1000 population among secular Jews in Israel around 2009 is roughly between 2.2 and 2.5. These figures are mid-range of many OECD countries, way below rates found in the United States and Belgium, but higher than in Japan or Italy (OECD 2010c). This finding is consistent with the suggestion that while secular divorce rates were low in the past, they are currently tending towards levels which are typical for many European countries, such as the U.K. and Germany.

¹¹ For the purpose of estimating crude divorce rates, it is more appropriate to consider divorce among all women, rather than among ever-married women.

¹² On the one hand, this may provide an underestimate of the secular divorce rate, due to prevalence of multiple divorce among ever-married women which cannot be captured with the available data. On the other hand, this may provide an overestimate of native-born secular divorce rate, since divorce rates of the foreign born (particularly those from the FSU) are likely to be higher than those of the native-born (Raz-Yurovich and Okun 2011).

4.5 Little non-marital fertility before advanced ages

Although the Social Surveys do not contain direct information on marital status at the time of each birth, we can get a handle on non-marital fertility by examining the proportion of never-married women with at least one child. Of course, this type of analysis provides lower bounds on non-marital fertility since there may also be non-marital fertility among ever-married women.

Table 10 presents the proportion of never-married women with at least one child, broken down by age at survey. The table indicates that single, secular women don't tend to have children until the late 30s; for younger women, non-marital fertility is rare. However, it appears that over age 35, non-marital fertility becomes commonplace – either in the framework of cohabitation, or as a single mother (data do not allow us to distinguish between the two possibilities). During the period 2002-2009, about 25% of single women at ages 35-39 have at least one child, and about 35% of single women aged 40-44 and 45-49 have at least one child. There does not seem to be a trend over time when comparing the subperiods 2002-2005 vs. 2006-2009 (figures not presented here). This pattern of very little non-marital fertility at the young ages, followed by more common non-marital fertility at the older ages, is suggestive that single motherhood is a 'last resort' for older women who are not married, but would like to have a child. This does not seem to suggest that non-marital fertility is viewed as normative behavior or as an alternative life course scenario, even among the secular population.

Non-marital fertility, often among cohabiting women, has been found, in the cases of some Eastern Mediterranean and Asian industrialized countries, to be the last and lagging stage of the SDT. In these countries, clear indicators of SDT behavior, including postponement of fertility, sub-replacement fertility, increases in age at marriage and increases in cohabitation and divorce have occurred, but there is still no evidence of substantial or increasing levels of non-marital fertility (Lesthaeghe 2010). It also appears that non-marital fertility is a lagging feature of SDT behavior among the secular Jewish population of Israel.

It is interesting to note that non-marital fertility at ages 30 and over, at least as measured here, is about as common among the non-secular population as it is among the secular population. This may seem surprising since non-seculars differ so dramatically in all of their marriage and fertility behavior from non-seculars, with this one exception. Our interpretation of this finding is in terms of pro-natalistic Jewish society, in which even non-marital childbearing may be considered a better alternative to childlessness, among certain sectors of the secular and non-secular groups; this is despite strong norms of marriage.

5. Summary and Discussion

When we look at the completed fertility of secular cohorts (born 1950-1969,) we find high, but declining levels of above-replacement fertility; a consistent and clear modal family size of three; low, but increasing, levels of childlessness, one-child families and non-marriage; and the suggestion of increasing marital dissolution. The mid-1960s birth cohorts are particularly interesting because they are well into the process of fertility

postponement,¹³ compared with the 1955 and 1960 cohorts, but still have substantially above-replacement completed fertility and a pronounced 3-child norm. This pattern differs from nearly all other mid-1960s birth cohorts in European and other developed countries, which have below-replacement fertility and a two-child norm (Frejka 2008). Thus, there are clear signs of some incipient SDT behavior among secular Jews in Israel, but with above-replacement fertility. Sobotka (2008) discusses the possibility of SDT behavior which is accompanied by near-replacement cohort fertility, as evidenced for example in some W. European countries and in the United States. However, even compared with these 'high fertility' examples cited, the cohort levels of completed fertility among native-born secular Jews in Israel is very high (see Table 4), especially when considering the fact that the W. European, U.S. and other developed country fertility statistics are elevated by population heterogeneity in terms of nativity and religiosity (Sobotka 2008; Lesthaeghe 2010).

When we look at secular women and men in the childbearing years during the 2000s, we see continued postponement of the first birth, increasing proportions currently cohabiting, and growing acceptance of non-marital cohabitation (Glickman et al 2003). Although there appears to be little non-marital fertility before advanced ages, and proportions currently married are about average for OECD countries, the secular Jewish population attained higher than average, replacement-level TFR in the period 2007-2009 (Hleihe 2011).¹⁴ This suggests that the marital fertility rates of secular Jews must be relatively high, although we do not have direct information on this. Overall, it is interesting to note that secular Jews appear to be outliers among developed country populations in terms of maintaining period replacement-level fertility, while still having fairly 'traditional' paths to parenthood (Billari and Kohler 2004; OECD 2010a).

In summary, when looking at women with completed fertility, and at younger women in the childbearing ages during the 2000s, native-born secular Israeli Jews are outliers, in that they maintain unexpectedly high cohort and period fertility, despite showing signs of incipient STD behavior. We now explore some possible reasons for this high fertility.

We start by attempting to rule out the possibility that this high level of fertility is unintended, resulting from ineffective contraceptive use or limited abortion services.¹⁵ Goldstein and Testa (2003) and Testa (2007) point out that in Europe and other developed societies, fertility ideals are much higher than actual fertility, thus suggesting

¹³ This can be deduced from examination of the time-series of age-specific period fertility rates for secular Jews in Hleihe (2011).

¹⁴ We note again that the figures reported in Hleihe most likely underestimate period fertility for native-born seculars, as those figures include immigrants from the FSU, whose fertility is generally lower than that of native-born seculars.

¹⁵ Contraception in Israel is widely available, although costs are not covered by National Health Insurance. According to a 1998 survey of women's health, female and male sterilization are used extremely rarely by Israeli women, while hormonal methods and IUDs are used commonly (Yifrach 2000). Abortion is legal, but is not on demand. It is believed that there is a significant illegal but safe abortion service market, although reliable figures which quantify this are not available. Overall however, even including the illegal services, abortions levels are not thought to be particularly high by international standards, especially among native-born Jewish Israelis (Sabatello 1995).

that there is little room for imperfect contraception to be inflating fertility, at least on the aggregate level. We find that this is also the case among native-born secular Jews in Israel. Among those aged 40-55 in 2009, ideal family size was 3.3 on average, which was 0.8 children higher than actual completed family size; moreover, 60% of women had fewer children than what they consider ideal. Thus, if native-born secular women actually had their ideal number of children, cohort completed fertility would have been even higher than it was. This analysis suggests that large family size among seculars is not unintended.

To gain greater insight into the high level of secular fertility, we now discuss at greater length two of the most striking differences we noted between secular Jewish Israelis and European and other national populations in terms of completed family size distributions in the mid-1960s birth cohorts: (1) the very low proportions with exactly one child; and (2) the very high proportions with exactly three children. We suggest that these two differences arise as a result of the combination of two interrelated factors: (1) large family size ideals among secular, native-born Jews; and (2) relatively low levels of marital dissolution and non-marriage in the past. Given that the overwhelming proportion of births occur within marriage, it is quite likely that the large family size ideals reinforce values of the importance of marriage.

5.1 How marriage and divorce patterns, in combination with high ideal family size, impact secular fertility

Of native-born secular women aged 25-39, the average general ideal family size is 3.1 (n=304).¹⁶ An average ideal of 3.1 for women aged 25-39 in 2009 is very high, compared to EU-25 countries which average 2.3, including a low of 1.6 and a high of 2.9 (Testa 2007). Moreover, among secular native-born Jews aged 25-39 in 2009, 55% report a family size ideal of exactly 3 children, 18% of two children, and 26% of four or more children; just over 1% report ideals of 0 or 1. In contrast, there appears to be an emergence of below-replacement family size ideals in Europe, beginning in Austria (Testa 2007).

We suggest that among secular Jews in Israel, childlessness or having one child may be the result of early marital dissolution or non-marriage, rather than low family size ideals. Testa (2007) argues that in Europe the main reason women report for not attaining ideal family size is the lack of an appropriate partner. As discussed above, among Jewish seculars, only about 1% of women report ideal family sizes of 0 or 1. Moreover, one-child families occur disproportionately among women who have experienced marital dissolution or who have never married, and childlessness is also concentrated among women who have never-married. That is, women who have experienced marital dissolution early may not have had the opportunity to have more than one child, while never-married women may choose not to have more than one child, especially if they do not have a stable partner. For these women, childlessness or having one child was not considered ideal, but they did not attain their ideal family size. If this is the case, then low

¹⁶ This is in answer to a question in the 2009 ISS. "In your opinion, what is the ideal number of children for a family?" This question is very similar in wording and meaning to the question on general ideal family size asked in the Eurobarometer surveys (Goldstein and Testa 2003).

levels of marital dissolution and non-marriage in the past have in a sense allowed women to get closer to their (large) family size ideal, and have kept childlessness and one-child-families rare.¹⁷ An in-depth discussion of the causes of increasing marital dissolution and non-marriage in recent cohorts is beyond the scope of this paper, but should be examined further in future research (see Raz-Yurovich 2010).

Thus, this discussion suggests that among the implications of continued increases in marital dissolution and non-marriage among seculars, are increases in the proportions of childless women and women with one child, and declines in the proportion with three or more children, thus depressing cohort completed fertility, even if ideal family size remains high. In short, marriage patterns combined with high family size ideals have kept secular fertility high in the past, but that effect may weaken in future. We turn now to a consideration of the reasons behind the high family size ideals.

5.2 What lies behind higher ideal family size and higher completed fertility?

We argue above that high ideal family size is a key to understanding the unusual fertility patterns of secular Jews. We now turn to the question of why ideal family size is higher among native-born seculars than among most developed country populations. We review various explanations and attempt to explore the extent to which these points can plausibly explain the high family size ideals and patterns of fertility among native-born secular Jews, described above. When we discuss family size ideals, we generally refer to women aged 25-39, whereas when we discuss fertility patterns, we refer to women with completed fertility. We feel that for older women, family size ideals are less informative than for younger women who are still in the childbearing ages.

Mizrahim have higher fertility and higher fertility ideals

The Jewish population of Israel is ethnically diverse, and its diversity stems from the waves of migration from Europe, Asia and Africa, which have taken place at different times since the foundation of the State in 1948 (Friedlander and Goldscheider 1979). Although we limited our analyses to native-born Jewish Israelis, many of those included in our sample are second-generation immigrants (the children of immigrants). Historically, there have been important differences in demographic behavior, particularly between Jewish immigrants of W. Asian and N. African origin (known as Mizrahim) and those of European and American origin (known as Ashkenazim) (Friedlander and Goldscheider 1978; Friedlander et al. 2010). Mizrahim were generally thought to be more traditional in their religious beliefs, and also to have more traditional family behavior and attitudes (Okun and Khait-Marely 2008). Although we break down our analyses by level

¹⁷ Another partial explanation of the low levels of childlessness and one-child families in Israel may be related to public policy in the area of assisted reproductive technology. Israel has a very generous policy of providing heavily subsidized infertility treatment and assisted reproduction for the first two births, and use of these services is very widespread relative to other countries (Shalev and Gooldin 2006). While there has been no study which attempted to measure the impact of these programs on fertility in Israel, research based on the Netherlands (another country with high use of assisted reproduction) suggests that there may be a small but non-trivial impact on Dutch fertility, raising total fertility by approximately 0.1 births (Habemma et al. 2009). We suggest that this factor in the Israeli case may have an effect specifically on reduced childlessness and one-child families.

of religiosity and focus primarily on seculars, it is still possible that the Mizrahi seculars have larger family size ideals than their Ashkenazi counterparts. To explore this possibility, we compute ideal family size separately for Mizrahim and others (second-generation Ashkenazim and third-generation) in the sample of native born seculars (aged 25-39). Ideal family size among Mizrahim is slightly higher (3.2) than among others (3.0), but even if we exclude Mizrahim from our sample, we are still left with an ideal family size among native-born seculars which is above the highest level recorded in Europe.¹⁸

We also note that when we consider cohorts with completed fertility (1948-1967), Mizrahim did have slightly higher average completed fertility (CF of 2.7) than others (CF of 2.5), but since Mizrahim make up only approximately 30% of secular cohorts with completed fertility, they do not affect the overall averages much (compare to Table 4).¹⁹ Thus, as has been suggested in the literature (Friedlander and Feldmann 1993), ethnicity no longer appears to be a very important predictor of fertility, especially once religiosity factors are taken into consideration. Moreover, the high fertility ideals and the high completed fertility of native-born seculars stand, even if we exclude Mizrahim from the analysis.

Relatively high average income among seculars

Seculars have higher household income than other groups in Israel, and according to the Social Surveys 2002-2009, the median gross household income in secular households (the main respondent being secular) was 12,000 NIS per month (author calculations). According to purchasing power parity in 2005 (OECD 2005), median gross household income among secular Jews in Israel is about 75% of the median gross household income in the United States in 2005 (U.S. Census Bureau). We note that among younger women aged 25-39 in 2009, there is a statistically significant and positive bivariate relationship between household income and having a family size ideal of at least three. However, in a multivariate regression the effect of household income on family size ideals is no longer statistically significant.²⁰ Among women with completed fertility, higher income among seculars is associated with greater odds of having at least 3 children among birth cohorts of 1948-1967, both in bivariate and multivariate analyses.²¹ Thus, seculars have fairly high incomes; and although those with higher income do not have higher family size ideals, they do come closer to attaining those ideals, and thus ultimately have more children.

¹⁸ When we considered a model of ideal family size among native-born secular women aged 25-39 in 2009, Mizrahi second-generation ethnicity (as compared to Ashkenazi second-generation and all third-generation women) does not have a statistically significant effect on the odds of having an ideal family size of three or more, in a multivariate regression controlling for age, educational attainment, student status and household income.

¹⁹ In a multivariate logisitic regression of the odds of having at least 3 children among women with completed fertility (birth cohorts 1948-1967), there is no significant effect of Mizrahi ethnicity, in models that also control for birth cohort, woman's educational attainment, whether she is once-and-currently married, and family income.

²⁰ The multivariate regression controls for age, educational attainment, student status, whether the respondent is once-and-currently married, and Mizrahi ethnicity.

²¹ The multivariate regression controls for for birth cohort, educational attainment, whether she is once-and-currently married, and Mizrahi ethnicity, among women in 2002-2009.

These findings, however, do not necessarily suggest that seculars have larger families than other national populations because of their relatively high income. That is because the micro-level, cross-sectional relationship between household income and fertility among women in the U.S. and other rich countries is usually found to be negative or insignificant (e.g Jones, L., A. Schoonbroodt, and M. Tertilt. 2010). Indeed it is interesting that there is a significant positive relationship between household income and the odds of having at least 3 children in Israel, as this differs from the U.S. and other rich countries.

The 'insurance' effect

The literature about Israeli demography has often noted that Israel is in a unique position because of its constant state of conflict with neighboring Arab States. This long-standing conflict is associated with the two-to-three-year long mandatory military service required of Jewish women and men, and with the additional, extended reserve military duty performed by many. Some researchers have suggested that Israelis are motivated to have large families as a result of mortality and morbidity risk they perceive their children may face during military service (Anson and Meir 1996; Friedlander and Goldscheider 1978; Smootha 2005). Since mandatory military service normally occurs starting at age 18, forward-looking parents must 'hoard' children in advance since they will likely be too old to have another child if one of their children dies during his or her military service. Moreover, since girls are given the option to substitute civil service instead of military service, but boys are not, and boys are much more likely to be in combat units, it seems likely that the 'hoarding' motive would be felt more strongly among those parents whose first and second children were boys, rather than girls. If this consideration were important, then we would expect to see that progression to the third birth among women with two boys would be higher than progression to the third birth among women with two girls or with one girl and one boy. We tested this hypothesis by looking at native-born secular women with at least 2 children, aged 39-41 at the time of the surveys (2002-2009), and we noted that regardless of the sex composition of previous children, parity progression to the third birth occurred among 62%-63% of women. Thus, there seems to be no prima facie evidence in support of the 'hoarding' hypothesis as a major motivation for higher fertility.

Public policy, women's roles and division of household labor

Israel has work/family policies that are highly supportive of working mothers, including income tax deductions that increase with the number of children, publicly supported child care which is directed primarily to children of working mothers, and a large public sector which provides employment and promotes work continuity among mothers of young children (Stier, Lewin-Epstein and Braun 2001; Okun, Oliver and Khait-Marely 2007).²²

²²Israel also has social welfare policies that promote high fertility, including child allowances, but the fertility effects of these allowances are estimated to be small. Moreover, the child allowances are directed primarily at very large families with at least four children (Schellekens 2009). Thus the child allowance policy will not be expected to have an important effect on the fertility of secular Jews in recent birth cohorts.

In addition, the division of household labor among Israeli couples is relatively egalitarian (Raz-Yurovich 2011), and outsourcing of housework is fairly common, at least in comparison to Germany (Lewin-Epstein Stier and Braun 2006). Theory suggests that factors associated with relatively weak work-family conflict will lead to high fertility as well as high labor force participation rates among secular Jews (McDonald 2000; Diprete et al. 2003). Indeed, secular native-born women have higher employment rates than all native-born non-secular Jewish women in Israel, and the employment rates of the former group are also high, based on international comparisons. The employment rate among native-born secular Jews aged 25-54 during the period 2002-2009 stood at 79%, significantly higher than the OECD average of 69%, and lower only than the figures in some Scandinavian countries (author computations, and OECD 2002). Thus, the institutional context of the labor market and work/family policy may be a contributing factor to the high fertility levels and high employment rates of Jewish seculars. However, it seems unlikely that work/family policy is the primary factor explaining high fertility, as work/family policies are more supportive of fertility and employment in other countries, where fertility is substantially lower than among Jewish seculars in Israel.

Religious traditionalism, even among seculars

Some literature has suggested even self-described secular women living in a religious society may be influenced by the religious nature of society (Lazerwitz and Tabory 2002). It is interesting to note that even when samples of respondents are limited to self-defined secular women, substantial proportions of these women report at least occasional observance of religious commandments, attend synagogue for major holidays, and rate religious ceremonies as very important in their lives.²³ This would seem to suggest that even secular Jews in Israel are not completely secularized. To the extent that these seculars are influenced by pro-natalistic religious norms, their fertility may be higher than otherwise expected.

We investigate this possibility by testing whether seculars with higher levels of religious observance and synagogue attendance are more likely to have higher family size ideals. To this end, we construct a summary measure of religiosity which incorporates women's responses to questions on religious observance, synagogue attendance and the importance of religious rituals. In both bivariate and multivariate analyses, we do find that among secular women aged 25-39 in 2009, those with a higher summary measure of religiosity have significantly higher odds of having an ideal family size of at least three.²⁴ However, among seculars with completed fertility, we did not find any significant bivariate or multivariate relationship between religiosity, on the one hand, and large family size (3+).²⁵ That is, there seems to be no direct effect of the reported importance of religion in secular women's lives on their completed fertility.

²³ For example, among native-born secular women aged 20-44, 49% report that they follow kosher laws at least to some degree, 26% report attending synagogue on Rosh Hashanah or Yom Kippur, or more frequently, and 45% report that having a Jewish burial is very important for themselves.

²⁴ The multivariate analysis includes controls for age, education, student status, household income, whether the respondent is once-and-currently married, and Mizrahi ethnicity.

²⁵ In a bivariate logistic regression model of the odds of having at least three children among women with completed fertility (1948-1969 birth cohorts in 2009), there is no statistically significant effect of a summary measure of religiosity (including religious observance, synagogue attendance and importance of

Familism

The literature has suggested that Israeli society is imbued with familism and traditional family values. Some have suggested that familism, which is institutionalized through religious family law in the areas of marriage and divorce, serves as a cultural code for dictating the proper life for women and men, emphasizing marriage, marital stability and fertility within marriage (Fogiel-Bijaoui 2002 and Toren 2003).

However, it has also been suggested that this form of traditional familism is weakest among the most educated, urban and secular groups (Fogiel-Bijaoui 2002). Indeed, attitudinal research, described above, suggests that recently, secular Jews in Israel are increasingly accepting of non-marital cohabitation as well as divorce (Glickman et al. 2003). Moreover, we find attitudinal evidence of weakening traditional familism among this group, and a weakening of the link between religion and traditional familism. Of secular native-born Jewish women aged 20-59 in 2009, 90.8% agree or strongly agree that there should be an option for civil marriage (not currently available in Israel), and 74.2% agree or strongly agree that there should be separation between the State and religion (author calculations). However, we found no significant bivariate or multivariate relationship between acceptance of non-marital fertility or divorce, on the one hand, and lower ideal family size (among women aged 25-29) or lower completed fertility (among women aged 40-59) (author calculations).²⁶ Neither did we find significant relationships between support for the option of civil marriage and separation of State and religion, on the one hand, and ideal family size or completed fertility among the same groups of women. We thus do not evidence that traditional familism or religious traditionalism in family values are associated with higher family size ideals or completed fertility among secular Jews.

We suggest that a different form of familism may have relevance to the high level of fertility among secular Jews. Smootha (2005) has emphasized the continuing intensity of relationships between parents and adult children, with contacts between parents and married children extremely common; moreover, children in Israel are financially dependent on their parents as young adults in terms of receiving substantial assistance in the purchasing of a home or regarding other transfers of wealth (Spilerman 2004). There is also evidence that adult children depend on their parents (or their spouse's parents) for aid in household chores and childcare. Evidence from the 2009 ISS shows that 51% of secular native-born respondents aged 20-49 receive assistance in taking care of chores; 46% receive monetary support and/or help in making bill payments, and 70% of those with children under 13 in the household receive help in taking care of or babysitting children (author calculations).²⁷ The continuing assistance that adult children receive

religious rituals), based on the the 2009 survey. Multivariate regressions controlling for birth cohort, education, Mizrahi ethnicity, household income and whether the respondent is once-and-currently married also show an insignificant relationship between measured religiosity and the odds of having at least three children, among the same birth cohort of seculars in 2009.

²⁶ For details of the control variables used in the regression models, see notes 25 and 26

²⁷ Proportions are among those respondents who have a parent (or a spouse's parent) who lives in Israel, but not in the same household.

from their parents may foster a context in which higher fertility is more appealing or more practical, in terms of economic and time constraints. The interrelationships between adult children and their parents, including grandparent care for grandchildren, need to be explored in future research.

Nationalism

Jewish nationalism is an important value among Jewish Israelis and nationalist sentiment is significantly stronger than in Western societies (Don-Yehiya and Susser 1999; Smootha 2005). It has been suggested that national security considerations (vis a vis neighbors in the Middle East) and survival threats support a collectivistic orientation and group cohesion among Jewish Israelis and that 'individualism as a value and a behavior has to compete hard with collectivistic and communitarian orientations' (Smootha 2005, p. 436). In a similar vein, it has also been argued that a 'demographic competition' between Jewish and Arab citizens of Israel fosters higher fertility rates among both groups, as each vies to make up a larger proportion of the total population (Anson and Meir 1996). We do not have any measures of nationalism which we could use to test a relationship with ideal family size or completed fertility; thus, the suggestion here is speculative. However, values of nationalism and collectivistic identity over individualism run counter to the attitudes and values normally considered as part of the Second Demographic Transition (Lesthaeghe 2010), and may partially contribute to the maintenance of higher fertility among Israeli seculars.

6. Conclusion

In this paper, we consider the family demographic behavior of native-born secular Jews in Israel. Despite evidence of some incipient SDT behavior, including postponement of parenthood followed by recuperation of fertility at older ages, this group has maintained above-replacement cohort fertility, and period fertility has recently recovered to at least replacement-level. Strikingly, among native-born seculars with completed fertility, one-child families are very rare and three-child families are the mode; these are two characteristics which distinguish this group from the U.S. and all European country populations considered.

We suggest that two interrelated factors may be the proximate causes of this unusual parity distribution among women with completed fertility: (1) high ideal family sizes and (2) low (albeit increasing) marital dissolution and non-marriage. We suggest that further increases in divorce and non-marriage will have a negative impact on completed cohort fertility for the 1970s birth cohorts of native-born secular Jews, whose fertility has not yet been completed. Specifically, increasing marital dissolution will likely decrease the proportion of women with three (or more) children and increase the number of women with exactly one child; increasing non-marriage will probably increase childlessness as well as one-child families.

We also explore some of the possible causes behind the high ideal family size. We do not find support for the proposition that Jewish ethnic heterogeneity leads to high fertility (as is suggested regarding the U.S. or New Zealand, for example). We also note that although secular native-born Jews have relatively high household income, and that

household income is positively related to completed family size, seculars' relatively high income does not explain their high fertility by international standards, since in most rich countries, income is negatively or insignificantly related to fertility. Neither do we find evidence for the importance of the 'insurance' effect, by which parents 'hoard' children to guard against future mortality during military service. In addition, although work/family policy in Israel is supportive of high fertility, we see this as a minor factor that may contribute to propping up the fertility of secular Jews.

While we do not find empirical support for the idea that more religiously-oriented seculars have higher fertility, we suggest that religion in Israel may play a role in the demographic behavior of seculars in a different manner. As Inglehart and Wezlel have emphasized, religious traditionalism versus secular rationalism, which captures the extent to which religion is very important in society, is one of the major dimensions related to differences in values across societies. In particular, based on evidence from the World Values Surveys, they find a strong interconnection between religious traditionalism and other values, including familism, and nationalism (Inglehart and Wezlel 2005). The particular form of familism and its effects on fertility must be explored in future research; we suggest that the intergenerational relationships between parents, their adult children, and grandchildren may offer some insight into this area. Even seculars who live in a religious society may be influenced by the familism and nationalism associated with religion, and these values may be in at least partial conflict with values and attitudes associated with the low fertility common to SDT populations (Lesthaeghe 2010). Israel appears to provide an excellent example of a nexus of these three factors, and this should be explored in future research.

Data suggest that 1970s birth cohorts of native-born seculars, some of whom are now nearing the end of the childbearing years, still have very high family size ideals, with 82% having ideal family sizes of 3 or more (author calculations based on 2009 ISS). However, continuing increases in non-marriage and marital dissolution among native-born seculars may result in further declines in completed fertility among the cohorts of the 1970s, in particular with regards to declines in proportions of women bearing three or more children, and increases in childlessness and one-child families. The 1970s birth cohorts have high family size ideals, but they are probably less likely than their older sisters or mothers to attain those ideals.

It is difficult to suggest what will happen to ideal family sizes among 1980s cohorts, although the European experience suggests that there are long lags between declines in actual fertility behavior, which have begun among seculars in Israel, and adjustment of fertility ideals to lower levels (Testa 2007). It may take decades until family size ideals begin to reflect the changing reality of falling cohort fertility. What seems clear to have an impact in the nearer future, however, are continued increases in non-marriage and marital dissolution among native-born seculars, which will likely result in further declines in completed fertility among 1980s cohorts, who are now in the early childbearing years. For the time being, marriage behavior is still an important proximate determinant of fertility behavior among Jews in Israel, and among secular native-born Jews as well.

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Table 1:

Estimated period, age-specific fertility rates (births per 1000 women) for secular Jews in Israel, 1980-2009

Period	15-19	20-24	25-29	30-34	35-39	40-44	45-59	TFR
1980-1982	9.5	109.0	177.2	108.6	58.4	9.9	0.0	2.36
1983-1985	7.9	94.0	164.9	117.3	56.5	6.8	0.0	2.24
1986-1988	2.0	61.7	157.0	129.6	58.6	10.2	0.9	2.10
1989-1991	1.6	49.2	134.7	99.6	46.1	6.4	0.0	1.69
1992-1994	3.4	41.8	125.9	125.4	49.7	11.8	0.0	1.79
1995-1997	3.0	29.2	120.6	120.6	57.3	14.8	0.7	1.73
1998-2000	3.2	28.8	126.7	133.7	70.4	14.5	1.9	1.90
2001-2003	2.1	23.8	112.7	140.8	72.6	10.9	0.8	1.82
2004-2006	2.8	22.1	114.0	162.2	86.1	19.4	2.0	2.04
2007-2009	2.8	13.9	92.1	164.6	113.1	24.0	3.1	2.07

Source: Hleihel (2011).

Table 2:

Age at first birth among parous Jewish women aged 40 in birth cohorts around 1965, by level of religiosity

	Seculars	Non-seculars	All Jews
Age at first birth (years)	27.1	25.3	26.1
N	66	83	149

Sources: Israel Social Surveys, 2003-2007, Jewish female respondents.

Notes: Samples are restricted to women born between 1963-1967.

Table 3:
Exponentiated Coefficients from Cox Regression of First Birth, by level of religiosity

	Seculars	Non-Seculars	All Jewish women
Birth Cohort			
1962-1969	Ref.	Ref.	Ref.
1970-1974	0.83*	0.86*	0.84**
1975-1979	0.59**	0.73**	0.68**
1980-1984	0.30**	0.57**	0.53**
N	3207	4062	7269

Source: Israel Social Surveys 2002-2009, Jewish female respondents. See text for details.

Notes: * $p < 0.01$, ** $p < 0.001$

Table 4:
Completed or Near Completed Fertility, by birth cohort and level of religiosity
(N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
1948-1952	2.7 (480)	3.4 (467)	3.0 (947)
1953-1957	2.6 (512)	3.4 (675)	3.1 (1187)
1958-1962	2.5* (522)	3.5 (757)	3.1 (1279)
1963-1967	2.3* (203)	3.5 (315)	3.0 (518)
1968-1970	2.3* (151)	3.3 (208)	2.9 (359)

Source: Israel Social Surveys 2002-2009, Jewish female respondents.

Notes: Women included in the sample were aged 40 and over during the survey year, except for the 1968-1970 birth cohort, who were aged 37 and over during the survey year. In some years, parity was coded as 7+, for those with at least 7 children. This may lead to slight underestimates of cohort completed fertility for the non-secular group and for the all Jewish women group. * indicates that the cohort completed fertility is statistically significantly different than in the analogous 1948-1952 cohort, at the 5% level of significance, in a two-tailed test.

Table 5:
Parity Distribution (%) by Level of Religiosity among Birth Cohorts with Completed Fertility

	0 (A)	1 (B)	2 (C)	3 (D)	4+ (E)	7+ (F)	All (Col. A thru E)	N
Seculars								
1948-1952	5.0	4.4	29.0	45.5	16.1	0.4	100%	480
1953-1957	6.3	7.6	26.9	42.7	16.6	0.0	100%	512
1958-1962	6.5	6.8	31.2	44.2	11.3*	0.3	100%	522
1963-1967	10.4*	8.7*	30.9	43.0	7.0*	0.0	100%	203
Non-seculars								
1948-1952	5.5	4.5	14.6	34.7	40.7	5.3	100%	467
1953-1957	5.0	5.2	14.3	33.7	41.9	5.4	100%	675
1958-1962	5.2	3.9	17.0	32.9	41.0	8.0	100%	757
1963-1967	4.3	3.3	19.2	31.6	41.6	10.2*	100%	315
All Jews								
1948-1952	5.3	4.4	21.8	40.1	28.3	2.8	100%	947
1953-1957	5.6	6.2	19.7	37.5	31.0	3.1	100%	1187
1958-1962	5.7	5.1	22.7	37.4	29.1	4.9*	100%	1279
1963-1967	6.7	5.4	23.7	36.0	28.2	6.3*	100%	518

Source: Israel Social Surveys 2002-2009, Jewish female respondents.

Notes: Women included in the sample were aged 40 and over during the survey year.

* indicates that the per cent is statistically significantly different than in the analogous 1948-1952 cohort, at the 5% level of significance, according to a Pearson Chi-square test.

Table 6:

Per cent never-married (%), by birth cohort and level of religiosity (N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
1948-1952	4.4 (480)	4.3 (467)	4.3 (947)
1953-1957	6.3 (512)	4.1 (675)	5.0 (1187)
1958-1962	8.2* (522)	3.8 (757)	5.6 (1279)
1963-1967	13.5* (203)	3.8 (315)	7.5* (518)

Source: Israel Social Surveys 2002-2009, Jewish female respondents.

Notes: Women included in the sample were aged 40 and over during the survey year. * indicates that the per cent never-married is statistically significantly different than in the analogous 1948-1952 cohort, at the 5% level of significance, according to a Pearson Chi-square test.

Table 7:

Per cent never-married (%), among women and men aged 20-29, by period and level of religiosity (N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
2002-2005			
Women	75.6 (998)	49.3 (1275)	60.7 (2273)
Men	86.6 (761)	66.2 (987)	74.9 (1748)
2006-2009			
Women	80.5* (819)	54.6* (1263)	64.8* (2082)
Men	89.9* (839)	68.2 (839)	76.5 (2177)
2002-2009			
Women	77.8 (1817)	52.0 (2538)	62.7 (4355)
Men	88.3 (1600)	67.3 (2324)	75.8 (3925)

Source: Israel Social Surveys 2002-2009, Jewish female and male respondents aged 20-29 during the survey year.

Notes: * indicates that the per cent is statistically significantly different than in the 2002-2005 period, at the 5% level of significance, according to a Pearson Chi-square test.

Table 8:

Per cent currently married and per cent currently cohabiting (%), women and men aged 20-34, by period and level of religiosity (N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
2002-2005			
% Currently Cohabiting	6.3	1.8	3.8
% Currently Married	33.0	51.0	43.1
N	2883	3618	6501
2006-2009			
% Currently Cohabiting	9.2*	3.1*	5.6*
% Currently Married	30.7	48.3*	41.3*
N	2478	3684	6162
2002-2009			
% Currently Cohabiting	7.6	2.5	4.6
% Currently Married	31.9	49.6	42.2
N	5361	7302	12663

Source: Israel Social Surveys 2002-2009, Jewish female and male respondents aged 20-34 during the survey year.

Notes: * indicates that the per cent is statistically significantly different than in the 2002-2005 period, at the 5% level of significance, according to a Pearson Chi-square test.

Table 9:

Per cent ever-divorced (%), by birth cohort and level of religiosity (N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
1948-1952	22.0 (373)	17.0 (370)	19.5 (743)
1953-1957	22.6 (393)	18.2 (545)	20.0 (938)
1958-1962	22.3 (404)	17.4 (616)	19.2 (1020)
1963-1967	20.0 (476)	13.8* (723)	16.3* (1199)
1968-1969	20.6 (214)	12.3* (310)	15.6* (524)

Source: Israel Social Surveys 2003-2009, Jewish female respondents who are ever-married.

Notes: Women included in the sample were ever-married during the survey year. * indicates that the per cent never-married is statistically significantly different than in the analogous 1953-1957 cohort, at the 5% level of significance, according to a Pearson Chi-square test.

Table 10:
 Per cent of never-married with at least one child (%), by age and level of religiosity,
 2002-2009
 (N in parentheses)

Birth Cohort	Seculars	Non-Seculars	All Jewish women
20-24	1.0 (843)	0.5 (937)	0.8 (1780)
25-59	1.9 (554)	1.2 (372)	1.6 (926)
30-34	6.7 (224)	6.3 (142)	6.5 (366)
35-39	25.4 (117)	24.8 (57)	25.2 (174)
40-44	35.8 (214)	31.0 (44)	33.5 (102)
45-49	38.1 (47)	17.9 (19)	32.0 (66)

Source: Israel Social Surveys 2002-2009, Jewish female respondents who are never-married.
 Notes: Women included in the sample were never-married during the survey year.