The Impact of Intermarriage on Ethnic and Racial Stratification

Barbara S. Okun
Orna Khait-Marelly

February 2007

Contact author: Barbara S. Okun, barbarasokun@yahoo.com, Dept. of Sociology and Anthropology, Hebrew University of Jerusalem, Mt. Scopus Campus, 91905 Jerusalem ISRAEL. Telephone: 972-50-5717531. Fax: 972-2-5324339. Second author: Orna Khait-Marelly, ornakhait@mscc.huji.ac.il, Dept. of Sociology and Anthropology, Hebrew University of Jerusalem, Mt. Scopus Campus, 91905 Jerusalem, ISRAEL. Telephone: 972-52-334-7738. Fax: 972-2-5324339.

Short Title: The Impact of Intermarriage on Stratification

The research reported here was made possible in part by a grant from the Spencer Foundation. Funding was also provided by The Shaine Center for Research in Social Sciences and The Harvey L. Silbert Center for Israel Studies, both of the Hebrew University of Jerusalem. We would like to thank participants at the Seminar Series of the Center for Demography and Ecology at the University of Wisconsin-Madison for their helpful comments. We also thank Dov Friedlander, Aziza Khazzoom, Judah Matras, Guy Stecklov, and Yossi Shavit for their useful comments on the paper. The data presented, the statements made, and the views expressed are solely the responsibility of the authors.

The Impact of Intermarriage on Ethnic and Racial Stratification

ABSTRACT

We investigate macro-level implications of ethnic/racial intermarriage on ethnic/racial inequality in subsequent generations. In our model, the effects of ethnic intermarriage on ethnic stratification operate through the intergenerational transmission of socioeconomic status and the intergenerational transmission of ethnicity. If ethnic intermarriage is selective on the basis of socioeconomic status of the spouses, then intermarriage may increase socioeconomic gaps among primary ethnic groups. Thus, the model's predictions temper those of assimilation and melting pot theories, which suggest that ethnic intermarriage unequivocally reduces ethnic inequality.

We illustrate the effects of intermarriage on ethnic inequality using record-linkage data on young Jewish adults from Israeli Censuses. We investigate educational gaps that might have arisen in a variety of counterfactual scenarios in which ethnic intermarriage in the past had not occurred. Analyses suggest that 10-15% of actual ethnic gaps in educational attainment is attributable to past ethnic intermarriage. Moreover, in the absence of intermarriage, intergenerational decreases in inequality would have been substantially more pronounced.

The Impact of Intermarriage on Ethnic and Racial Stratification

INTRODUCTION

Assimilation theories predict that high rates of ethnic and racial intermarriage reduce the social distance between groups.[1] Through intermarriage, kinship groups become more ethnically heterogeneous, and stereotypes are weakened through personal and familial interactions (Goldstein 1999; Kalmijn 1998). More broadly, ethnic intermarriage may contribute to changes in the meaning and salience of ethnicity. One example of this experience can be seen in the transition among White Americans to increasingly broad categories of ethnicity: from particular country-specific groups, such as Polish-Americans or Italian-Americans, to that of European-Americans, to what has recently been referred to as "American" ethnicity (Alba 1990; Lieberson and Waters 1988). The broadening of White American ethnicity over the last several generations, along with widespread intermarriage across country-specific ethnic groups, is thought to have gone hand in hand with the near elimination of country-specific ethnic differences in all types of structural and cultural characteristics that may affect life chances (Alba 1990).

We propose a model whose implications temper those of assimilation theories. Under certain conditions, ethnic intermarriage could lead to increases in some forms of ethnic inequality in subsequent generations. In particular, ethnic intermarriage could increase disparities among primary ethnic groups. The model builds on theoretical and empirical findings which show that ethnic and racial intermarriage is often selective on socioeconomic status; in particular, the more educated members of disadvantaged ethnic groups outmarry at higher rates than their less educated counterparts. As a result, ethnic intermarriage is likely to affect ethnic stratification through the processes of intergenerational transmission of socioeconomic status and ethnicity. As far as we know, we are the first to examine and attempt to quantify the impact of ethnic intermarriage on ethnic inequality. Our central research question is: What might ethnic inequality among primary ethnic groups have looked like in the absence of ethnic

intermarriage in the past? In the remainder of the paper, we present the theoretical model and illustrate the quantitative effects of ethnic intermarriage on ethnic inequality using data on educational attainment in the Jewish population of Israel.

Our focus in this paper is on the implications of ethnic intermarriage for inequality among *primary* ethnic groups. We distinguish between primary ethnic groups and *multiethnic* groups in the sense that multiethnic groups are comprised of individuals whose parents or grandparents are members of different primary ethnic groups. We do not address here the implications of ethnic intermarriage and educational assortative mating for *overall* inequality (that is, the sum of "between group" ethnic inequality and "within group" inequality), but leave that for future research.

Our focus here is solely on "between group" inequality across primary ethnic groups, for the following reasons. While measures of overall inequality are interesting and important, we feel that often what is of greatest interest to researchers, as well as to the general public, are between-group ethnic or racial differences. Moreover, between-group inequality across primary ethnic groups remains the major focus, despite a growing group of multiethnics. In many contexts, with the clear exception of that characterized by the 'one-drop' rule for Blacks in the U.S., multiethnics or multiracials are considered as comprising separate and distinct groups from those of the primary ethnic or racial groups. Their presence does not detract, at least in the short to medium term, from the overriding attention paid to inequality between primary ethnic groups. Between-group inequality across primary ettnic groups is viewed as especially problematic, as it aggravates ethnic strife and may smack of discrimination.

The particular social significance of between-group inequality in the Israeli context is discussed below. We add here that between-group inequality between primary ethnic groups is the focus in other multicultural societies such as the U.S., where research often examines gaps between minority groups and Whites (se Kao and Thompson 2003 for a review). Although in the very long-term, increasing rates of

ethnic intermarriage will result in small proportions of the population who are members of primary ethnic groups, in the short- to medium-term, primary ethnic groups comprise the majority of the population. The changes in ethnic composition that bring about a minority in the primary ethnic groups may take generations to unfold, and inequality between primary ethnic groups will remain of sociological significance throughout that period. We demonstrate in this paper that patterns of ethnic intermarriage may substantially affect our conclusions about trends in between-group inequality.

Previous studies have discussed the macro-level implications of marriage patterns on inequality in subsequent generations (Fernández and Rogerson 2001; Kremer 1997; Mare 1991, 1995, 2000). The common insight of these papers is that positive educational assortative mating, whereby more educated parents tend to marry each other and less educated parents marry each other, concentrates cultural capital and socioeconomic resources in some families, and leaves others relatively impoverished. The process of intergenerational transmission of socioeconomic status may in turn increase inequality among the children's generation to a level greater than that which would have occurred in the absence of educational assortative mating. The extent to which educational assortative mating affects stratification in subsequent generations depends in part on the extent to which there is intergenerational transmission of socioeconomic status. For example, if there is perfect mobility, whereby there is no association between parents' and children's educational attainments, then educational assortative mating will have no impact on stratification in children's generation. On the other hand, if there is some inheritability, whereby children's education is partly determined by parents' education, then stratification will be affected by patterns of educational assortative mating.

Mare (2000) attempts to quantify the effects of increasing educational homogamy on inequality in children's educational attainment in the U.S., and concludes that the impact of the growing association between husband's and wife's educational attainment during the second half of the 20th Century has had only an extremely small impact on educational inequality. His simulations show that current levels of

educational mobility are high enough to render trivial the effects of increasing educational homogamy on educational inequality.

We build on and extend previous research by focusing on a consideration of *ethnic* intermarriage and its subsequent impact on inequality in educational attainment in the children's generation. In particular, we call attention to the *interaction* between ethnic intermarriage and educational assortative mating. The processes of ethnic intermarriage and educational assortative mating are interrelated because ethnic and racial intermarriage is often selective on socioeconomic status (Fu 2001; Kalmijn 1998; Okun 2001; Qian 1997). Thus, through the process of intergenerational transmission of socioeconomic status, ethnic intermarriage is likely to affect (ethnic) stratification. While Mare (2000) and others suggest that increases in ethnic intermarriage may potentially reduce ethnic inequality in socioeconomic status, our model predicts that, under certain conditions, increases in ethnic intermarriage may actually increase ethnic inequality.

Ethnic intermarriage in the parents' generation will also affect ethnic stratification through its impact on the distribution of ethnicity in the children's generation. In particular, ethnic intermarriage may change the relative sizes of different ethnic groups, as well as create new ethnic groups, such as those that are of mixed ethnic origins (multiethnics). In addition, there may also be an interrelationship between the intergenerational transmission of ethnicity and the intergenerational transmission of socioeconomic status. For example, research has suggested that ethnic or racial subjective self-identity is interrelated with educational attainment and with parental socioeconomic status (Duncan and Trejo 2005; Eschbach and Gómez 1998; Xie and Goyette 1997). While this is a fascinating issue in itself, it is beyond the scope of this study. As will be discussed below, our definitions of ethnicity are objective measures derived from information on place of birth of parents and grandparents, rather than on subjective self-identity. The availability of objective measures of countries of birth simplifies greatly the matter of interpreting the meaning of our measure of ethnicity. Indeed, the conceptual difficulties surrounding the changing

meaning of subjective race and ethnicity in the context of high intermarriage rates have made it very difficult in previous research to attempt to address the impact of ethnic intermarriage on ethnic stratificaiton (Mare 2000).

THEORETICAL MODEL

Educational Assortative Mating and Ethnic Intermarriage

Two major theories have been suggested to explain the relationship between education and interethnic marriage. Both of these theories predict that there is selective outmarriage of more educated members of disadvantaged ethnic groups. The theories differ with regard to their predictions regarding the positive or negative selection into outmarriage of more educated members of advantaged ethnic groups (Gullickson 2006).

The first theory is that of *exchange* (Davis 1941; Merton 1941; see Rosenfeld (2005) for a recent critical review). According to exchange theory, individual members of ethnic groups that have low social prestige are more likely to marry members of ethnic groups with high social prestige, if they offer high socioeconomic in return. Thus exchange theory predicts selective outmarriage of the more educated members of the disadvantaged ethnic group, as well as selective outmarriage of the less educated members of the advantaged ethnic group (Fu 2001).

The second major theory of interethnic marriage is that of *structural assimilation* or *universalism*. Because higher education is associated with more universalistic values, the ethnicity of potential spouses matters less to more educated persons than to less educated persons. Also, more educated members of disadvantaged ethnic groups will be likely to meet members of advantaged ethnic groups in places of higher learning (Kalmijn 1998; Qian 1997). Thus, in the case of universalism, the prediction is that there will be selective outmarriage of the more educated members of both the disadvantaged and the advantaged ethnic groups.[2]

Intergenerational Transmission of Ethnicity

How is ethnicity of offspring a function of their parents' ethnicity? This is a very complex question when ethnicity (or race) are subjective self-identifications, as is the case for U.S. Census and other official data. There need not be any simple consistency between parents' reported ethnicity or race and their children's ethnicity or race. Research has shown that there is often a lack of consistency in self-reported ethnicity or race across different instruments, in different contexts and at different times (Harris and Sim 2002). This point is particularly relevant for the growing groups of individuals who are multiracial or multiethnic.

In the empirical part of this paper, discussed below, we take a very simple and deterministic approach to the intergenerational transmission of ethnicity. Therefore, we are able to abstract from very complex issues that arise from subjective, self-identification issues, in order to focus on the issues of transmission of socioeconomic status and ethnic intermarriage. As we will see later, our measure of ethnicity is a function of objective information on the places of birth of parents and grandparents. Individuals are defined as having the same ethnicity as their parents, except in the case where parents are of different ethnicities, in which case children are defined as multiethnic.

Intergenerational Transmission of Socioeconomic Status

A long line of research has pointed to the importance of parents' socioeconomic status, and particularly, their educational attainment as primary determinants of children's educational attainment. This research suggests strongly that ethnic gaps in parental socioeconomic status are important factors in understanding ethnic gaps in their children's generation (Mare and Winship 1988). It is important to note that <u>both</u> parents' educational attainment have independent impact on the children's outcomes, and the effect is not limited to just the father or just the mother (Mare 1995). The implication is that marriage patterns can make a difference.

Model Implications

If we put together the different elements of the model, they lead to several predictions concerning the relative socioeconomic status of multiethnics, marriage market dynamics and ethnic gaps among primary ethnic groups. Multiethnics are expected to have better educational outcomes than children from disadvantaged ethnic groups, because, according to both theories of ethnic intermarriage, multiethnics will have at least one relatively educated parent (that of the disadvantaged ethnic group). In contrast, multiethnics are expected to have outcomes that are worse than – according to exchange – or as good as – according to universalism – those of offspring of the advantaged ethnic groups. Thus, the exchange hypothesis implies that multiethnics have outcomes that are intermediate to those of the primary ethnic groups, while the universalism hypothesis implies that multiethnics have outcomes that are very close to or better than the advantaged ethnic group.

What are the marriage market implications of ethnic intermarriage for ethnically endogamous couples? Among disadvantaged ethnic groups, there will be fewer relatively educated members available to marry endogamously, according to both theories of interethnic marriage. Among advantaged ethnic groups, there will be fewer less educated members available to marry endogamously, according to the exchange hypothesis; there will be fewer more educated members available to marry endogamously, according to universalism.

These marriage market implications, in turn, will affect the ethnic gap in educational attainment among the children in primary ethnic groups. In the case of exchange, gaps across primary ethnic groups will be larger as a result of intermarriage because the number of *highly educated* parents who marry endogamously within the disadvantaged ethnic group will be diminished, while the number of *less educated* parents who marry endogamously within the advantaged ethnic group will be diminished.

In the case of universalism, the direction of the effect of ethnic intermarriage is unclear; the effect on the ethnic gap depends on whether the negative impact on the pool of educated members of the disadvantaged ethnic group is greater or smaller in magnitude than the negative impact on the pool of educated members of the advantaged ethnic group. The relative magnitudes of the effects depend, in part, on the relative sizes of the ethnic groups. For example, if the disadvantaged ethnic group is much smaller in size than the advantaged group, it is likely that the the negative impact on its pool of educated members will be relatively large. This is the case, for example, for ethnic groups that are minority populations.

Figure 1 summarizes the model described above and the relationships between its different components. Below, we will investigate empirically the size of the effects of ethnic intermarriage on ethnic gaps in education among primary ethnic groups, in the context of the Jewish population of Israel. Before doing so, we provide some background information on Israel, which also clarifies the motivation for our research question.

Figure 1 About Here.

BACKGROUND

Selected aspects of immigration history

The Jewish population of Israel totaled 5.2 million in 2004, growing 3.8% annually on average since 1948, the year the State was founded.[3] Net migration accounted for 46.5% of the total population growth during the period 1948-2004. A brief review of Israeli immigration history highlights the period of mass migration between 1948 and 1951, during which about 700,000 immigrants arrived and doubled the previous Jewish population. Substantially lower, but still significant levels of immigration in the 1960s and 1970s continued to contribute to the diversity of Israeli society. Differences in culture, language, and demographic regimes were dramatic between Jews from Eastern and Central Europe, Muslim North

Africa, and the Muslim Middle East (Friedlander and Goldscheider 1979). Following a lull during the 1980s, the early 1990s brought another substantial wave of immigration - from the Former Soviet Union.

Despite immigration of Jews from diverse origins, Israeli society has always been dominated by Ashkenazim (immigrants from Europe and their descendants). Some of these Jews were the first to immigrate to preindependence Israel and were the founders of most political, economic, and cultural institutions. In general, most Jewish immigrants from Muslim countries in North Africa and the Middle East were characterized by lower levels of socioeconomic status, as well as higher levels of fertility and mortality. For a variety of reasons, including differential placement of newly-arrived immigrants in geographically and economically peripheral regions, as well as differential veteranship in Israel, Jews of North African and Middle Eastern ancestry have been disadvantaged socioeconomically (Cohen and Haberfeld 1998; Friedlander et al. 2002; Khazzoom 2005).

Over time, ethnic flux in Israel has led to the evolution of new ethnic groups (Goldscheider 1996; Shavit and Stier 1997). For example, a broadening of the basis of ethnicity has resulted in the creation of a panethnic identity - Israelis of Middle Eastern or North African descent - known in Hebrew as Mizrahim (persons of Eastern origin). Consistent with a framework outlined by Lopez and Espiritu (1990), it is likely that the creation of the panethnic identity came about, despite cultural and socioeconomic diversity among Israelis of Middle Eastern and North African descent, because of broad differences between these groups and the Ashkenazi group in terms of socioeconomic status, residential location, cultural and religious practices, and a generally darker skin phenotype of the Mizrahim. Khazzoom (2003) emphasizes Ashkenazi exclusion of Mizrahim in the context of the Ashkenazi "identity project", which aimed at emphasizing the western character of their new State of Israel, and in distancing themselves from Oriental cultures thought inferior to the modern West.

The split between Mizrahim and Ashkenazim has become dominant in contemporary Israeli Jewish society, especially because it is understood largely in terms of class inequality (Ben-Rafael 1982; Smooha 1993). There is an on-going debate in academic and lay circles over the extent to which ethnic gaps in socioeconomic status between Mizrahim and Ashkenazim have narrowed over time (e.g. Ayalon and Shavit 2004; Bolotin-Chachashvili, Shavit, and Ayalon 2002; Cohen, Haberfeld and Kristal Forthcoming; Dahan, et al. 2003; Friedlander et al. 2002; Friedlander et al. 2006). What has become clear is that a large part, but not all, of the extant ethnic gaps in educational attainment among young Israelis can be undertood in terms of ethnic differences in parents' characteristics, particularly their educational attainment (Friedlander et al. 2002).

Ethnic inequality has become one of Israel's prime domestic concerns today, especially because it confounds national ideology and government policy, which have historically been actively directed towards the complete assimilation of Jews from diverse countries of origin within three generations (Goldscheider 1996). In particular, Zionist ideology largely denies the importance of ethnicity that reflects Jewish experience in the Diaspora; rather, Zionism has idealized a 'melting pot' of Jewish culture, a new national Israeli Jewish identity. Ethnic intermarriage has been seen as a primary means of achieving these goals (Rosen 1982).

A brief review of marriage patterns

Previous research has documented changes in marriage patterns among Jews from the 1950s to the 1990s. Ethnic intermarriage rates between Mizrahim and Ashkenazim have increased over time and across immigrant generations (Okun 2001; Gshur and Okun 2003). Okun (2001) has also shown that Jewish ethnic intermarriage in Israel during the late 1950s, 1960s and 1970s was characterized by exchange whereby a Mizrahi spouse was more likely to marry "up" in ethnic prestige to an Ashkenazi spouse, if the former spouse had higher socioeconomic status than the latter. Over time, as ethnic intermarriage became more widespread, it became less characterized by exchange, reflecting instead increasing

educational homogamy among ethnically intermarried couples (Okun 2001). In recent periods, ethnic intermarriage is usually more common among more educated spouses than less educated spouses (Okun 2004). These latter patterns are more consistent with the universalism hypothesis.

The changing ethnic composition of Jewish Israelis

Increasing rates of ethnic intermarriage over the past several decades have contributed to the formation of a relatively new and growing group of multiethnics, who have both Mizrahi and Ashkenazi parents or grandparents. Recent research documents that among native-born Israelis aged 10-11 in 1995, approximately 25% can be characterized as multiethnic, as compared with only about 5% among their counterparts aged 40-43 (self reference). The question arises as to whether and how the growing group of multiethnics has affected popular and academic views of the bifurcated nature of Jewish ethnic identity in Israel. We argue that despite the recent development of a new group of adult multiethnics, the overriding attention in the press and in academic literature is on ethnic inequality between the two primary ethnic groups – Mizrahim and Ashkenazim. This point is illustrated well by headlines in popular print and internet news sources which address ethnic gaps in a variety of areas such as educational attainment and income, as well as academic research which aims to assess trends and levels of ethnic inequality between Mizrahim and Ashkenazim (e.g. Eshet 2002; Tarabellsi-Hadad 2005; Cohen et al. Forthcoming; Dahan 2003; Friedlander et al 2002, 2006; Zarchin 2000).

Moreover, we argue that within the overarching framework defined by juxtaposition of Mizrahim and Ashkenazim, Jewish ethnicity has many subplots and more nuanced points. Attention, for example, is often paid to the welfare and status of recent immigrants from the Former Soviet Union and from Ethiopia, and how these groups fit into the social hierarchy. More relevant for this study, Jewish multiethnics, who are native-born, second- or third-generation Israelis with parents or grandparents of differing ethnic backgrounds, are also recognized as a distinct group, both in popular as well as academic understandings of Israeli society (e.g. Cohen et al. Forthcoming; Dahan 2003; Shai et al. 2005).[4] In

addition, recent research has documented the distinctive socioeconomic profiles of multiethnics, which differ significantly from those of Mizrahim and Ashkenazim, thus supporting the notion that multiethnics may be conceived of as a distinct group (self-reference).

We thus argue that unlike other racial contexts such as the United States of the past, where a "one-drop" rule specified that individuals of mixed racial ancestry who had even partial Black ancestry were automatically ruled as Black, Israeli society does not deem individuals of mixed ancestry as either Mizrahi or Ashkenazi, but rather, they may be viewed as "mixed". While it is possible that some multiethnics may be seen by others as either Mizrahi or Ashkenazi, depending on external factors such as skin color, there is no immediate classification of persons of mixed ethnicity as members of one group or the other; rather they are generally considered separately, and their presence does not take away from the overriding interest in ethnic inequality between the two primary groups.

DATA, VARIABLES, AND MEASURES OF INEQUALITY

We use a data file prepared by the Israeli Central Bureau of Statistics (ICBS), which contains linked census records from the 1995 20% Public Use Sample and the 1983 20% Public Use Sample. The core of the sample includes individuals who were located both in the 20% Public Use Sample of the 1983 Census and in the 20% Public Use Sample of the 1995 Census. Thus, the core sample provides an approximate 4% (.20*.20) sample of the population represented in both of the census years. In addition, the data file contains information on all individuals who lived in the same households as those in the core sample at each of the two census dates. Thus, the data allow us to construct households of the core sample; in particular, we exploit this data to harvest information about the households of origin (in 1983) of respondents who are young adults in 1995. Data quality for Israeli Censuses is generally considered good, and the linkage procedure was carried out by the ICBS by exploiting confidential and unique personal identification numbers assigned to all Israeli citizens and recorded in Census information. Where possible, comparisons were made between the marginal distributions by ethnicity, generation, and

educational level in the linked sample and those in the 20% 1995 sample. Results were similar, thus suggesting that there are few important selection biases introduced by the linkage process.

We study native-born women and men aged 18-21 and 25-31 in 1995. We focus exclusively on the native-born because these individuals were fully exposed to Israeli society, in general, as well as the Israeli educational system in particular. These young persons were aged approximately 6-9 and 13-19 in 1983. We limit our samples to young adults in 1995 whom we identified as living with both biological parents in 1983. The sample restriction is necessary in order to identify correctly critical background information on parents from information collected in 1983 for each household member. It should be noted that the sample restriction eliminates respondents whose biological parents had divorced, separated or been widowed by 1983, so our results can be generalized only to those individuals who grew up in intact families. Since overall divorce and mortality rates were fairly low during these periods and relevant age ranges of parents, we do not expect important effects of differential divorce or mortality by ethnicity of parents to affect our results in any significant way (Khait-Marelly 2004).

The linked records are necessary in part in order to define ethnicity of respondents and their parents. Census data from 1995 contain information on respondents' country of birth as well as information on country of birth of both of the respondents' parents. However, the 1995 data do not contain information on grandparental place of birth – this lack of information poses a problem for defining ethnicity among Israelis whose parent(s) were born in Israel. In the data file that we use, persons in the 1995 Census are linked to the 1983 Census records of their parents. In the 1983 census records, the parents of the individuals in the 1995 sample responded to questions on their fathers' country of birth (that is, country of birth of the grandfathers of the respondents of interest in 1995).

Respondents were defined as Mizrahi, Ashkenazi, or multiethnic, according to parental and grandparental places of birth, in a two-stage process. First, each parent's ethnicity was defined as either Mizrahi or

Ashkenazi, as follows. For parents who were born abroad, ethnicity was defined according to his/her place of birth (in Asia/Africe or Europe). For parents who were born in Israel, ethnicity was defined by their own fathers' place of birth (in Asia/Africa or Europe).[5,6] Following definition of parents' ethnicity, ethnicity of the sample respondents was defined as Mizrahi or Ashkenazi, if both parents were defined in the first stage as Mizrahi, or if both were defined as Ashkenazi. If one parent was defined as Ashkenazi, and the other Mizrahi, the respondent was defined as multiethnic. Among native-born Jews aged 18-21 in 1995, 17.4% are defined as multiethnic, 36.3% are Ashkenazim, and 46.3% are Mizrahim.

Our focus is on the educational attainment of young persons aged 18-21 and 25-31 in 1995, and on differences across the primary ethnic groups of Ashkenazim and Mizrahim. We examine men and women separately because patterns of ethnic inequality differ by gender. Persons aged 18-21 have had the opportunity to complete high school and be examined for the matriculation diploma. The matriculation diploma is an important educational achievement for Israelis, because it sets the stage for later post-secondary schooling. Most forms of post-secondary schooling, such as universities and colleges, require the completion of a matriculation diploma, which is more demanding than simply earning a high school diploma. The matriculation diploma requires achievement of passing grades in nationwide standardized examinations on a variety of subject areas including mathematics and English.

Therefore, our primary measure of educational attainment at the individual level is a dichotomous variable which captures whether or not the respondent holds a matriculation diploma. We feel this is a much more sensitive measure of educational attainment than alternatives such as total years of education, which cannot distinguish between high school graduates who do and do not hold matriculation diplomas. At the group level, we look at the proportions of each ethnic group who hold a matriculation diploma. Our reliance on proportions matriculating makes for intuitive understandings of between-group inequality, which can be measured in terms of absolute differences in the proportions, or as odds ratios; we present the former here, although results with the latter are very similar. For the reasons discussed

above, our emphasis is on inequality between Mizrahim and Ashkenazim. Our dichotomous measure of educational attainment does not allow for a meaningful analysis of total inequality (between and within group inequality) because the variance of a dichotomous variable is not independent of its mean.

Persons aged 18-21 are generally too young to have completed postsecondary schooling because most Jewish Israelis perform two to three years of mandatory military service starting from age 18, thereby postponing the entrance into postsecondary schooling until the early 20s. We therefore looked at an older age group 25-31 in order to examine postsecondary school completion. In the interests of space constraints, we will present results only for the first subsample, of those aged 18-21. Results for the older age group are similar, although effects are somewhat less pronounced. These differences will be discussed below.

Table 1 presents the percents of persons aged 18-21 who hold a matriculation diploma in 1995, by ethnicity and sex. We note the large ethnic gaps between Mizrahim and Ashkenazim, particularly among men. For example, while only 41.6% of male Mizrahim hold a matriculation diploma, 69.9% of their Ashkenazi counterparts do so. Multiethnics have outcomes that are intermediate to those of the two major ethnic groups; for example, 58.2% of male multiethnics hold a matriculation diploma. Previous research has documented that, with regards to educational attainment, multiethnics hold a consistently intermediate and statistically different position relative to primary ethnic group members (self reference).

Table 1 About Here.

The main point which becomes clear from Table 1 is that the relative position of multiethnics is consistent with that predicted by exchange theory. The "in-between" status of multiethnics, together with their growing proportions in the population raise the intriguing question: how does ethnic intermarriage and the consequent presence of multiethnics affect ethnic gaps in educational attainment between Mizrahim and

Ashkenazim? In other words, our central research question is: What might ethnic inequality among primary ethnic groups have looked like in the absence of ethnic intermarriage?

METHODS

In the empirical section of the paper, we explore a few different ways of answering the above questions. Our strategy is to consider the size of ethnic gaps in a variety of counterfactual scenarios, which might have arisen in the absence of ethnic intermarriage in the past. While we do not believe that any one particular result among the set of the answers we outline here is the final word on this research question, the consistency of results do hint at the potentially significant impact of ethnic intermariage on ethnic inequality. We explore each scenario in turn.

Most previous research that has examined equilibrium effects of demographic behavior (marital sorting or differential fertility) on inequality in the long run has used aggregate demographic models of population renewal (e.g. Matras 1961; Preston 1974; Preston and Campbell 1993; Musick and Mare 2004). We take a different approach here, as our focus is not on the long-run effects of ethnic intermarriage on equilibrium levels of ethnic inequality in the future. Rather, we aim to go back one generation and create counterfactual scenarios in which ethnic intermarriage in the past had not occurred. We then see how these counterfactual scenarios might have played out in the current generation. The advantage of our approach, discussed below, is its relative simplicity. The technique we use has the flavor of the simulation model, based on regression analyses, presented by Mare and Maralani (2006).

Reassignment of Multiethnics to One of the Two Primary Ethnic Groups

Multiethnics are the offspring of interethnic marriage, and thus offer us a first, very simple avenue of investigation. Under the counterfactual scenario that multiethnics did not exist, and were instead members of either of the primary ethnic groups, the average educational attainments in the primary ethnic groups would change. We perform a straightforward exercise in which we hold the educational outcomes of

multiethnics at their observed values, but "reassign" all multiethnics alternatively to one or the other of the two primary groups. We thus perform different exercises, the first in which multiethnics are reassigned to the Mizrahi ethnicity, and the second in which they are reassigned to Ashkenazi ethnicity. The naïve assumption underlying these exercises is that the educational outcomes observed among multiethnics would have been the same if their parents had married endogamously rather than exogamously. Below we relax this assumption.

Reassignment of Parents of Multiethnics to Marry Endogamously

A second, more realistic approach to answering our research question may be found by reassigning parents of multiethnics to marry endogamously. The idea here is that Mizrahim and Ashkenazim who intermarried contributed to the creation of a group of multiethnics. If these parents had not intermarried, they could have either remained single and borne no children[7], or they could have married endogamously. We do not consider here the hypothetical scenario in which spouses who intermarried remain single instead. In the context of Israel of the 1960s and 1970s, marriage was nearly universal. For example, among Jews aged 45-49 in 1995 (who would have married primarily during the 1970s), only 4.9% of women and 3.0% of men were never-married (ICBS 1998). It thus seems unlikely that a large proportion of exogamously married spouses would have remained unmarried if they hadn't married exogamously.

In the second case, in which exogamously married spouses would instead have married endogamously, they would have had offspring who were members of the primary ethnic groups. The average educational attainments of the primary ethnic groups might have thus been affected. We therefore create a set of counterfactual scenarios in which parents who actually intermarried are "reassigned" to marry endogamously and then have children who are members of the primary ethnic groups.[8]

We first identify Mizrahi men and Ashkenazi women who intermarried with each other, as well as Ashkenazi men and Mizrahi women who intermarried with each other, and then trade spouses, in order to

form ethnically endogamous unions. Thus, Mizrahi men who intermarried will have simulated marriages with Mizrahi women who intermarried. Similarly, Ashkenazi men who intermarried will have simulated marriages with Ashkenazi women. Following reassignment to ethnically endogamous unions, we consider the offspring of these simulated couples, both in terms of their numbers and predicted educational attainment.

We find it plausible to consider counterfactual scenarios in which previously exogamously married couples are reassigned with each other to marry endogamously. We view the decision to ethnically intermarry as the end product of assimilation factors that affect opportunity and preferences for exogamy. Thus, persons who intermarry are a select group, especially during the period of the 1960s and 1970s when ethnic exogamy was not normative. It seems reasonable to consider that ethnically exogamously married Mizrahi spouses may share attitudes and local marriage markets that would make endogamous marriage between them likely. The same can be said of ethnically exogamously married Ashkenazi spouses.[9]

A first step in thinking about the possible outcomes of this prediction strategy involves a consideration of the educational characteristics of ethnically intermarried parents. In particular, how do they compare to characteristics of ethnically endogamous parents? Recall that we are considering respondents who were aged 18-21 (and 25-31) in 1995. Therefore, their parents probably married during the late 1950s, the 1960s, and the early 1970s, when ethnic intermarriage patterns were characterized by exchange (Okun 2001).

Table 2 presents the proportions of fathers and mothers with matriculation diplomas or higher, among parents of respondents aged 18-21 in 1995. Mizrahi fathers who married endogamously have the lowest educational attainment, while Ashkenazi fathers who married endogamously have the highest educational attainment. The ethnic gaps between these two groups are very large. However, Mizrahi men who

outmarried had high educational levels, relative to their Mizrahi counterparts who inmarried. In contrast, Ashkenazi men who outmarried had low educational attainment, compared to their Ashkenazi counterparts who inmarried. These patterns are broadly consistent with those predicted by exchange in marital unions, as found in previous literature. The pattern of results are similar for mothers.[10] The implication of these patterns is that, following reassignment to ethnically endogamous marriages, the simulated Mizrahi couples will be relatively more educated than actual Mizrahi couples. In contrast, after reassignment to ethnically endogamous marriages, the simulated Ashkenazi couples will be relatively less educated than actual Askenazi couples.

Table 2 About Here.

Ramifications of these points for the hypothetical levels of educational attainment among offspring in each of the primary groups (including actual and simulated members of the group), as well as consequent ethnic gaps between the primary groups, may depend upon several factors: (1) the manner in which spousal reassignment to ethnically endogamous marriages is carried out; (2) the fertility of simulated endogamous couples; and (3) the way in which offspring's educational outcomes are assumed to depend on their parents' educational characteristics. We consider each of these factors in turn.

Methods of spousal reassignment Spousal reassignment is performed in two different ways: (1) randomly and (2) in a pattern consistent with educational homogamy (Preston and Campbell 1993). Results that arise from each of these two methods of parental reassignment are compared. In the case of random reassignment, reassignment is performed numerous times, and average results are reported. In practice, differences in simulated ethnic gaps that arise in different random reassignment procedures are trivial. In the case of reassignment by educational assortative mating, exogamously married Mizrahi mothers are sorted by educational attainment in descending order, and matched with exogamously married Mizrahi men, similarly sorted. The resulting simulated couples have spouses with very similar

levels of educational attainment. The same procedure is applied in the case of Ashkenazim. These two methods of spousal reassignment represent two extreme assumptions about the mating behavior of newly endogamous couples by educational status – complete disregard for educational status (random mating) and almost complete endogamy (whereby nearly everyone marries a spouse with an identical level of education to his or her own). It is therefore reasonable to assume that the results that would be obtained from more moderate forms of educational homogamy, whereby spouses' educational levels are positively associated, but not necessarily identical, would be bracketed by those obtained from the two extreme assumptions.

The fertility of simulated endogamous marriages Following spousal reassignment, we consider their simulated offspring, whom we define as belonging to one or the other primary ethnic group. The consideration of simulated offspring requires assumptions concerning (1) the number of children born to parents in reassigned marriages and (2) the educational outcomes of these children. Regarding the number of children born to reassigned marriages, we make three differing assumptions and compare the results that arise under each assumption.

The first assumption we make regarding the number of simulated offspring of the newly endogamously married couples is that their fertility is equal to the observed fertility of the wives in their original, ethnically exogamous state. This assumption takes fertility of women as a function only of their own characteristics (e.g. ethnicity and education), and not of their spouses; thus, when they switch spouses, their fertility remains unchanged. We refer to this assumption as that of *fertility invariance*.

To explore the possible ramifications of differential fertility by ethnicity of husbands and wives on ethnic gaps in the children's generation, we consider an alternative assumption about the fertility of women in simulated endogamous marriages. This assumption is referred to as *variance by husband's ethnicity*. Under variance by husband's ethnicity, we take the fertility of women in simulated endogamous Mizrahi

marriages as equal to that of women in actual endogamous Mizrahi marriages, and, analogously, the fertility of women in simulated endogamous Ashkenazi marriages as equal to that of women in actual endogamous Ashkenazi marriages.

Empirically, fertility is differential by educational attainment of both spouses, as well as by their ethnicity. Accordingly, we consider a third alternative assumption concerning the fertility of simulated endogamous couples, referred to as *variance by ethnicity and education*. Under this assumption, we take the number of children born to simulated endogamous Mizrahi marriages with wive's educational level i and husband's educational level j as equal to that of women in actual endogamous Mizrahi marriages with wive's educational level i and husband's educational level j.

The educational outcomes of simulated offspring We follow the general regression strategy outlined in Mare and Maralani (2006) in order to make our predictions of the educational outcome of simulated children. We estimate four distinct logistic regression models, run separately for women and men in each of the two primary ethnic groups. The explanatory variables are based on information about mothers' and father's educational attainment: (1) primary school (less than a high-school diploma); (2) high school diploma, with no matriculation certificate; (3) high school diploma with matriculation certificate; (4) post-secondary diploma, but no academic degree; (5) academic degree in the form of a B.A. or higher. Because the proportion of parents with a B.A. degree or higher was small in some cases, and because large gaps in parental education are uncommon, we grouped together respondents who had at least one parent with a B.A. degree. An examination of deviance chi-squared statistics from these models estimated on grouped data reveal that a fairly parsimonious model that considers both father's and mothers' education fits the data well. Appendix Table 1 details the logistic regression models estimated. In general, we find that *both* parents' educational attainment contribute significantly to explaining the odds of childrens' matriculation.

Beyond educational attainment, the data file at our disposal contains information on parents, such as occupation or home ownership, which we attempted to incorporate into our models of predicted offspring educational attainment. However, following consideration of these models, we did not find their predictive power to be signficantly greater than models based on parental education alone. Moreover, incorporation of other factors opens the question of whether simulated endogamously married couples would have had the same characteristics, such as home ownership, that they did under actual conditions of exogamous marriage. Home ownership or occupation, unlike education, is something usually acquired later in life, and may be related to spousal choice. Therefore, it did not seem reasonable to assume that these characteristics would necessarily be the same under different scenarios of spousal selection.

RESULTS

Reassignment of Multiethnics to One of the Two Primary Ethnic Groups

Table 3 presents the percents of men and women with matriculation under actual and hypothetical scenarios where multiethnics are reassigned to one or the other of the primary ethnic groups. The top row of the table presents actual percents and the observed ethnic gap, reproduced from Table 1. The second row of the table presents percents and gaps under the counterfactual scenario that multiethnics are reassigned as Mizrahim; the third row presents the counterfactual scenario where multiethnics are reassigned as Ashkenazim. Overall, we note that according these scenarios, ethnic gaps would have been 12.7% to 16.4% smaller than they actually were, had ethnic intermarriage in the past not occurred. We interpret these effects as modest, but not trivial. We also note that the effects of reassignment to Mizrahim and Ashkenazim differ depending on two factors: (1) the relative size of the Mizrahi and Ashkenazi groups; and (2) the relative position of the multiethnics between the primary ethnic groups.

Table 3 About Here.

Reassignment of Parents of Multiethnics to Marry Endogamously

We now consider the counterfactual scenario in which ethnic intermarriage among parents had not occurred, and where ethnically exogamously married parents are reassigned to marry endogamously, as described above. We begin with a consideration of the scenario in which we randomly reassign ethnically exogamously married spouses and assume fertility invariance. Table 4 presents percents with a matriculation diploma among men and women aged 18-21 under the actual and the hypothetical scenario.

The top two rows of the table reproduce the figures noted earlier in Table 1 regarding actual proportions with a matriculation diploma in each of the three ethnic groups. The second set of two rows presents predicted proportions with matriculation among simulated respondents whose parents were reassigned from ethnic intermarriage to ethnic inmarriage. The predicted proprotions among the simulated male respondents differ dramatically from those of the actual Mizrahi and Ashkenazi men, and are quite close to those of the actual multiethnics. The gap between simulated Mizrahim and simulated Ashkenazim men is quite small at 6.4 percentage points and represents a 77.4% reduction from the actual gap between Ashkenazim and Mizrahim.

Table 4 About Here.

The third set of two rows presents the weighted average of the actual respondents in the primary ethnic groups, with the simulated respondents in the primary ethnic groups. The weighted averages lie closer to the actual figures than to the simulated figures, because the number of simulated respondents is smaller than that of the actual respondents. The relatively small number of simulated respondents is a function of the number of actual multiethnics in the sample, who are still a minority (17.3% of this age group). The ethnic gaps between Mizrahi and Ashkenazi men in the third line is 24.9 percentage points, which is 12.0% lower than the actual gap in the first row. Turning to the results regarding ethnic gaps among

women, we note that the simulated gap in the third line stands at 18.4 percentage points, which is 14.0% lower than the actual gap of 21.4 percentage points in the first row.

We consider now reassignment of parents based on positive educational assortative mating, applied under the assumption of fertility invariance, in order to test whether the alternative method of reassignment will substantively affect our findings. The educational outcomes of offspring of simulated endogamous couples are predicted based on the same sets of regressions used in the previous simulation. Our results show that the assumption of positive educational assortative mating has a trivial effect on simulated ethnic gaps. For example, among men aged 18-21 in 1995, the difference in the simulated ethnic gap under the assumption of random mating versus the assumption of educational assortative mating is less than 0.1 percentage point. Full results are available from the authors. Thus, we conclude that our simulation results concerning the impact of ethnic intermarriage on ethnic inequality are robust to widely varying procedures in which simulated endogamous couples are formed.

To explore the possible ramifications of different scenarios regarding the fertility of simulated endogamous couples, we apply the two alternative assumptions of variance by husband's ethnicity and variance by ethnicity and education, described above. Both sets of fertility assumptions are applied in the context of random reassignment of ethnically exogamous spouses, because we showed above that the manner in which spousal reassignment is performed is immaterial to the results.

The application of variance by husband's ethnicity, as compared to the original assumption of fertility invariance, results in slight increases in average educational attainment among Mizrahim (for example, on the order of 0.4 percentage points in matriculation among men), and Ashkenazim (on the order of 0.1 percentage points in matriculation among men). These increases occur because, due to patterns of differential fertility by ethnicity of spouses, there are now a greater number of simulated Mizrahim (formerly multiethnics) – who have *higher* educational attainment than actual Mizrahim – and a slightly

smaller number of simulated Ashkenazim – who have *lower* educational attainment than actual Ashkenazim. Thus, differences in the simulated effects on the Mizrahim and Ashkenazim are small, and the net effect on the ethnic gap is trivial – approximately 0.3 percentage points. That is, the simulated ethnic gap under the scenario of fertility variance by husband's ethnicity is virtually identical to ethnic gap under the assumption of fertility invariance.

Turning now to the application of the assumption of fertility variance by ethnicity and education, we report that, in comparison to simulated ethnic gaps that arise in the context of the original assumption of fertility invariance, simulated ethnic gaps remain virtually unchanged. For example, among men aged 18-21 in 1995, the difference between the simulated ethnic gap in matriculation which arises under variance by husband's ethnicity and education and that which arises under fertility invariance, is about 0.2 percentage points.

Thus, results that arise under different fertility assumptions are nearly identical. We conclude that the estimated impact of intermarriage on ethnic inequality is robust to widely varying alternative assumptions about the fertility of simulated endogamous couples. In addition, as described above, the outcomes are insensitive to two very different procedures for simulating the endogamous couples. Perhaps most strikingly, simulations performed on the basis of reassignment of exogamously married parents to ethnically endogamous unions yield results that are quite close to those based on reassignment of multiethnics to one or the other of the primary ethnic groups (Table 3). Thus, entirely different simulation strategies and the application of a broad range of assumptions lead to very similar conclusions. We take this overall consistency of results as an indicator of the robustness of our findings.

Summarizing the results from all of the simulations described here, we conclude that on the order of 10-15% of the ethnic gap in matriculation among young adults aged 18-21 in 1995 is attributable to ethnic intermarriage in the past. In results not presented here, we find that analyses conducted on adults aged

25-31 yielded similar, although less pronounced findings. In particular, on the order of 5-10% of the ethnic gap in postsecondary schooling among those aged 25-31 in 1995 is attributable to ethnic intermarriage in the past. The smaller magnitude of the findings reflects, in part, the smaller proportion of multiethnics (12.4%) of that birth cohort.

Intergenerational Changes in the Ethnic Gap under Actual and Simulated Scenarios

Another perspective on the magnitude of our results can be gained by comparing them to actual changes in ethnic gaps across generations of parents and their children. Indeed, one of the focus points of academic and popular discussion of ethnic inequality between the primary ethnic groups revolves around the extent to which ethnic inequality is decreasing over generations, time, and over birth cohorts. Table 5 presents actual ethnic gaps in educational attainment among respondents aged 18-21 and among their parents, as well as counterfactual ethnic gaps that could have risen in the absence of ethnic intermarriage in the past. For example, among fathers, 14.4% of Mizrahim and 50.0% of Ashkenazim had obtained a matriculation diploma, and the ethnic gap stood at 35.7 percentage points. Among sons, the ethnic gap stood at 28.3 percentage points. Thus, the ethnic gap actually declined by 21% (1 – 28.3/35.7) between the generations.

Table 5 About Here.

Under the counterfactual scenarios in which multiethnic respondents are reassigned as Mizrahim (Ashkenazim), the ethnic gap among sons would have been 33.1% (30.8%) smaller than in the father's generation. Under the counterfactual scenario that the parents of multiethnics were reassigned to marry endogamously (under random reassignment and fertility invariance), the ethnic gap among sons would have been 30.3% (1 – 24.9/35.7) smaller than among fathers. Thus, the intergenerational reduction in the ethnic gap would have been on the order of 50% larger than it actually was, had ethnic intermarriage in the past not occurred. For mothers and their daughters, the conclusions are in the same direction,

although they are not as pronounced. Compared to the large (49.8%) intergenerational reduction in the ethnic gap that actually occurred, the counterfactual intergenerational reduction in ethnic inequality would have been on the order of 15% larger in the absence of ethnic intermarriage.

Turning to a consideration of intergenerational changes in postsecondary schooling among respondents aged 25-31, we note that in the comparison of fathers and son, as well as mothers and daughters, there were actual intergenerational *increases* in gaps between primary ethnic groups (results not presented here). In the case of fathers and their sons, our results indicate that the intergenerational increase in ethnic inequality would have been eliminated entirely had ethnic intermarriage in the past not occurred. In the case of mothers and their daughters, the intergenerational increase in ethnic inequality would have been reduced substantially in the absence of ethnic intermarriage.

SUMMARY AND DISCUSSION

We present a theoretical model of the macro-level impact of ethnic intermarriage on ethnic stratification in subsequent generations. We call attention to the interaction between ethnic intermarriage and educational assortative mating. Ethnic and racial intermarriage is often selective on socioeconomic status; in particular, the more educated members of disadvantaged ethnic groups outmarry at higher rates than their less educated counterparts. Therefore, ethnic intermarriage is likely to affect ethnic stratification through the processes of intergenerational transmission of socioeconomic status and ethnicity. We note that the likely impact on stratification in subsequent generations depends on the number and characteristics of spouses who intermarry, the relative sizes of the different ethnic groups, and the extent and ways in which socioeconomic status and ethnicity are inherited characteristics.

We explore the direction and magnitude of these effects in the context of ethnic intermarriage and inequality in the Jewish population of Israel. We conclude that on the order of 10-15% of the ethnic gap in matriculation rates among young adults aged 18-21 in 1995 is attributable to ethnic intermarriage in the

past. Moreover, in the absence of intermarriage in the past, intergenerational decreases in inequality would have been substantially more pronounced, and increases would have been moderated or eliminated. Compared to the intergenerational changes in inequality that actually occurred, the hypothetical effect of ethnic intermarriage is often quite significant. Application of a wide variety of alternative assumptions in carrying out the simulations led to very similar results and are indicative of the robustness of our findings.

We conclude that at the macro-level, there has been a modest and perhaps unanticipated by-product of intermarriage, in that its effect is to *increase* inequality between the primary Jewish ethnic groups in Israel. This conclusion contrasts strongly with intuitive understandings of melting pot and assimilationist theories. The findings complement recent research on the marriage behavior of multiethnic Jews in Israel, which also suggests that ethnic intermarriage itself should not necessarily be viewed as a vehicle for reducing group differences over time or for reducing the salience of ethnicity (Goldscheider 1996; Okun 2004). Rather, empirical marriage patterns may actually serve to perpetuate the historically important association between Mizrahi ethnicity and low socioeconomic status.

In the long term, it may be that with continued intermarriage, the contour of the debate about Jewish ethnic stratification will no longer focus on Mizrahi vs. Ashkenazi differentials. Projections suggest that roughly 25% of native-born adult Jewish Israelis will be multiethnic in the coming decades (self-reference). Perhaps in this context, Mizrahi vs. Ashkenazi ethnicity will lose its salience, and it will be less meaningful to discuss Mizrahi vs. Ashkenazi gaps in socioeconomic status. However, this scenario has not yet unfolded. While researchers are increasingly looking at ethnic inequality in three categories – Mizrahim, Ashkenazim, and multiethnics – their arguments are still sharply focused on Mizrahi/Ashkenazi differentials (Cohen et al. Forthcoming; Dahan 2003; Friedlander et al. 2006). Therefore, we feel that the substantive conclusions we make in this paper are relevant to the current academic debate about inequality and its evolution in Israel.

We want to be careful in the interpretation of our findings. Overall, ethnic gaps between Mizrahim and Ashkenazim remain significant at many levels of education. For example, recent research has pointed to the wide disparity between Mizrahi and Ashkenazi matriculators in the *quality* of the diplomas they earn, as measured by differential success in and emphasis on critical subject areas such as Mathematics and English (Friedlander et al. 2006). Ethnic gaps in various measures of educational attainment and achievement are significant matters of social concern, important indicators of inequality, and sources of ethnic tension and polarization.

We do not conclude that ethnic gaps between Mizrahim and Ashkenazim exist today because of past ethnic intermarriage. The gaps exist largely as a result of unequal educational opportunities and because of historical differences in the socioeconomic characteristics of Mizrahi and Ashkenazi families (Friedlander et al. 2002). Even if ethnic intermarriage had not occurred, there would be large ethnic gaps today. What we do conclude is that the evolution of ethnic inequality is a complex process, fueled not only by historical inequality, discrimination and opportunity, but also by changes in marriage patterns, and the creation of subsequent generations of ethnic groups through family formation.

What are the implications of our model for other developed societies, such as the U.S.? Most ethnic or racial intermarriage in the U.S. occurs between Whites and minority groups, such as American Indians, Asians, Hispanics, or African-Americans. Thus, multiethnics are a tiny group compared to the White population, but may be of growing and significant size compared to small minorities with high intermarriage rates, such as American Indians, Asians and some Hispanic groups. Selective outmarriage from small minority groups has the potential to significantly impact average socioeconomic levels in minority groups in subsequent generations. In contrast, the selective nature of outmarriage is unlikely to significantly affect the average socioeconomic levels of the White population, as this is a much larger group. Thus, changes in ethnic gaps are likely to depend on the size and direction of the effects of intermarriage on minority groups, and not on the White goup.

Implications of interethnic marriage patterns for ethnic gaps in the U.S. are complicated by the subjective nature in which ethnicity is usually measured. Research suggests, however, that education may reduce the strength of in-group attachments among disadvantaged minority group members (Demo and Hughes 1990). Moreover, the relationships between socioeconomic status and ethnic identity appear to depend on the aggregate socioeconomic status of relevant groups, as well as on the extent to which ethnic identity is seen as a cultural resource (Eschbach, Supple and Snipp 1998; Qian 2003; Waters 1994). For example, among Hispanics in the U.S., higher family status is associated with less consistent positive response to Hispanic ethnicity questions (Eschbach and Gomez 1998; Qian 2003). In contrast, greater parental educational attainment is associated with Asian racial identification among third-generation biracial immigrants (Xie and Goyette 1997). If highly educated multiethnics with ancestry in disadvantaged ethnic groups are less likely to identify with, or be identified with, the more disadvantaged ethnic groups, then this process will reinforce the effects of selective outmarriage on ethnic inequality across primary-ethnic groups.

Building on this argument, we suggest that upwardly mobile, educated members of disadvantaged minority groups who marry with Whites may leave a less select group of minorities who inmarry, thus hampering educational upgrading among minorities over time and generations. Moreover, if the more educated offspring of these interethnic marriages are less likely to identify with disadvataged ethnic groups, measured ethnic gaps will be even more pronounced. Duncan and Trejo (2005) have begun exploring these issues in the context of an examination of the intergenerational socioeconomic mobility among Mexican-Americans. Similar arguments can be made for other disadvantaged minority groups. The impact of increasing rates of intermarriage in developed country settings, characterized by substantial racial and ethnic gaps in socioeconomic status, should be further examined in future research.

REFERENCES

Alba, Richard D. 1990. *Ethnic Identity: The Transformation of White America*. New Haven: Yale University Press.

Ayalon, Hanna and Yossi Shavit. "Educational Reforms and Inequalities in Israel: The MMI Hypothesis Revisited." *Sociology of Education* 77:103-120.

Ben-Rafael, Eliezer. 1982. *The Emergence of Ethnicity: Cultural Groups and Social Conflict in Israel*. Westport, CT: Greenwood Press.

Bolotin-Chachashvili, Svetalana, Yossi Shavit, and Hanna Ayalon. 2002. "Hitrachvot Ha'askala Ha'gvohaa Vehashlachoteia Ha'ribudiut Be'Israel 1980-1996" [The Expansion of Higher Education and Its Social Implications in Israel: 1980-1996]. *Soziologia Israelit* 4:317-345. (In Hebrew).

Cohen, Yinon and Yitzchak Haberfeld. 1998. "Second Generation Jewish immigrants in Israel: Have the Ethnic Gaps in Schooling and Earnings Declined?" *Ethnic and Racial Studies*. 21:507-528.

Cohen, Y., Y. Haberfeld, and T Kristal. Forthcoming. "Ethnicity and Mixed Ethnicity: Educational Gaps among Israeli-born Jews. *Ethnic and Racial Studies*.

Dahan, Momi, Eyal Dvir, Natalie Mironichev, and Samuel Shye. 2003. “Have the Gaps in Education Narrowed? On Factors Determining Eligibility for the Israeli Matriculation Certificate.” *Israeli Economic Review* 2:37-69.

Davis, Kingsley. 1941. "Intermarriage in Caste Societies" *American Anthropologist* 43:388-395.

Duncan, Brian and Stephen J. Trejos. 2005. “Ethnic Identification, Intermarriage and Unmeasured Progress by Mexican Americans.” Retrieved May 27, 2006 (http://www.iza.org/conference_files/amm_2005/trejo_s225.pdf)

Eisenbach, Zvi. 1992. "Marriage and Fertility in the Process of Integration: Intermarriage among Origin Groups in Israel." Pp. 131-147 in *Population and Social Change in Israel*, edited by C. Goldscheider. Boulder: Westview Press.

Eschbach, Karl and C. Gómez. 1998. “Choosing Hispanic Identity: Ethnic Identity Switching Among Respondents to High School and Beyond.” *Social Science Quarterly* 79:74-90.

Eshet, Gidon. 2002. “Yaash Kipuach, Ain Kipuach? Seker Hachnasot sh’Hitparsem L’achrona Megale Pearim Madigim bain Nashim, Aravim, and Mizrahim, l’bain Kol HaShar”. [Is There Deprivation or Not?: Recent Income Survey Reveals Worrisome Gaps between Women, Arabs, and Mizrahim, as Compared to All Others”]. Retrieved on August 1, 2006 from http://www.ynet.co.il/articles/0,7340,L-1539408,FF.html (In Hebrew).

Farley, Reynolds. 2002. "Race Reporting in the Census of 2000: How Do Multiracial Groups Compare to Monoracial Groups on Key Characteristics?" PSC Research Report No. 02-516, University of Michigan.

Fernández, R. and R. Rogerson. 2001. "Sorting and Long-run Inequality" *The Quarterly Journal of Economics* 116(4):1305-1341.

Friedlander, Dov and Calvin Goldscheider. 1979. *The Population of Israel*. New York: Columbia University Press.

Friedlander, Dov, Barbara S. Okun, Zvi Eisenbach, and Lilach Lion Elmakias. 2002. "Immigration, Social Change and Assimilation: Educational Attainment among Birth Cohorts of Jewish Ethnic Groups in Israel, 1925-1929 to 1965-1969." *Population Studies* 56(2):135-150. See also "Correction" in *Population Studies* 58(1): 125-126.

Friedlander, Dov, Ainat Aviv, and Lilach Lion-Elmakias. 2006. *Matriculation Examinations in the 90s*. Unpublished Manuscript (In Hebrew).

Fu, V. 2001. "Racial Intermarriage Pairings." *Demography* 38(2):147-159.

Goldscheider, C. 1996. *Israel's Changing Society: Population, Ethnicity, and Development.* Boulder, Co: Westview Press.

Goldstein, Joshua R. "Kinship Networks that Cross Racial Lines: The Exception or the Rule?" *Demography* 36(3):399-407.

Gshur, Binyamim and Barbara S. Okun. 2003. "Generational Effects on Marriage Patterns: Jewish Immigrants and Their Descendants in Israel." *Journal of Marriage and the Family,* 65(2): 287–301.

Gullickson, Aaron. 2003. "The Educational Stratification of Biracial Black/White Children." Paper presented at the 2003 Population Association of America Annual Meetings, Minneapolis, MN.

Harris, David R. and Jeremiah Joseph Sim. 2002. "Who is Multiracial? Assessing the Complexity of Lived Race." *American Sociological Review* 67:614-627.

Jones, Nicholas and Amy Symens Smith. 2001. "The Two or More Races Population: 2000." In *Census 2000 Brief*. Washington, DC: U.S. Census Bureau.

Kalmijn, Matthijs. 1993. "Trends in Black/White Intermarriage." *Social Forces* 72(1):119-146.

Kalmijn, Matthijs. 1998. "Intermarriage and Homogamy: Causes, Patterns, Trends." *Annual Review of Sociology* 24:395-421.

Kao, Grace and Jennifer S. Thompson. 2003. "Racial and Ethnic Stratification in Educational Achievement and Attainment. *Annual Review of Sociology* 29:417-442.

Khait-Marelly, Orna. 2004. "Sociodemographic Influences on the Risk of Divorce: Jewish Couples in Israel." M.A. Thesis, Dept. of Sociology and Anthropology, Hebrew University.

Khazzoom, Aziza. 2003. "The Great Chain of Orientalism: Jewish Identity, Stigma Management and Ethnic Exclusion. *American Sociological Review* 68(4): 481-510.

Khazzoom, Aziza. 2005. "Did the Israeli State Engineer Segregation? On the Placement of Jewish Immigrants in Development Towns in the 1950s" *Social Forces* 84 (1): 115-134.

Kremer, Michael. 1997. "How Much Does Sorting Increase Inequality" *The Quarterly Journal of Economics* 112(1):115-139.

Lam, David. 1986. "The Dynamics of Population Growth, Differential Fertility, and Inequality." *American Economic Review* 76(5):1103-1116.

Lieberson, Stanley and Mary Waters. 1988. *From Many Strands: Ethnic and Racial Groups in Contemporary America*. New York: Russell Sage Foundation.

Lopez, D. and Y. Espiritu. 1990. "Panethnicity in the United States: A Theoretical Framework." *Ethnic and Racial Studies* 13:198-224.

Mare, Robert. 1995. “Changes in Educational Attainment and School Enrollment” Pp. 155-213 in *State of the Union: America in the 1990s*, Volume One: Economic Trends, edited by Reynolds Farley. New York: Russell Sage.

Mare, Robert. 2000. “Assortative Mating, Intergenerational Mobility, and Educational Inequality” California Center for Population Research On-Line Working Paper Series CCPR-004-00.

Mare, Robert and Vida Maralani. 2006. “The Intergenerational Effects of Changes in Women’s Educational Attainments” *American Sociological Review* 71:542-564.

Mare, Robert and Kelly Musick. 2004. “Family Structure, Intergenerational Mobility, and the Reproduction of Poverty: Evidence for Increasing Polarization?” *Demography* 41(4):629-648.

Mare, Robert and C. Winship. 1988. “Ethnic and Racial Patterns of Educational Attainment and School Enrollment.” Pp. 173-203 in *Divided Opportunities: Minorities, Poverty, and Social Policy*, edited by Gary Sandefur and Marta Tienda. New York: Plenum.

Matras, Judah. 1973. "On Changing Matchmaking, Marriage and Fertility in Israel: Findings, Problems and Hypotheses." *American Sociological Review* 79(2):364-388.

Merton, R.K. 1941. "Intermarriage and Social Structure." *Psychiatry* 4:361-374.

Okun, Barbara S. 2001. "The Effects of Ethnicity and Educational Attainment on Jewish Marriage Patterns: Changes in Israel, 1957-1995." *Population Studies* 55(1): 49-64.

Okun, Barbara S. 2004. "Insight into Ethnic Flux: Marriage Patterns among Jews of Mixed Ancestry in Israel. *Demography* 41(1):173-187.

Peritz, E., F. Dreyfuss, H.S. Halevi, and U.O. Schmelz. 1973. "Mortality of Adult Jews in Israel, 1950-1967." *Special Series* No. 409. Jerusalem: Israel Central Bureau of Statistics.

Preston, Samuel. 1974. "Differential Fertility, Unwanted Fertility, and Racial Trends in Occupational Achievement." *American Sociological Review* 39(4):492-506.

Preston, Samuel and Cameron Campbell. 1993. "Differential Fertility and the Distribution of Traits: The Case of IQ." *American Journal of Sociology* 98(5):997-1019.

Qian, Zenchao C. 1997. "Breaking the Racial Barriers: Variations in Interracial Marriage between 1980 and 1990."*Demography* 34(2):263-276.

Rosen, S. 1982. "Intermarriage and the 'Blending of Exiles' in Israel." *Research in Race and Ethnic Relations* 3:79-102.

Rosenfeld, M.J. 2005. "A Criticique of Exchange Theory in Mate Selection." *American Journal of Sociology* 110(5):1284-1325.

Shai, Shmuel, et al. 2005. "Zakaut v'E-Zakaut l'Teudat Bagrut" [Attainment and non-Attainment of the Matriculation Diploma]. Publication no. 5 of the Van Leer Jerusalem Institute, Jerusalem (In Hebrew).

Shavit, Yossi and Haya Stier. 1997. "Ethnicity and Education in Patterns of Marriage in Israel: Changes over Time." *Megamot* 2:207-225 (In Hebrew).

Smooha, Sammy. 1993. "Class, Ethnic and National Cleavages and Democracy in Israel." in *Israeli Democracy Under Stress*, edited by E. Sprinzak and L. Diamond. Boulder, CO: Lynne Rienner Publishers.

Tarabellsi-Hadad, Tamar. 2005. "Pe'arim Gdolim b'Bagrut bain Ashkenazim v'Mizrahim" [Large Gaps in Matriculation between Ashkenazim and Mizrahim] *Yediot Ahronot,* December 18, 2005 (In Hebrew).

Xie, Y. and Kimberly Goyette. 1997. "The Racial Identification of Biracial Children with One Asian Parent: Evidence from the 1990 Census." *Social Forces* 76:547-570.

Ya'ar, E. 2005. "Continuity and Change in Israeli Society: The Test of the Melting Pot." *Israel Studies* 10(2): 91-128.

Zarchin, Tomer. 2000. “Mechkar: Dor Habanim Lo Sagar Et HaPar Haadati” [Research: The Second Generation Has Not Closed the Ethnic Gap”] Retrieved on February 7, 2007 from http://www.ynet.co.il/articles/0,7340,L-138149,00.html (In Hebrew).

NOTES

[1] For the sake of brevity, we refer to ethnicity, rather than ethnicity/race, throughout the paper.

[2] Gullickson (2006) also suggests that the social and geographic isolation of lower-class members of low-prestige ethnic groups hinders their chances of marrying members of high-prestige ethnic groups. In the interests of space, the implications of this isolation theory for the relative status of multiethnics will not be explored here.

[3] We focus here on the Jewish population of Israel, as the Arab minority is a very different and heterogeneous group, and there is little Jewish-Arab intermarriage.

[4] A popular internet dating service among Jewish Israelis called "Jdate" (www.jdate.co.il), asks in its participant questionnaire about the ethnicity of participants and their desired partners, and lists 4 options: Ashkenazi, mixed, Sephardi, and other ethnicity. Ashkenazi refers to Jews of European ancestry; Sephardi is a term sometimes used instead of Mizrahi, and refers largely to Jews whose ancestors stem from the Arab or Muslim countries of the Middle East or Asia; other ethnicity presumably refers to non-Jews (e.g. Arabs). The explicit consideration of Jews of "mixed" ethnicity is illustrative of the recognition accorded to this distinct group of multiethnics.

[5] Because of the relatively recent history of mass migration to Israel, only a small minority of native-born Israelis in the relevant age groups in 1995 have grandparents who were born in Israel. In these cases, the respondents' ethnicity was defined as Ashkenazi, as the large majority of very early immigrants to Israel were European (Friedlander and Goldscheider 1979).

[6] Because the data do not contain information on grandmothers' place of birth, we identify the ethnicity of native-born parents only in terms of their own fathers' place of birth. However, since ethnic endogamy in marriage was the dominant pattern in the early decades of Statehood (Okun 2001), it is likely that grandmothers were of the same ethnicity as their husbands.

[7] Non-marital fertility rates in Israel are very low (ICBS 1998).

[8] It is generally not the case that the number of couples comprising Mizrahi women/Ashkenazi men is equal to the number of couples comprising Ashkenazi women/Mizrahi men. Therefore, in the counterfactual scenarios in which ethnically exogamously married spouses are reassigned to marry endogamously, some persons remain unmarried. In all cases, the persons who remain unmarried are selected at random.

[9] An alternative research strategy would be to consider the effects of returning exogamously married spouses to the overall marriage market, and simulating new endogamous marriages for all couples. This strategy would entail reassigning all persons to new same-ethnicity spouses. We felt that reassigning all persons to new spouses would introduce too much noise and detract attention from our central focus on the marriage patterns of exogamously married spouses.

[10] The computations for educational attainment of fathers and mothers were based on information on parents' education. Because our sample is representative of the offspring of parents, and not of parents themselves, parents of larger families are over-represented in our sample. Because parents of larger families tend to be less educated, our sample may underestimate educational attainment among parents. To correct for this, we recomputed the educational outcomes of fathers and mothers by weighting observations by a factor equal to 1 divided by the number of children per family. The weighted outcomes resulted in slightly higher educational attainment among parents of all ethnic groups, but the ethnic gaps among parents were virtually unaffected, because the proportions with higher educational diplomas increased by almost the same amount in each ethnic group.

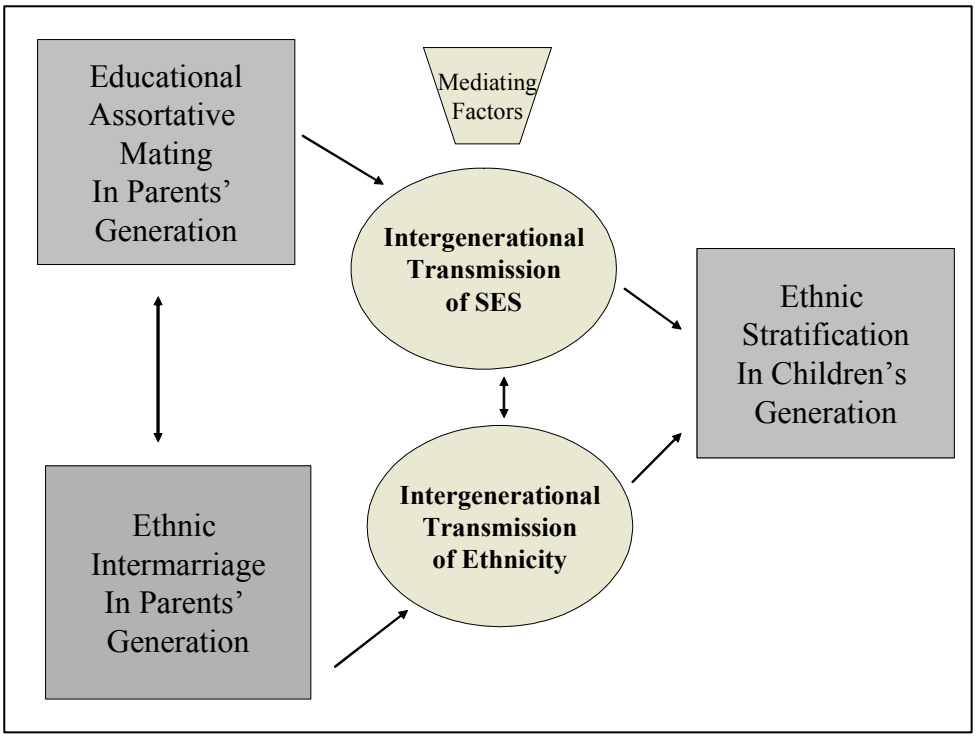

Figure 1: A Model of the Effects of Educational Assortative Mating and Ethnic Intermarriage on Ethnic Stratification

Table 1. Percent of native-born Israeli Jews holding a matriculation diploma, by ethnicity and sex, persons aged 18-21 in 1995

Ethnic group	Males	Females
Mizrahim (n=3230)	41.6%	58.6%
Ashkenazim (n=2533)	69.9%	80.0%
Multiethnics (n=1212)	58.2%	71.2%

Source: Intergenerational Data File.

Table 2. Percents of fathers and mothers with matriculation diplomas or higher, among parents of respondents aged 18-21 in 1995, by marital type

	Fathers	Mothers
Mizrahi married endogamously	11.1%	11.7%
Ashkenazi married endogamously	55.7%	62.4%
Mizrahi married exogamously	29.7%	31.3%
Ashkenazi married exogamously	27.4%	37.5%

Source: Intergenerational File. See endnote 6 to the text.

Table 3. Percent of native-born Israeli Jews aged 18-21 in 1995 holding a matriculation diploma, by ethnicity and sex, under actual and simulated scenarios where multiethnics are reassigned to one or the other of the primary ethnic groups

		Mizrahim	Ashkenazim	Gap in Percentage Points	% Change in Gap
Actual Respondents	Men	41.6%	69.9%	28.3%	-
	Women	58.6%	80.0%	21.4%	-
With multiethnics reassigned as Mizrahim	Men	46.0%	69.9%	23.9%	-15.6%
	Women	62.1%	80.0%	17.9%	-16.4%
With multiethnics reassigned as Ashkenazim	Men	41.6%	66.3%	24.7%	-12.7%
	Women	58.6%	77.0%	18.4%	-14.0%

Source: Intergenerational File.

Table 4. Percent of native-born Israeli Jews aged 18-21 in 1995 holding a matriculation diploma, by ethnicity and sex, under actual and simulated scenarios where ethnically exogamously married parents are reassigned to marry endogamously.

		Mizrahim	Ashkenazim	Multiethnics	Ashkenazi-Mizrahi Gap in Percentage Points	% Change in Gap
Actual Respondents	Men	41.6%	69.9%	58.2%	28.3%	-
	Women	58.6%	80.0%	71.2%	21.4%	-
Simulated Respondents from Reassigned Parents[1]	Men	54.0%	60.4%	-	6.4%	-77.4%
	Women	70.2%	74.0%	-	3.8%	-82.2%
Weighted Average of Actual and Simulated Respondents	Men	43.4%	68.3%	-	24.9%	-12.0%
	Women	60.4%	78.8%	-	18.4%	-14.0%

Notes: [1]Parents are reassigned at random to marry endogamously, and we employ the fertility invariance assumption. See text for details.
Source: Intergenerational File.

Table 5. Actual and simulated intergenerational changes in ethnic gaps in educational attainment

	Fathers/Sons	Mothers/Daughters
Ethnic Gap among Parents in percentage points	35.7%	42.6%
Ethnic Gap among Respondents in percentage points[1]	28.3%	21.4%
% Change in Gap across Generations	-20.7%	-49.8%
Simulated % Change in Gap across Generations if multiethnics reassigned as Mizrahim	-33.1%	-58.0%
Simulated % Change in Gap across Generations if multiethnics reassigned as Askenazim	-30.8%	-56.8%
Simulated % Change in Gap if parents of multiethnics reassigned to marry endogamously.[2]	-30.0%	-56.8%

Source: Intergenerational File.
Notes: [1]Respondents are sons and daughters, who are aged 18-21 in 1995. [2]Parents are reassigned at random to marry endogamously, and we employ the fertility invariance assumption. See text for details.

Appendix Table 1

Logistic regression results from models of the odds of matriculation among respondents aged 18-21, by sex and primary ethnic group. Reported figures are unexponentiated coefficients, with standard errors in parentheses.

A. Mizrahi men

Explanatory factors	
Mother's education	
High school diploma, but no matriculation	0.40** *(0.12)*
Matriculation diploma	0.72** *(0.25)*
Post-secondary diploma	0.86** *(0.23)*
Father's education	
High school diploma, but no matriculation	0.19 *(0.12)*
Matriculation diploma	0.14 *(0.26)*
Post-secondary diploma	0.55* *(0.27)*
At least one parent with a B.A.	
Mother B.A. or higher and/or Father B.A. or higher	2.47** *(0.41)*
Deviance Chi-Squared Statistic (degrees of freedom)	6.2 (9)
N	1,671

Appendix Table 1 continued

B. Ashkenazi men

Explanatory factors	
Mother's education	
High school diploma, but no matriculation	0.79** *(0.21)*
Matriculation diploma	1.01** *(0.25)*
Post-secondary diploma	1.06** *(0.23)*
Father's education	
High school diploma, but no matriculation	0.44* *(0.19)*
Matriculation diploma	0.58* *(0.25)*
Post-secondary diploma	0.63** *(0.24)*
At least one parent with a B.A.	
Mother B.A. or higher and/or Father B.A. or higher	2.81** *(0.23)*
Deviance Chi-Squared Statistic *(degrees of freedom)*	12.4 (9)
N	1,335

Appendix Table 1 continued

C. Mizrahi women

Explanatory factors	
Mother's education	
High school diploma, but no matriculation	0.46** *(0.13)*
Matriculation diploma	0.52 *(0.29)*
Post-secondary diploma	1.28** *(0.31)*
Father's education	
High school diploma, but no matriculation	0.45** *(0.13)*
Matriculation diploma	0.88** *(0.30)*
Post-secondary diploma	1.01** *(0.34)*
At least one parent with a B.A.	
Mother B.A. or higher and/or Father B.A. or higher	2.18** *(0.48)*
Deviance Chi-Squared Statistic *(degrees of freedom)*	8.1 (9)
N	1,559

Appendix Table 1 continued

D. Ashkenazi women

Explanatory factors	
Mother's education	
High school diploma, but no matriculation	0.51* *(0.24)*
Matriculation diploma	0.94** *(0.30)*
Post-secondary diploma	0.95** *(0.27)*
Father's education	
High school diploma, but no matriculation	0.66** *(0.21)*
Matriculation diploma	0.86** *(0.29)*
Post-secondary diploma	1.40** *(0.30)*
At least one parent with a B.A.	
Mother B.A. or higher and/or Father B.A. or higher	2.19** *(0.26)*
Deviance Chi-Squared Statistic *(degrees of freedom)*	10.9 (9)
N	1,198

Notes: Reference categories for mothers' and fathers' education are mother primary school education, and father primary school education. Reference category for "Mother B.A. or higher and/or Father B.A. or higher", is neither parent with B.A. or higher.

* p<.05; ** p<.01.