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Pride and Prejudice: Using Ethnic-Sounding Names and Inter-Ethnic Marriages to Identify Labor Market Discrimination

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Abstract
We use non-random sorting into interethnic marriage and salient differences between Sephardic and Ashkenazi surnames to evaluate the causal impact of Sephardic affiliation on wages. Using the 1995 Israeli Census, we estimate the effect of a Sephardic affiliation on wages. We first compare the wages of Israeli Jewish males born to Sephardic fathers and Ashkenazi mothers (SA), who are more likely to carry a Sephardic surname, with the wages of Israeli Jewish males born to Ashkenazi fathers and Sephardic mothers (AS). We find that SA workers earn significantly less than their AS counterparts. We then exploit the custom of women to adopt their husbands. surnames to disentangle actual ethnicity from the ethnicity perceived by the market. Consistent with our interpretation of the results for males, we find that it is father-in-law's ethnicity - rather than father's ethnicity - that shapes female wage rates, yet only for daughters of interethnic couples and others with mild skin tone who have equal chances to be perceived either as an Ashkenazi or as a Sephardic group member.

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I Introduction

Half a century after Becker's (1957) seminal work on the economics of discrimination and decades after the pioneering work by Phelps (1972) and Arrow (1973) on theories of statistical discrimination and its self-confirming effects (Loury, 1977, 1981),[1] it is well recognized that ethnic diversity has profound and far-reaching implications for social welfare and economic outcomes, both within societies - by affecting the relative economic outcomes of different groups - and between economies - by influencing national rates of economic growth (Easterly and Levine, 1997).

Identifying the presence of labor market discrimination and evaluating its impact on earnings, however, faces several major obstacles. It involves separating skill differences and personal choices from prejudice and stereotyping. Ideally, we would like to compare outcomes of individuals who are identical in all respects except in how labor markets perceive their ethnicity. One approach is to use measures of academic achievement and learning aptitude to account for premarket factors (e.g., Neal and Johnson, 1996). But, this approach might fail to approximate the *ceteris paribus* conditions; because these individual traits might themselves reflect the impact of discrimination (Altonji and Blank, 1999, Carneiro, Heckman and Masterov, 2005).

Audit studies are an alternative approach to identify discrimination. Using paired testers who differ only in their perceived race, audit studies attempt to control for systematic differences across groups. Because of the difficulties associated with forming identical pairs, recent studies in the labor market context, used fictitious resumes with distinctively ethnic names to manipulate employers' perceptions of race. This is a very powerful approach for measuring discrimination (Bertrand and Mullainathan, 2004) in terms of receiving a job interview among a randomly selected sample of firms, but it might not provide a complete measure of discrimination in the overall labor market, as suggested by Becker (1957) and Heckman (1998).[2]

In this paper we offer a different approach. We take advantage of the ethnic-origin-related genealogy of family names passed from father to offspring and the fact that marriages are not random, but rather exhibit strong sorting patterns along many attributes, to approximate a ceteris paribus experiment and evaluate the causal impact of discrimination on wages in observational data. We compare the wages of individuals who, we will argue, are similar in

[1] This early work was followed by Durlauf (1996) and Benabou (1996), who emphasized the feedback impact of pre-labor market discrimination on the accumulation of human capital by future generations, and also Coate and Loury (1993), who studied the implications of statistical discrimination through self-fulfilling prophecies when information is imperfect.

[2] Goldin and Rouse (2000) isolate the importance of gender preference in a market-like setting for sex-biased hiring.

all respects that are relevant for labor market performance and differ only in how the market perceives their ethnicity, as signaled by their inherited ethnic-sounding family names.

The Israeli Jewish society–which is composed of two major ethnic groups with distinct geo-cultural origins–provides a natural laboratory for identifying the degree of ethnic wage discrimination. Ashkenazim are the dominant socio-economic group in Israel. The Ashkenazim are of Northern and Eastern European descent ("Ashkenaz" meaning "Germany" in Medieval Hebrew). In contrast, the Sephardim primarily have Spanish, Portuguese, or Northern African origins ("Sepharad" meaning "Spain" or "Iberia" in Hebrew).[3]

On average, the Ashkenazi have experienced greater socio-economic success than Sephardic Jews in Israel despite religious similarities, integration through the educational system, joint military service and "collective consciousness," as well as genetic similarities between Ashkenazi and Sephardic Jews (Behar et al. 2006; Owens and King, 1999). These disparities exist in educational attainment (Semyonov and Lewin-Epstein, 1991; Cohen and Haberfeld, 1998), earnings (Haberfeld and Cohen, 2007), juvenile delinquency and adult criminal involvement (Fishman et al., 1987; Ajzenstadt and Borowski, 2005). By the late 1990s, half a century after the establishment of the state of Israel, the Sephardic-Ashkenazi wage gaps had become as large as the black-white wage gaps in the United States as reported by Altonji and Blank (1999), e.g., about 12 percent after conditioning on education, potential experience, and other demographics.

For the purposes of this paper, the major distinguishing characteristic between Ashkenazim and Sephardim is their surname: the ethnic-related genealogy of family names signals to labor markets whether a person is Ashkenazi or Sephardic. Today, Jewish family names in Israel are typically either Sephardic or Ashkenazi.

Moreover, and critically for this paper, surname also shapes whether labor markets perceive Israelis born to interethnic parents as Sephardic or Ashkenazi. The vast majority of marriages are within the "Ashkenazi" and the "Sephardic" groups (Goldscheider, 2002), so that a person's last name is still a fairly accurate signal of the ethnic origins of both a person's mother and father.[4] Consequently, labor markets tend to use surname as a signal of

[3]Israel can be described most succinctly as dual (Lewin-Epstein and Semyonov, 1986) on two levels: Israeli Jews and Israeli Arabs, and, within the Jewish population, "Ashkenazim" and "Sephardim." In modern Israeli Hebrew, the term "Sephardim" typically refers to Jews of Arabic or Persian descent, whereas, the term "Ashkenazim" refers to descendants of Jews from Germany, Poland and Austria and is often applied to all Jews of European background living in Israel. For religious practice, Jews of these communities are considered to be "Sephardim", meaning "Jews of the Spanish rite", or, Ashkenazim, meaning "Jews of the German rite", whether or not their families actually originate in Spain or Germany, respectively. Consequently, the two ethnic groups tend to use different international "Jewish" languages, with Ashkenazim typically speaking "Yiddish" and Sephardic "Ladino."

[4]The proportion of intra group marriages dropped slightly over time from 93% to 86% in 1995 (according to the 1972 and the 1995 census).

ethnic affiliation. For people who are indistinguishable in all other respects, it is the ethnic-related genealogy of the family name that shapes how the labor market perceives a person's ethnicity.

Using the Israeli Census of 1995, the first to contain both father's and mother's country of birth, we attempt to approximate a *ceteris paribus* experiment - that is varying the market's perception of a person's ethnicity while keeping all other factors constant - by comparing the log hourly wages of male workers born to Sephardic fathers and Ashkenazi mothers (hereafter SA) with the wages of males born to Ashkenazi fathers and Sephardic mothers (hereafter AS).

The structural interpretation of the wage gaps in this benchmark empirical setting rests on the assumption that individuals born to Sephardic fathers and Ashkenazi mothers are similar to, if not better than, their Ashkenazi-Sephardic counterparts in all respects that are relevant to labor market performance. The only difference is in their propensity to carry a Sephardic sounding family.

This is not a trivial assumption. While children of interethnic unions are presumably indistinguishable in terms of physical attributes from those of single ethnic unions, regardless of the nature of sorting into interethnic marriages, family environment and child-raising habits that are central to the formation of skills and personal traits are not exogenous to the patterns of the interethnic mating. Specifically, in a society in which being Sephardic is viewed as a negative cultural trait, one may wonder which types of Ashkenazi women marry Sephardic men. And even if pairing into mixed unions was random, children in AS families may also enjoy better home environments than those of the SA, since the Ashkenazim have on average stronger socioeconomic characteristics than the Sephardim. These and other factors raise concerns as to whether children from SA families enjoy similar home environments and parental influences, either via nature or by nurture, than children from AS families.

We utilize the economics and sociology of marriage and a rich set of measures of home environments and early achievement to address conceptually and evaluate empirically these concerns.

A considerable body of research indicates that marriages are not random. Rather, marriages exhibit strong sorting along many attributes, such that people tend to marry others with very similar socio-economic characteristics (Becker, 1981; Qian, 1997). The leading theories in economics (Becker, 1981) and sociology (Merton, 1941; Blau 1964) of intermarriage among ethnic and racial groups predict that Ashkenazim must be compensated for their higher social status by intermarrying with Sephardim with other comparably valuable traits. Although this earlier literature does not provide predictions on whether the AS or the SA pairings will have, on average, stronger socioeconomic traits, recent studies report that

women have a stronger preference for the income and ethnicity of their partner than vice versa (Hitsch, Hortaçsu, and Ariely, 2010). Therefore, while Sephardic men might not be able to draw women from the very right tail of the Ashkenazi "talent" distribution, highly-educated, economically successful Sephardic men may be especially attractive to other women with strong preferences for human capital (and income). And the less "talented" Ashkenazi men should have a comparative advantage among women with strong tastes for perceived Ashkenazi ethnicity. In this scenario we expect children of SA parents to be similar to, if not better than, their AS peers in all respects that are relevant to labor market performance.

Econometrically, our main identifying assumption is that the bias on the unobservables is in the same direction as the bias on the observables. The assumption rests on the insight, formulated in Altonji Elder and Taber (2005), that when the observed variables are a random sub-set of all factors that determine wages than the bias on the unobservables is the same as the bias on the observables.

We present a wide array of evidence that both supports the validity of our identifying assumption and suggests that the data are biased in favor of finding that children from SA parents will earn more than their counterparts from AS parents. That is, measures of family background, cognitive skills, cultural preferences, educational attainments and social networks indicate that the contrast between those born to Sephardic fathers and Ashkenazi mothers (SA), the "treatment group," and their "Ashkenazi-Sephardic" counterparts (AS), the "comparison group," provide a conservative setting for estimating the causal effect of perceived ethnic affiliation, as signaled by family name, on wages. We find that *both* parents of SA children have higher levels of education and earn more than their AS counterparts. SA children were raised in higher-status communities than their AS peers and have the same number of siblings. It is thus no surprise to find that children of SA parents do better on cognitive achievement tests and achieves better educational credentials as their AS peers. To the extent that religious practices might proxy for latent child-raising habits, norms, traditions and beliefs that are not reflected in academic achievements, we find that fathers, mothers and sons in SA families are as secular as their AA peers, the elite group, and less orthodox than their AS peers and Sephardic men in SS unions. Thus, the data suggest that SA are similar to, if not better than, their AS peers, so that any correlation between parent's origin and unobserved factors that affect wages will tend to create a bias *against* finding that AS individuals earn more than their SA peers.

We find that Israeli prime age full-time full-year AS males earn between 7 to 11 percent more than their SA counterparts. This gap in wages cannot be attributed either to educational attainment, location of residence, or sorting into better paying occupations and Industries. Accounting for location of residency, occupations and industries fixed effects, we

find a larger log residual wage gap between AS and SA workers and the magnitude of this AS-SA residual wage gap is very similar to that between workers born to purely Ashkenazi and purely Sephardic parents (hereafter, AA and SS respectively).

Next, we utilize the common tradition in the Jewish culture, (and others too) for women to adopt their husbands' last names upon marriage, to put a wedge between a woman's perceived ethnicity, as inferred by labor markets, and her actual ethnic origin. While parents' origin determines a woman's ethnicity, it is her father-in-law's surname that is observed by labor markets. If the perceived ethnic affiliation matters, married women's wages should reflect their father-in-law's origin, rather than their own ethnicity.

Consistent with our interpretation that labor markets discriminate based on perceived ethnicity, we find that it is father-in-law's ethnicity - rather than the ethnicity of the woman's own father - that matters for a woman's earnings. Remarkably similar patterns to those obtained among men are found when the population of married women is classified by fathers' and fathers-in-law's ethnicity rather than their parents' origin.

We go further by distinguishing among people where surname is a better - or worse - signal of ethnicity. Conceptually, a person's surname should shape the market's perception of ethnicity more when there are no other informative signals about ethnicity. If the labor market can confidently discern a person's ethnicity through other means, such as skin tones, then surname should be less useful in explaining earnings differentials. To accomplish this, we obtain information on skin tones, since the Ashkenazi originate from more northern areas than the Sephardic. Despite sharing an origin point, Ashkenazi Jews often are lighter in skin, eye color and hair than the Sephardim. This diversity reflects intermingling with the populations among which Jews have lived.

We find that when the market can distinguish ethnicity through skin tone, then surname matters less for accounting for wage differences between the children of SA and AS parents. Specifically, we estimate the impact of fathers-in-law's ethnicity on prime aged women born to AS and SA families. We find that the effect of perceived ethnicity among women to be of the same order of magnitude found among men. The sub-set of the population with mild skin tone is not limited to women born to AS or SA parents. Even within AA and SS tone color might vary by country of origin. We use Von Luschan's chromatic scale and parents' country of origin to assign a skin tone to each person, which equals to the average skin color of the representative persons in her parents countries of origin.[5] We re-estimate the impact of fathers' and fathers-in-law's ethnicity separately for women with mild skin tones and for all others. We find fathers-in-law's ethnicity matters, at similar magnitude to those obtained

[5] One of the earliest rigorous quantitative classifications of skin tone degree is the Von Luschan's chromatic scale method.

for SA, yet only among women with mild skin tones. We obtain similar findings for men.

Our study is not the first to use distinctively minority-sounding names to separate skill differences from race and ethnicity. While field experiments found that resumes with traditional names are substantially more likely to lead to job interviews than identical resumes with distinctively minority-sounding names (Jowell and Prescott-Clarke, 1970; Brown and Gay, 1985; Bart et al., 1997; Bertrand and Mullainathan, 2004), Fryer and Levitt (2004b) found no evidence that proxies for pay are worse for those with ethnic names after controlling for background characteristics. Further, we are not the first to utilize ethnic-sounding names in the Israeli context. Fershtman and Gneezy (2001) found systematic mistrust toward Sephardic Jews, in a set of laboratory experiments in which Sephardic and Ashkenazi sounding-names were employed to signal ethnicity. Finally we are not the first to integrate name labels to examine discrimination with observational data. Recently, Arai and Thoursie (2009) have found that immigrants to Sweden earned substantially more after they voluntarily abandoned their foreign-sounding names.

Yet, our study is the first to offer a setting that utilizes name labels to approximate the ceteris paribus conditions with observational data. Although name label studies are intuitively appealing, their interpretation is controversial. A distinctive choice of a name might be "primarily a consequence rather than a cause" of economic success (Fryer and Levitt, 2004b, page 801). Similarly, a name change is exogenous neither to investment in human capital nor to formation of social networks. By focusing on the labor market outcomes of individuals born to interethnic unions and among people with neither too light nor too dark skin tones for whom surname is a credible signal of ethnicity our research designs approximate ceteris paribus experiments. These experiments enable comparison of wages among individuals who are similar in all respects that influence wages, except for in their perceived ethnicity (as signaled by ethnic-sounding family names). To the best of our knowledge, this is the first paper to incorporate the insight that name labels manipulate perception when ethnic names sound credible to identify the causal impact of perceived ethnicity in observational data.

The remainder of the paper is organized as follows. Section II provides a brief overview of ethnic diversity within Israeli Jewish society and describes the data. Section III lays out the econometric framework and identifying assumptions. Section IV presents evidence on family environment and academic achievements to assess the validity of the SA-AS treatment-comparison group setting. In section V, we report the estimated impact of Sephardic affiliation on men's wages. Sections VI and VII utilize the gender-specific linkage between father and father-in-law's ethnicity to further evaluate the impact of ethnic discrimination on women's wages. Section VIII concludes.

II Background and Data

Ethnicity is a central dimension of Israeli society. In this paper we focus on the segmentation within Israeli society between Jews of European or American descent and Jews of Asian or African origin.

II.a Ethnicity and Migration to Israel

Ashkenazi Jews were the first Jews to settle in Israel, and they came mainly from Eastern European countries. Most Sephardic Jews arrived after Israel achieved statehood and came mainly from Muslim countries of the Middle East and North Africa. During the 1990s Israel experienced mass migration from the former USSR following the collapse of the "Iron Curtain". By the mid-1990s, about half of the Israeli Jews aged 22 to 65 were born in Israel, the vast majority of whom were born to parents who immigrated to Israel.

II.b Economic and Social Ethnic Gaps

A large body of research documents persistent ethnic-related gaps among Israeli-born Jews on many indicators of social welfare, including educational attainment, (Semyonov and Lewin-Epstein, 1991; Cohen and Haberfeld, 1998; Dahan et al 2003) earnings (Haberfeld and Cohen, 2007), juvenile delinquency, and adult criminal involvement (Fishman et al., 1987; Ajzenstadt, 2005). While the poor outcomes of first generation of Sephardim immigrants have often been attributed to low levels of economic development in their source countries (Eisenstadt, 1954; Shuval 1963; Semyonov and Lerhental, 1991) or lack of personal ties with those who controlled resources (Semyonov and Tyree, 1981), the socioeconomic gaps among the second generation (Amir, 1987; Mark 1994; Yitchaki and Schechtman, 2009) and the third generation are challenging and intriguing.[6]

Ethnic segregation within the Israeli Jewish population is also reflected outside labor markets. As in the United States, neighborhoods segregated by ethnic origin are not limited to immigrants, and most marriages are within ethnic groups (Goldscheider, 2002).[7] It is thus not surprising to find that ethnicity is one of the top characteristics on the popular Jewish singles network JDate.com.

[6] For details, see web appendix
http://dl.dropbox.com/u/9682736/Web%20Appendix/WEB24NOV2012.pdf

[7] The proportion of inter-ethnic couples increased from 7 to 14 percent points between 1970 and 1995.

II.c Surnames and Ethnicity

Family names are of great importance in Judaism, as they often indicate a person's genealogy or origin of family (Kaganoff, 1977). Among Sephardic Jews, a surname may be derived from a person's hometown, as Toledano (from Toledo), Alfasi (from Fez), Mizrahi (from the east), or Levanti (from the Levant). They may also be derived from the name of an important ancestor, or even refer to historical figures such as King David (Ibn Daoud is son of David). A common prefix is Ibn, which means son in Arabic; thus, Ibn Malka is "the son of Malka" (queen), and a person who carries the name Ibn Shaltiel is a descendent of Shaltiel.

Most Ashkenazi last names are derived from three sources. The first is genealogy: Aharonson is the son of Aharon, Abramson is son of Abram, and so on. The second source is historical residence, such as Rotenberg (family from Rotenberg). The third source is personal characteristics, such as Gross (Large), Klein (small), Weiss (white).[8] Personal characteristics also include professions historically common to the family, e.g., Schneider (tailor) and Kaufman (merchant).

Generally speaking, Sephardic and Ashkenazi Jews have different and distinct names. The only exceptions are probably Cohen and Levi, which are carried by persons of both groups.[9] By the early 2000s, the vast majority of common Jewish family names in Israel were either Sephardic (e.g., Mizrachi, Peretz, Biton, Dahan, Azulai, Gabai, Amar, Ochion, Chadad/Hadad, Ben-David, Adrei) or Ashkenazi (Friedman, Katz, Levin).

II.d Data

To evaluate the impact of ethnic affiliation on pay, we draw on the 20 percent public-use Israeli Census of 1995, which is the first to contain both fathers' and mothers' countries of birth (for those born in Israel).

We also use data taken from the public-use micro files from the 1972, 1983 and the linked 1983-1995 sample of the Israeli censuses. The 1972 and 1983 samples provide supplementary information on home environment, including parental education and father's occupation. The linked 1983-1995 gives panel evidence on changes in women's wage following their marriage outside of their ethnic group. We complement the Census data with the Life History Study of Israeli Men (LHSIM), a stratified national probability sample of Jewish Israeli men

[8] These were sometimes given by authorities to Jews as a way of mockery. For example 'Reichman', which means rich man, to a poor man.

[9] The mapping from individuals' surnames to their ethnicity is not one-to-one. For various reasons, such as being an official representative of the Israeli state, due to marriage or potentially as reaction to discrimination, some Israelis adopt a Hebrew surname (Hebraization). These changes were mostly done by either of the following methods: (1) phonetic similarity (2) translation (3) adoption of a common first name (4) names of locations in Israel.

born in 1954, which contains information on cognitive ability and religious practice (summary statistics are available on Table A3).

Data sets do not provide self-reported ethnic affiliation. Therefore, the Israeli Jewish population is often classified into ethnic groups by a person's country of birth or, for Israeli-born, by their parents' country of birth. Our main analysis focuses on Israeli-born Jews. These are classified into four subgroups: (i) both parents were born in either Europe or America (AA); (ii) both parents were born in either Asia or Africa (SS); (iii) father was born in either Europe or America and mother was born in either Asia or Africa (AS); and (iv) father was born in either Asia or Africa and mother was born in either Europe or America (SA). About 4 percent of the population aged 25 to 65 are offspring of interethnic unions (Figure 1).

In our main wage analyses, for men and women, we focus on prime aged, 30 to 55 years of age, full-time (at least 35 work hours per week), full-year (12 month) workers (hereafter FTFY), who worked the entire month for which salary is reported. We trim wage outliers when calculating mean wages by excluding the bottom and top one percentile of the salaried Jewish male FTFY workers in the wage distribution. The appendix provides detailed information on each one of the data sets and the corresponding summary statistics.

III The Empirical Setting

III.a The Statistical Model

We illustrate formally our empirical strategy with the following statistical model. Let Y_i denote the log hourly wage of person i. Let N_i equal to one if person i possesses a Sephardic surname and zero otherwise. All other things equal, wages are determined by persons' perceived ethnicity as signaled by their surnames. In the context of our study, outcomes are determined by whether person i possesses a Sephardic surname ($N_i = 1$) assuming that, ethnic-sounding names serve as a valid signal of ethnicity. We assume that log of hourly wages are given by a linear-in-the-parameters specification:

$$Y_i = \delta N_i + W_i, \tag{1}$$

where $W_i = X_i'\lambda + \varepsilon_i$ and W is the full set of variables (observed X and unobserved ε) other than N that determine Y. λ and ε are defined so that $cov\left(\varepsilon, X'\lambda\right) = 0$, where ε represents all idiosyncratic person-specific influences on wages, including person-specific returns on N. The parameter of interest δ measures the *local* causal effect of a Sephardic surname on wages among individuals who have equal chances to be perceived by employers as an Ashkenazi or

a Sephardic.

People choose whether to carry their father's surname to maximize their utility. If labor markets use surnames as a signal for ethnicity, then it might be costly to have an ethnic-sounding surname (Sephardic surname). Yet it is not a "free lunch" to abandon it either. Let N^* denote a latent index of persons' utility from carrying a Sephardic surname. People possess a Sephardic surname if and only if 'benefits' exceed 'costs', which means:

$$N_i = 1\left(N_i^* = \gamma^* F_i + V_i^* \geq 0\right), \tag{2}$$

where F is a binary variable that equals one if person i's father was born in Asia or Africa and zero otherwise and $V_i^* = X_i'\alpha^* + \nu_i^*$. Hence N is exogenous neither to father's origin (F) nor to individuals'-specific market pays (ε), suggesting that the wage gap between those who choose to carry a Sephardic-sounding name and all others is subject to selection bias (Fryer and Levitt, 2004b).

For simplicity of illustration, yet without losing generality, let's assume that the reduced form relationship between possessing a Sephardic name (N) and father's origin (F) is:

$$N_i = \gamma F_i + V_i, \tag{3}$$

where γ is the difference between the ratio of Sephardic sounding names among those whose father was born in Asia or Africa $(F = 1)$ and all others $(F = 0)$ and $V_i = X_i'\alpha + \nu_i$.[10]

Hence, although intuitively appealing, consistent estimation of equation (1) calls for an 'instrument'. Since peoples' surnames are not commonly available to the econometrician we utilize father's origin to estimate the parameter of interest in a reduced form setting. Assuming that equation (3) approximates the reduced form linear relationship between a person's name and his father's origin then the reduced form equation of wages on father's ethnicity exhibits the following linear-in-the-parameters specification:

$$Y_i = \eta F_i + U_i, \tag{4}$$

where $U_i = X_i'\beta + \delta\nu_i + \varepsilon_i$, the structural interpretation of η is $\gamma\delta$, and $0 < \gamma \leq 1$.

Following Altonji, Elder and Taber (2005), AET henceforth, we utilize the bias on observables to assess bias on unobservables and obtain lower bound estimates for the impact of discrimination on wages.[11] The omitted variables formula implies that the OLS coefficient

[10] γ, α and ν are defined so that $cov\left(X'\alpha\ ,\nu\right) = 0$. Note that in the particular case of a linear probability model $\gamma^* = \gamma$.

[11] Altonji, Elder and Taber (2005) developed estimation methods based on the idea that the amount of selection on the observed explanatory variables provides a guide to the amount of selection bias on the

from a bivariate regression of wages on father's origin (equation 4) is:

$$\eta_{OLS} = \gamma\delta + \phi_{X\beta} + \phi_{\varepsilon}, \tag{5}$$

where $\phi_{X\beta} = cov\left(X'\beta, F\right)/var\left(F\right)$ and $\phi_{\varepsilon} = cov\left(\varepsilon, F\right)/var\left(F\right)$. Note that $\phi_{X\beta}$ is the *bias on the observables* and ϕ_{ε} is the *bias on the unobservables.* Following AET, yet allowing the selection on the unobservables (in wage units) to be ρ times the selection on the observables in relative standardized wage units[12], the OLS estimator, controlling for all observables, equals to:

$$\eta_{OLS} = \gamma\delta + \rho\frac{1}{\left(1 - R^2_{X,F}\right)}\frac{\sigma_{\varepsilon}}{\sigma_{X\beta}}\phi_{X\beta}, \tag{6}$$

where $R^2_{X,F}$, the selection on the observable into F, equals to the proportion of variability in F that is accounted explained by observables. Assuming, as in AET that the bias on the unobservables (ε) is the same as selection on the index of observables ($X\beta$), that is $\rho = \sigma_{\varepsilon}/\sigma_{X\beta}$, then the OLS estimator provides a lower bound for the negative impact of discrimination on wages (δ) as long as the gap on observables, measured in wage units $\left(\phi_{X\beta}\right)$, is positive:

$$p\lim \eta_{OLS} \geq \delta. \tag{7}$$

The minimum amount of selection on the unobservables relative to the selection on the observables (ρ^*) required to explain the perceived ethnicity effect equals to:

$$\rho^* = \eta_{OLS}\frac{\sigma_{X\beta}}{\sigma_{\varepsilon}}\frac{\left(1 - R^2_{X,F}\right)}{\phi_{X\beta}}. \tag{8}$$

In Practice

Our analysis focuses on children of interethnic unions. Using a wide range of observables, we provide (i) a lower bound for the causal impact of discrimination on pay (δ) assuming that the bias on the unobservables is in the same direction as the bias on observables and (ii) calculate the minimal amount of selection on the unobservables that is required to explain father's ethnicity effect following the procedure offered by AET (2005).

unobserved factors. They provide lower and upper bound estimates assuming that the ratio of selection on unobservables is in the same direction as selection on the 'observables'

[12] That is, $\rho = k \cdot \left(\sigma_{\varepsilon}/\sigma_{X\beta}\right)$. The bias is identical to the analysis in AET (2005) for $k = 1$ that is, $\rho = \left(\sigma_{\varepsilon}/\sigma_{X\beta}\right)$.

III.b Potential Threats to the Identification Strategy: Sorting into Interethnic Unions and the Intergenerational Transmission of Human Capital

The structural interpretation of the residual wage gap rests on the assumption that individuals born to Sephardic fathers and Ashkenazi mothers are similar to their Ashkenazi-Sephardic counterparts in all respects that are relevant to labor market performance.

This is not a trivial assumption for two main reasons. First, people choose who they marry. In a society in which being Sephardic is viewed as a negative cultural trait, one may wonder which types of Ashkenazi women would bequeath a major handicap to their children by equipping them with a Sephardic surname and whether such a choice reflects child-raising habits and parental treatment. Second, parents are not perfect substitutes. Fathers and mothers have differential influences on the intergenerational transmission of human capital. Under some conditions, therefore, AS may enjoy better home environments than those of the SA even if pairing into mixed unions was random. We use the economics and sociology of marriage and a rich set of measures of home environments and early achievements to address conceptually and evaluate empirically these concerns.

The non-random matching of partners into interethnic couples is a cornerstone of our identifying strategy because it helps address both of these concerns. Indeed, if interethnic marriages were random, this would severely complicate our analyses. Since, on average, the Ashkenazim have stronger socioeconomic characteristics than the Sephardim, random marriage pairings would create asymmetric marriages: the average AS couple would consist of a male with stronger socioeconomic traits than the female, while the average SA couple would have a female with comparatively strong socioeconomic traits. Such asymmetric pairings would dramatically complicate the interpretation of our findings, especially given the growing evidence on that mothers and fathers have different effects on the formation of the traits of their children, with correspondingly different effects on labor market outcomes.[13]

Rather than marriage being random, a considerable body of work across economics, sociology, and anthropology indicates that marriages exhibit strong sorting along many attributes. An influential line of research finds that people tend to marry others with very similar socio-economic characteristics (Qian, 1997; Kalmijn, 1998; Browning, Chiappori, and Weiss, 2008). These studies predict that interethnic unions - AS and SA marriages - will be composed of partners with, on aggregate, homogenous traits. Research also considers interethnic marriages, where a constellation of traits affects matching. The leading theories in economics (Becker, 1981) and sociology (Merton, 1941; Blau 1964) of intermarriage among

[13] Magruder (2010) finds that fathers serve as useful network connections to their sons but that mothers do not seem to be useful network connections. Kimball, Sahm, Shapiro (2009) find that mothers have larger influence on child risk tolerance than fathers; yet, the impact does not vary by offspring's gender.

ethnic and racial groups predict that Ashkenazim must be compensated for their higher social status by intermarrying with Sephardim with other comparably valuable traits and skills.[14]

Although this earlier literature does not provide predictions on whether the AS or the SA pairings will have, on average, stronger socioeconomic traits, recent studies report that women have a stronger preference for the income and ethnicity of their partner than vice versa (Hitsch, Hortaçsu, and Ariely, 2010). It is therefore plausible that, even if their earnings, education and other traits were impressive, Sephardic men would find it comparatively difficult to attract women from the very right tail of the Ashkenazi "talent" distribution. The right tail of the Ashkenazi "talent" distribution and the left tail of the Sephardic "talent" distribution will marry within groups. Yet for all others, highly educated economically successful Sephardic men may be especially attractive to women with strong preferences for human capital (and income), whereas less "talented" Ashkenazi men should have a comparative advantage among women with strong tastes for perceived Ashkenazi ethnicity.

Thus, the economics and sociology of marriage suggest that *both* SA parents will be similar to, if not better than, their AS peers in all respects relevant to their children's labor market performance. The differential impacts of fathers and mothers will therefore have minimal impact on the validity of our empirical setting.

Nevertheless, there are potential concerns. For example, the experience of growing up in an SA family might be different from the experience of being raised in an AS family. Sephardic and Ashkenazi Jews might not share similar child-raising habits, norms, traditions and beliefs that are essential for success in life. Sephardim might treat their children differently than Ashkenazim. For instance, if Sephardic fathers have a greater taste for quantity (rather than quality) than their Ashkenazi peers, children of SA unions might earn less than their counterparts for other reasons than perceived ethnicity.

However, the nature of the sorting into mixed unions and its implications on the intergenerational transmission of preferences and human capital is, to some extent, testable. Consequently, we now turn to the data.

IV Assessing the SA-AS Treatment and Comparison Groups Setting: A Glance on the Observables

In this section, we present an array of empirical evidence that both supports the validity of our identifying assumption and suggests that the data are biased toward finding that children from SA parents will earn more than their AS counterparts. We compare measures of home

[14] See Fryer (2007) for further discussion on these models and evidence on recent trends.

environments and family background, physical appearance, cognitive skills, cultural preferences, educational attainments, work habits and social networks by maternal and paternal continent of origin.

Table 1 provides mean outcomes and inter-group comparisons. All measures indicate that the contrast between those born to Sephardic fathers and Ashkenazi mothers (SA), the "treatment group," and their "Ashkenazi-Sephardic" counterparts (AS), the "comparison group," provide a conservative setting for estimating the causal effect of perceived ethnic affiliation, as signaled by family name, on wages.

IV.a Family and Home Environments

Employing our parents-offspring census file and the "synthetic" parents' sample, we examine family environment by parents' origin. Results are found in Table 1 panel A. All measures indicate that SA children were reared in advantageous family and home environments to their AS peers. For example, consistent with the economics of marriage, we find that fathers of SA children have higher educational attainment and earned, on average, more than fathers of AS children. This also holds for their spouses: European-American mothers in SA unions have higher levels of education than Asian-African mothers in AS unions and earn more than their counterparts.

The number of children in the family and the socioeconomic status of the communities where they reside are also channels through which economic and cultural differences among ethnic groups may cause and reinforce disparities in cognitive abilities and non-cognitive traits. For this reason, we examine these post-marriage outcomes. As a benchmark, note that SS families have the highest number of children (4.4) whereas AA families have the lowest number of children (2.1).[15] As expected we find much smaller differences between interethnic households. Ashkenazi mothers in SA unions report having, on average, slightly fewer children (2.56) than their Sephardic counterparts in AS unions (2.86).

Finally, we use a composite index of socioeconomic status compiled by the Israel Central Bureau of Statistics to examine the socioeconomic status of the communities where the parents reside. Since these data are not available prior to 1983, we use the "synthetic" parents' sample. Consistent with parents' educational attainment and earnings, we find that AA and SA families resided in better socioeconomic communities than their AS peers, and SS were concentrated in the least-developed communities.[16]

[15] Based either on the total number of children ever borne by respondent's mother at the time of the 1972 Census (1983 Census for "synthetic parents" file) or the number of children in household at the time of the interview.

[16] For further details see web appendix.

IV.b Skin Tone

Sephardic Jews differ visually from their Ashkenazi brethren by virtue of their darker skin tone. Despite sharing an origin point, Ashkenazi Jews often are lighter in skin, eye color and hair than the Sephardim. The diversity of physical appearance, mainly through skin and eye color, reflects the degree of intermingling with the populations among which Jews have lived.[17] We use a global skin color distribution of native populations, based on the Von Luschan's chromatic scale, to assess the extent that sorting on skin tone into SA unions differs from matching into AS couples.[18] Each parent was assigned a skin tone degree according to her country of birth.[19] Mean scores by fathers' and mothers' origin are available in Table 1 panel (A). Higher scores indicate darker pigmentation. While partners in mixed unions have slightly darker (lighter) skin tone than the typical Ashkenazi (Sephardic), we find no evidence for differential sorting on skin tone between SA and AS.

IV.c Educational Attainment

Panel B displays measures of aggregate educational attainment and disaggregated measures, breaking schooling into academic and vocational tracks.[20] Separating schooling is relevant to our context, since Shavit (1984) notes that low-achieving primary school students – mainly Sephardim – were assigned to vocational tracks.[21] The tracking policy was explicitly motivated by the assumption that academic education is ill suited to their needs, inclinations, and capabilities. It was also assumed that if placed in the academic tracks, most would drop out prematurely (Shavit, 1984).

Three main facts emerge. First, there is no difference between the aggregate years of schooling completed by SA and AS. Second, SA complete more years of academic education,

[17] See Owens and King (1999).

[18] Von Luschan's chromatic scale matches 36 different skin colors, from an unsaturated light color to a saturated dark brown color. Subject's skin color is measured ideally in a place which would not be exposed to the sun. In general, pinkish-white skin corresponds to 1-12 on the scale; white 12-14; white-light brown 15-17; light brown 18-23; brown 24-26; dark brown 27 or above.

[19] Measures by country are available at targetmap.com (http://www.targetmap.com/viewer.aspx?reportId=7301).

[20] The census documents the number of school years completed by individuals over the span of their education. In addition it reports the number of years spent at primary or secondary schools, vocational school, high-school, post-secondary school, university and "Yeshiva". The breakdown of total school years into its components allows us to distinguish between years spent studying in academic tracks and those in the vocational track as the former was a major part of the Israeli educational system. Academic tracks prepared students for passing the exams needed to receive the matriculation diploma, which is also a pre-requisite for higher education, while vocational tracks consisted of low-level academic studies and focused on vocational training (Peleg and Adler (1977); Shavit (1984) and Shavit and Featherman (1988)).

[21] According to Shavit (1984) about 40 percent of Sephardim eighth graders scored in the bottom third of the Seker score distribution and 2/3 scored in the bottom half. In comparison, among Ashkenazim, 75 and 60 percent scored in the top half and top third of the distribution respectively.

while the AS complete more years of vocational education. For instance, SA men (aged 30 to 55 in 1995) completed about 0.35 more years of schooling in academic tracks than their AS counterparts. Similarly, at the post-secondary level, we find notable differences in sorting into academic and non-academic tracks. For example, the proportion of SA men in post-secondary academic tracks is almost 10 percent higher than their AS peers. Third, these SA-AS gaps are very similar for boys and girls. To the extent that schooling outcomes reflect parental treatments, we find no evidence that SA children were under-treated by their parents in comparison to their AS peers. We also find no evidence for differential treatment of sons and daughters by fathers' and mothers' origins in inter-ethnic families.

IV.d Cognitive Achievement Test Scores

Neal and Johnson (1996) find that measures of cognitive achievement account for much of the black-white wage gap in the US. While schooling and other forms of investment in human capital, particularly in the early stages of children's development, affect performance on cognitive tests (Shavit and Featherman 1988; Fryer and Levitt, 2004a; Carneiro, Heckman and Masterov, 2005), discrimination or social pressure ("acting white", Austen-Smith and Fryer, 2005) are reasons why persons with similar family backgrounds, yet different ethnic affiliation, might bring to the labor market different skill sets.[22]

We take advantage of the LHSIM data set to compare test scores on cognitive achievement tests by parents' origin. Panel (B) reports standardized tests scores by parents' origin conditional on schooling. SA men do better on analytical test than men in all other groups and as good as the AA men and better than all others on verbal tests. Most importantly, we find that the SA score about 0.45 and 0.25 standard deviations above their AS counterparts on analytical and verbal tests respectively.[23] These are at the order of magnitude of the differences between children of AA and SS families. It is worth noting that, while AS achieve significantly lower test scores than their SA counterparts, we find the AS to be statistically indistinguishable from their SS peers, scoring, in fact, only slightly better (although statistically insignificant) than their SS peers on analytical test.

IV.e Cultural Capital: Evidence from Religious Practices

A focus on cognitive skill gaps, while grounded in the existing literature, might miss important non-cognitive components of socioeconomic success. A growing literature documents

[22] Fryer and Levitt (2004a) eliminate the black-white test score gap in math and reading among incoming kindergartners when they control for a small number of covariates, although not in subsequent years.

[23] We find similar patterns using crude test scores.

that non-cognitive traits – human habits and social skills - are important for success in life.[24]

Israeli Jews of European or American origins are more likely to practice a secular 'western' lifestyle than Israeli Jews of Asian or African origin. If the more secular life style is associated with greater economic success and if AS families are more secular than SA families, then these noncognitive traits could account for the differential wages of children from mixed marriages and not ethnic discrimination.[25]

But we find that SA families are slightly more secular than AS families. The LHSIM data provides information on religiosity.[26] Interviewees were asked retrospective questions regarding past and present life domains, including whether their fathers used to observe "kosher" food, wear a "kippah", whether their mothers cover their hair and use "mikve" on a regular base and whether they practice that at present (binary indicators).[27] Using these indicators we sum the reports to generate religious practice indexes for fathers, mothers and sons. Average values, range from 0, no practice at all, to 1 observing all items, are found in Table 1, panel (C). Consistent with many observations, fathers in SS unions are much more likely to keep traditional religious practices than their AA peers. To benchmark we begin with the results for mothers and fathers in intra-ethnic unions (AA and SS). Both parents in AA unions are less orthodox than mothers and fathers in SS families. While the vast majority of fathers and mothers in SS families (0.79 and 0.71 respectively) follow the main orthodox practices it is much less frequent among Ashkenazi men and women in AA unions (0.43 and 0.41 respectively).

Consistent with the economics and sociology of marriage and with our identifying assumption, we find much smaller gaps between Ashkenazim and Sephardim in inter-ethnic unions. Both parents in SA families are less orthodox than their AS peers (although dif-

[24] Bowles and Gintis (1976) were among the first to argue that non-cognitive traits and behaviors are more important than cognitive skills in determining schooling and employment outcomes. Jencks et al. (1979) found that non-cognitive traits are at least as important overall as cognitive skills in explaining economic success. Heckman and Rubinstein (2001) show that while adults with GEDs perform better on cognitive achievement tests than other high school dropouts and as well as ordinary high school graduates, they possess lower levels of non-cognitive skills, which affects their earnings. Bowles, Gintis, and Osborne (2002) provide an insightful summary of theory and evidence.

[25] Cumulative disadvantage and advantage is a common pattern, and it is often attributed to family differential resources, child-raising behaviors and home environments (see Farkas, 2003; Carneiro, Heckman and Masterov, 2005).

[26] Of course, religious differences are far from being the only potential source of inter-group variation in non-cognitive traits. They are a particularly important one, however.

[27] The index for men is the sum of five indicator variables receiving '1' if the person reports he/his father observed this religious practice. The five practices are: wear 'Kippah'; does not eat bread on Passover; eats Kosher food, fasts on Yom Kippur and Lays 'Tfillin'. "Kippah" is a thin, slightly rounded skullcap traditionally worn by observant Jewish men, also known as a "yarmulke." The index for mothers' religious practice is the sum of four indicators, including female-specific practices including the use of 'mikve' (a bath use for purpose of ritual immersion) and hair covering.

ferences are insignificant for fathers) and practically indistinguishable from their AA peers. Ashkenazi mothers in SA families are less orthodox than Sephardic mothers in AS families (0.43 and 0.56 respectively). This does not hold for men. Sephardic men in SA couples practice to some extent less orthodox life style than their Ashkenazi peers in AS marriages (0.52 and 0.58 respectively), despite Sephardic men on average being more observant than Ashkenazi men.

Thus, it is not surprising to find that sons of SA practice a less orthodox life style than their AS peers. While the children's generation is more secular than that of their parents, children in SA families are significantly less orthodox than their AS peers (0.35 and 0.49, respectively). In fact children of the SA families are practically indistinguishable from their AA peers (0.35 and 0.36 respectively).

Hence, while these crude measures hint toward cultural differences between Ashkenazi and Sepharadic Jews born to intra-ethnic unions, the data suggest that the children of the SA are remarkably similar to their AA counterparts rather than to their SS peers. To the extent that cultural aspects influence the AA-SS residual wage gaps these findings suggest that children of the SA families should earn more than their AS peers.[28]

IV.f Networks: Sorting into High-Paid Occupations

Research in economics and sociology is replete with evidence pointing to the importance of friends and relatives – networks – as sources of employment information (Montgomery, 1991, provides a summary).[29] The community network not only finds jobs for its members, but also channels them into higher-paying occupations. This might be very relevant for the Israeli case.[30]

Although offspring of SA parents have better educational attainment, higher scores on cognitive tests and higher levels of parental education and earnings than their AS peers, they might lack labor market networks, if fathers' origin matters more than mothers' ethnicity.[31] A possible concern is that fathers of SA children work in low prestige and under

[28] Last but not least, to the extent that heritage and cultural preferences are reflected in own fertility rates, the census data confirms that the SA, who have the lowest fertility rates, practice a western lifestyle. Fernández and Fogli (2006) show that a woman's heritage, proxied by her parents. country of origin, has a non-negligible impact on fertility.

[29] For instance, Rees (1966) found that informal sources account for about half of those hired in white-collar occupations and for most of all those hired in blue-collar occupations.

[30] Asian and African immigrants were directed by government agencies to peripheral locations and towns located far from well-established urban centers (Semyonov and Tyree, 1981). Furthermore, they lacked personal connections to those in power (Lewin-Epstein and Semyonov, 1986), whereas European and American Jews held higher positions on all indicators of status and enjoyed more favorable opportunities for achievement (Rosenstein, 1981).

[31] Güell, Mora and Telmer (2007) use the information contained in Spanish surnames to study the degree

paid occupations. And that they are unable to provide useful labor market networks to their offspring.

To address this concern, we document fathers' and sons' occupational choices. Results are found in Table 1 panel (D). Occupations are sorted from the highest to the lowest pay using the wage rates of AA workers (in 1995). We further use the wage rates of AA workers in each occupation and apply those wage rates to all workers, to calculate the average wage of each group (AA, AS, SA and SS) if they were paid the AA-wage rates.[32] We repeat this exercise twice, for fathers and for children. Figures are found at the top of each sub-panel. Allocation to better paid occupations should be reflected in higher projected wage rates.

We find no evidence that the results are driven by network effects. Fathers' of SA children worked in better-paid occupations than fathers of AS children. They sorted into higher prestige occupations such as managers and academic professionals to a greater degree than fathers' of AS children (15% more). In contrast, fathers of AS children are much more likely to work in manufacturing, transportation, and construction (14% more). These gaps are well reflected in projected earnings (10% more). To the extent that fathers' occupational choices provide a foundation for their offspring's careers, children of SA families should work in better paid occupations than their AS peers. Yet, children's of SA do not replicate their fathers' success in the labor market. We find that SA individuals work in slightly better-paid occupations than their AS counterparts and would have earned a trivial amount more than AS children if both AS and SA were paid the AA-wage rates.

IV.g Labor Market Attachment

Do SA have different preferences toward work than their AS peers? Are SA more likely to sort into low effort jobs relative to their AS counterparts? The last panel of Table 1 (Panel D) takes a brief glance at these issues. We find no evidence for that. Employment rates and the proportion of self-employed of the SA are slightly higher, although statistically insignificant, than those of their AS peers and they have equal chances to be working at the government sector. Yet, conditional on working we find that SA work more hours than their AS peers, in a similar order of magnitude to the AA-SS gaps.

IV.h In summary

All available measures of premarket factors, including family background, human capital, cultural traditions and social networks indicate that it will be safe to conclude that the

of intergenerational mobility of an economy.

[32] For each occupation we calculated the average hourly wage of an AA worker. Hourly wages in Table 1 are presented in US Dollars ($) using the 1995 exchange rate.

wage gap between SA and AS men provides a conservative estimate for the impact of ethnic discrimination on earnings.

V The Impact of Sephardic Surname on Market Pay

We estimate the mean wages of Israeli-born male Jews, FTFY, aged 30-55, whose parents were born outside Israel by the origin of the father and mother. The results are found in Table 2.

The benchmark group consists of Israeli-born Jews whose fathers were born in Europe or America and whose mothers were born in Asia or Africa (AS). The first column reports the crude gap. The first entry in the panel (-0.07) is the average crude wage gap in log hourly wages between SA workers and their AS counterparts. In the next two columns we sequentially introduce fixed effects for education and potential experience, residential location, occupations and industries.

Two main findings emerge. First, as one would have expected, crude wages of offspring to interethnic unions fall in between AA and SS workers. Israeli Jews whose parents were both born in Asia or in Africa (SS, the lowest-paid group), earn about one half of their AA counterparts, the highest-paid group.

Second, in contrast with a host of background and achievement characteristics, we find that Israeli Jews born to fathers from Asian-African origin and mothers from European-American origin (SA) earn between 7 to 11 percent less than their AS counterparts.

This gap in pay, which is similar to the residual wage gap between SS and AA workers (8 to 13 percent), cannot be attributed either to educational attainment, location of residence, or sorting into better paid occupations and industries; in fact, our estimates indicate that SA workers hold better-paid occupations than AS workers. For instance, SA workers ages 30 to 55 earn 7 percentage points less than their AS peers (column i). Introducing the first and the second sets of controls, the estimated mean gaps in residual wages are about 8 percentage points, accounting for education and potential experience, and 11 points once occupation, industry and location of residence fixed effects are included, which is suggestive that selection on observables (columns (ii) and (iii) respectively) cannot explain the raw difference in wage rates (column i). These patterns also hold for ages 22 to 65 as well and are robust to part time work suggesting that findings do not reflect a selection bias to the sample.[33]

Although AA workers earn more than their AS counterparts and SS workers earn less than their SA peers when no controls are included, we find almost no differences between

[33] The corresponding point estimates and standard errors for 22 to 65 years of age are 9.7 (3.1), 5.9 (2.7) and 6.9(2.6). See web appendix. Furthermore, we find no evidence for differential selection into the salaried FTFY sample. See appendix Table A1.

AA and AS workers or between SS and SA workers once we control for education, potential experience, location of residence and occupation.

V.a Differentiating by Skin Color

Intuitively, a person's surname shapes market's perception of ethnicity more when labor market cannot discern his ethnicity through other observed means, such as skin tones. For this reason our benchmark setting focuses on children of interethnic unions. On average, AS and SA children have similar, mild skin tones. The average skin tone of AS and SA children - approximated by Von Luschan's chromatic scale and parents' country of origin - is 6.73 and 6.80 in comparison to 5.49 and 7.96 for children of AA and SS families, respectively. Yet, not all are the same. This holds also for children of mixed unions too. If indeed our findings reflect the impact of perceived ethnicity on earnings, the impact should be attenuated when skin tones are very light or dark and the impact of ethnic sounding names should be larger when skin tones are close to the mean and hence provide less of a signal. To further distinguish among people where surname is a better - or worse - signal of ethnicity, we use the Von Luschan's chromatic scale and parents' country of origin to estimate residual SA-AS wage gaps for different bands around the population mean.

The results in Table 2 support our interpretation that labor markets discriminate based on perceived ethnicity. Columns (iv) to (vii) report point estimates for four sub-samples: people whose parent's average Von Luschan chromatic scale is within–and beyond–one standard deviation (-1/+1) of the sample mean skin tone and people whose parent's skin tone is within and beyond one-half of one standard deviation (-0.5/+0.5) of the mean Von Luschan skin tone value. Two main facts emerge. First, the earnings difference between SA and AS children is larger when skin tone provides little information on ethnic heritage. It grows from 11%, to 12%, and 14%. Second, the earnings difference between SA and AS children is smaller when skin tone is either darker or lighter. The residual wage gaps drops from 11% to 10% (outside the (-0.5/+0.5) band and 7.7% outside the (-0.5/+0.5 and -1/+1 bands respectively).

V.b Bias on the Unobservables

Although the evidence suggests that selection on observables works against our finding that SA earn less than AS, it is possible that some amount of selection on unobservables could explain the SA-AS wage gap. To explore, and quantify, this possibility, we measure the amount of selection on the index of observables and then calculate a ratio of how large selection on unobservables would need to be in order to attribute the entire effect to selection

bias. We report our findings in the bottom row of Table 2.

The results indicate that selection on unobservables is probably not driving the results. In particular, the first entry (-3.028, column ii) reports the relative amount of selection on unobservables required to explain the SA-AS wage gap. It means that the normalized shift in the distribution of the unobservables would have to be in an opposite direction to the selection on observables and 3.03 times as large as the shift in the observables (in absolute terms) to explain away the entire SA-AS residual wage gap. This seems highly unlikely. The next entry reports the amount of selection required to explain the SA-AS gap when the set of observables includes location of residence, occupation and industry fixed effects. The amount of selection bias on unobservables in this case would have to be negative and 1.6 times larger than selection on observables to explain the entire SA-AS gap in residual wages and about 2 times larger when we restrict the sample to observation that their Von Luschan's chromatic scale is within a one standard deviation (-1/+1). AET (2005) consider such a large reversal of the selection on observables as highly unlikely.

V.c Interpretation

In contrast to the SS-AA context in which pay differences are closely linked to observed differences in home environment and scholastic achievements, all available measures indicate that Israeli-born Jews whose fathers were born in Asia or Africa and whose mothers were born in Europe or America (SA) are better in all respects that might be relevant to performance in the labor markets than their AS counterparts. Thus while one might expect SA men to be paid more than their AS peers, SA workers earn significantly less than their AS counterparts despite having higher scores on cognitive tests, and higher levels of parental education and earnings. This contrast, summarized in Figure 2 suggests that selection on the unobservables is highly unlikely to explain away the SA-AS residual wage gap. Selection bias on unobservables, such as non-cognitive traits, preferences and networks, would have to be large and in the opposite direction to the selection on observables to account for the SA-AS gap in residual wages.

V.d Caveats

Conceptually we attempt to identify the ceteris paribus effect of ethnic discrimination on pays using the SA-AS treatment-comparison format. Yet, the gap in pays might reflect systematic differences between AS and SA that are not captured by our measures of culture and human capital. While intuitively appealing, the assumption that we can infer and correct for the bias on the unobservables using the bias on the observables might not hold for offspring of

interethnic unions. In the next section we utilize the common practice of married women to adopt their spouses' surname to examine the robustness of the structural interpretation to latent SA and AS specific impacts on offspring labor market outcomes.

VI Parents' Ethnicity and Women's Pay

In Israel, there has long been a patriarchal tradition for a woman to change her surname upon marriage from her birth name to her husband's last name.[34] Hence, while Sephardic and Ashkenazi Jews have distinct surnames passed from father to offspring, effectively the genealogy of family names holds after marriage only for men.

The gender-specific linkage between father and father-in-law's ethnicity and own surname offers two testable implications. First, if labor markets discriminate on the basis of perceived ethnic affiliation, women's wages should be less associated with their fathers' origin than men's wages. Second, the wages of married women should be more powerfully shaped by the ethnicity of their father-in-law than by the ethnicity of their own father. We further elaborate these venues in the coming sections.

VI.a The SA-AS Wage Gap among Women

To assess whether the earlier results for men reflect latent SA-AS factors rather than labor market discrimination, we repeat our experiment for women. While the vast majority of women aged 30 to 55 born to intra-ethnic unions marry within their ethnic group (about 80%), females born to mixed couples tend to marry almost equally inside and outside of their fathers' ethnic groups. About one half of AS women (47%) and slightly less among SA women (44%) marry outside of their fathers' ethnic groups, indicating that for women, unlike for men, the shares of AS and SA who actually carry a Sephardic surname are roughly equal. Thus, markets should be unable to distinguish between AS and SA married women based on their surnames, but markets should be able to distinguish between AS and SA women who did not married, as they do among men.

[34] Jewish marriage (and divorce) in Israel is under the jurisdiction of the Chief Rabbinate of Israel. The rabbi performing the wedding is considered, according to the law, the official marriage registrar. A notice of the marriage is transmitted directly from the regional rabbinate to the Interior Ministry. According to the Israeli law on names (1956), "upon marriage a woman receives her husband's surname, yet, she has the right, in any time, to add her maiden surname or to keep it". In practice, however, the Israeli Interior Ministry made it difficult for women to keep their maiden names. Therefore in 1996, the Israeli parliament revised the original law on names (revision 3) in a way that does not present any particular option as the benchmark. Orit Kamir provides a detailed survey of the history of the Israeli law on names at http://sitemaker.umich.edu/Orit_Kamir/files/namehebrew.pdf

VI.b Findings

Using the statistical specifications employed for working men, we estimate mean wages by fathers' and mothers' origin for FTFY, first for all working women (first panel) and then by marital status (second panel). The results are found in Table 3.

The first column reports the crude gaps. The second column provides the residual wage gaps accounting for education and potential experience. The third column reports the residual wage gaps controlling also for place of residence, occupational and industry fixed effects.

Three main facts emerge. First we find almost no difference between the mean wages of AS and SA FTFY working women (first panel). SA women earn, on average, the same as their AS counterparts (column (i)).[35] This holds when we control for educational attainment and potential experience (column (ii)), and accounting for place of residence occupational and industry fixed effects (column (iii)). Second, we find no difference between the mean wages of AS and SA ever married women (second panel). In fact, the point estimates are virtually zero (between -0.004 and 0.016 for crude and residual earnings respectively). Third, in contrast to our findings for married women, yet in accordance with our results for men, we find notable wage gaps between SA and AS single (never married) women. The small sample size (of SA and AS in this category) suggests that findings should be taken with a 'grain of salt'. Yet, the crude wage gaps between SA and AS women who carry their fathers' surnames are similar in magnitude to what we found for men (-6.7%), although statistically insignificant, whereas the residual wage gap are even larger than those found for men.

VI.c Structural Interpretation

Our findings are consistent with the interpretation that the measured gap in men's wages between SA and AS workers reflects discrimination based on ethnic affiliation signaled by a persons' family name. Using SA-AS wage gaps among women to draw inferences about a bias on the unobservables among men relies on the assumption that SA parents treat their sons and daughters the same as (or better than) their AS peers. We find no evidence to refute this assumption. Both sons and daughters of SA parents complete more years in academic tracks, are more likely to achieve an academic degree and spend more years at university level studies at a very similar order of magnitude (see Table 1, Panel B). The difference in the SA-AS wage gap by marital status should remove any further concerns.

[35] It is worth noticing that women born to inter-ethnic unions are slightly more likely to marry within their father's ethnic group (see web appendix), which means that SA women should earn slightly less than their AS peers.

VII The Impact of Fathers' and Fathers'-in-Law Ethnicity on Women's Pay

While parents' origin determines a woman's ethnicity, it is her father-in-law's surname that is observed by labor markets. If the perceived ethnic affiliation is what matters, married women's wages should reflect their father-in-law's origin rather than their own ethnicity.

To take advantage of the differences between women's actual and perceived ethnicity, due to marriage, we classify the population of married women into four groups by the origin of both their fathers and their fathers-in-law: (i) HWAA, women whose fathers and fathers-in-law were born in Europe or America; (ii) HWSS, women whose fathers and fathers-in-law were born in Asia or in Africa; (iii) HWSA, women whose fathers were born in Europe or America but whose fathers-in-law were born in Asia or Africa, and (iv) HWAS, women whose fathers were born in Asia or Africa but whose fathers-in-law were born in Europe or America.

Since Ashkenazi and Sephardic look quite different, the appropriate setting should focus on observably similar women with different ethnic last names. Since we expect name labels to be especially effective in manipulating the perceived ethnicity of people with mild skin color the effect of father-in-law's ethnicity on all others can be served as a falsification test.

We make two efforts in this front. First, we take advantage of the global skin color distribution of native populations, based on the Von Luschan's chromatic scale, to proxy persons' skin tone degree by their parents' origin. Employed with these proxies we separate the population of married women to those within a one standard deviation (-1/+1) around the population sample mean, for whom name labels sound credible, and all others. Second, we restrict our analysis to daughters of SA or AS families who are married to men with Sephardic or Ashkenazi last names.[36] We estimate the impact of father-in-law's separately for each group.

VII.a Findings

We next turn to the wage outcomes. Results are found in Table 4. The table contains two panels reporting Sephardic-Ashkenazi crude and residual wage gaps. In the top panel, the Sephardic-Ashkenazi wage gap is measured among Israeli married women classified into four groups by father's and their father-in-law's origin. The first entry in each panel reports the residual wage gaps conditional on education and potential experience. The second entry provides the residual gaps controlling for education and potential experience and accounting for location of residence occupational and industry fixed effects respectively. In

[36] We thank an anonymous referee for this idea.

the next columns, we report results for sub-samples of married women either with mild or with extreme skin tones. The second panel repeats these experiments for the sub-sample of daughters of SA or AS families.

Three main findings emerge. First, Ashkenazi women married to Sephardic men (HWSA) earn substantially less than their mixed-union counterparts (HWAS) who reside in neighborhoods with comparable socioeconomic profiles, possess similar educational credentials and occupations and work in the same industries. For instance, HWSA women earn between 5 to 6 percentage points less than their HWAS peers (columns (i) and (ii)).

Second, the father's-in-law impact holds only for women with neither too light nor too dark skin tone. Specifically, HWSA married women whose parents' tone color ranges within 1 standard deviation around the population sample mean earn 6 percentage points below their HWAS peers (column iii). In contrast we find no HWSA effect women whose tone skin is either too dark or too light. The point estimate is virtually zero (column iv).

Third, the impact of fathers'-in-law ethnicity is especially pronounced among daughters of inter-ethnic families. Daughters of AS families married to a Sephardic men earn between 8 to 11 percentage points less than their AS peers married to an Ashkenazi men (panel B columns i and ii) in comparison to 5 percentage points among all married women. It is worth noticing that skin tone matters - even among daughters of inter-ethnic couples. Controlling for education and experience, we find that these results hold only for women whose parents' skin color is within a 1 standard deviation around the population sample mean (columns iii and iv).[37]

VII.b Structural Interpretation

We find that the effect of perceived ethnicity among women to be of the same order of magnitude found among men. The fact that father-in-law's ethnicity matters is consistent with our interpretation of the SA-AS comparisons that labor markets discriminate based on perceived ethnicity. The fact that father-in-law's ethnicity matters only for a sub-set of the population with mild tone color – for whom ethnic-name labels sound credible – helps separate between alternative structural interpretations.

Sorting into inter-ethnic marriage is not exogenous to human capital and earnings. While intermarriage is much more likely to take place among the highly educated, pairings might exhibit asymmetric patterns.[38] For example, Lam and Schoeni (1994) find that in Brazil,

[37] Due to sample size limitations we do not control for location of residence, occupations and industries fixed effects. Our previous analysis, for men and women (Table 2 and Table 3), indicate that estimates are robust to the exclusion of these indicators.

[38] Recently, Qian and Lichter (2011) found that while interracial marriages are becoming more common, skin color still affects spouse choice in America. Most black-white couples have similar educations whereas

father-in-law matters more than father, and they attribute this trend to unobservables. Furthermore, selection into the workforce might generate a non-trivial bias if it varies systemically by husbands' origin. Although we find almost no differences between the share of workers (or FTFY) among married women in interethnic unions (summary statistics, Table A2), sorting into the workforce might matter if, for instance, HWAS women are positively selected and Ashkenazi women married to Sephardic men are negatively selected. Following Mulligan and Rubinstein (2008), we consider the potential magnitude of latent factors and the role of differential selection into the workforce on our findings by utilizing husbands' wages to impute wives' potential wages (for those who do not work). Clearly, if the husband's wage were a fair proxy for the wife's potential wage, then it would be fair to conclude that HWSA women are paid significantly less than their HWAS counterparts (see Figure 3).[39] Point estimates range between -0.053, for all working women, to -0.062 when we use husbands' residual wages to impute missing wages.[40]

Marriage itself may have differential detrimental effects on women's careers and wages via within-household specialization (Becker 1981).[41] A married woman's wage profile is therefore complicated not only by her childbearing decisions, but also by the amount of time she spends away from the labor market because of childrearing. Based on fertility rates and labor supply figures, there is no evidence that Ashkenazi women in SA couples (HWSA) are more likely to specialize in home production than Sephardic women in AS unions (HWAS).

VII.c Accounting for Pre-Marriage Wage Gaps

To account for pre-existing wage gaps, we exploit the linked 1983-1995 census sample. Using a subsample of women who married between 1983 and 1995, we regress the change in log hourly wages on the change in perceived ethnicity. The independent variable of interest is the change in perceived Sephardic ethnicity. We use two specifications. First, we follow the wage level specification and set the change in ethnicity variable to 1 for Ashkenazi women who married Sephardic men, to 0 for all women who married within their fathers' origin and to -1

highly educated blacks and whites are more likely to intermarry, which means that white wives get more than their "share" of well-educated black husbands.

[39] Figure 3 depicts wives wage residuals (imputed from the specification in Table 4) together with their husbands' educational attainment and wage residuals.

[40] Observed wages might be particularly misleading (see Neal, 2004; and Mulligan and Rubinstein, 2008). Indeed patterns vary by type of union. While married women in intra-ethnic unions are more likely to sort into the workforce, the better educated is their spouse, and less likely to work the better paid he is, we find women's labor supply in mixed unions to be uncorrelated with their spouse characteristics. Correction for selection and robustness to part-time jobs and age restrictions are available on the web appendix.

[41] Daily home production activities that have been traditionally a wife's responsibility are the kinds of chores that are most negatively associated with women's wages (Hersch and Leslie, 2002), although this trend might reflect selection rather than the causal impact of specialization.

for Sephardic women who marry Ashkenazi men. Second, we estimate a flexible specification in which we allow for asymmetric impacts. Since wage profiles might systematically differ by a person's ethnicity, we allow the change in wages over the life cycle to vary by fathers' ethnicity. We estimate the coefficients of interest for all working women.[42] Results are found in Table 5, though we do caution against drawing very strong inferences because of the small sample size.

Two main findings emerge. First, we find that the change in log hourly wages is positively correlated with a switch to perceived Ashkenazi ethnicity. For instance, in the restricted specification we find that switching into an Ashkenazi (Sephardic) surname by marriage is associated with an increase (drop) of a 16 percentage points in hourly wages (column (i)). Second, the increase in Sephardic women's wages after marrying Ashkenazi men is slightly larger than the drop in hourly wages for Ashkenazi women who married a Sephardic men, 0.19 and -0.09 log points respectively (column (ii)), consistent with sorting on wages into inter-ethnic unions.

Yet, sorting into interethnic unions is exogenous neither to pre-marriage factors nor to economic benefits from marriage. The social-exchange literature (Merton, 1941; Blau 1964) predicts that Ashkenazi men must be compensated for their higher social status when inter-marrying with Sephardic women with other valuable qualities. While the change in earnings accounts for sorting on time invariant unobserved factors, the before-after comparison might still exaggerate the impact of perceived ethnicity on pays, if marriage outside ethnic group reforms social networks,[43], or if pre-marriage abilities are reflected in earnings over time. Yet, it is worth noticing that these results are consistent with the interpretation that much of the wage gap among offspring born to mixed couples or between women married outside of their ethnic groups reflect their perceived ethnicity signaled by family name, rather than their actual ethnicity.

VIII Conclusions

In this paper we offer a novel approach to identify the causal impact of perceived ethnicity on wages in observational data. We take advantage of the ethnic-related genealogy of persons'

[42] Due to sample size limitation we do not restrict the sample to FTFY. We control for labor supply effect on earnings using FTFY indicators for 1983 and 1994.

[43] Arai and Thoursie (2009) have found, using a sample of immigrants to Sweden who registered a name-change with the Swedish government between 1991 and 2000 that African, Asian and Slavic immigrants earned on average 141% more after they abandoned their foreign-sounding names. Earnings increased mostly at the 'extensive' margin that is for those reported little or no earnings before; much more for women who tripled their labor market income, reflecting, according to the authors, indirect network effects.

family names, the non-random paring into interethnic unions, and ethnic diversity in skin tones to identify labor market discrimination in pays.

In our benchmark research design, we focus on individuals born to interethnic unions to compare the wages of individuals who are similar in all respects that are relevant to performance and are different only in their perceived ethnicity as signaled by their inherited ethnic-sounding family names.

We find that Israeli male workers born to Sephardic fathers and Ashkenazi mothers (SA) earn between 7 to 11 percent less than their Ashkenazi counterparts (AS), which is of the order of magnitude of the residual wage gap between SS and AA workers. In contrast to other contexts, in which ethnic pay differences are closely linked to observed differences in human capital, all available measures indicate that Israeli-born Jews born to SA parents have similar, if not superior, characteristic that shape labor market outcomes as their AS counterparts. Thus, while one might expect SA men to earn more than their AS peers, they are paid much less. This contrast, summarized in Figure 2, suggests that the bias on unobservables, such as non-cognitive traits, preferences and networks, would have to be in an opposite direction to the selection on observables and of a much larger in scale to account for the SA-AS gap in residual wages.

We further exploit a common tradition in many cultures, the custom of brides adopting the last names of grooms, to disentangle the impact of how the market perceives the ethnicity of woman from the woman's actual ethnicity. If labor markets discriminate against women on the basis of perceived ethnicity, we should find that it is the father-in-law's ethnicity, not the ethnicity of the woman's actual father that matters. Consistent with the view that labor markets discriminate based on perceived ethnic affiliation, we find the following. We find no differences between the hourly wages of AS and SA women, who are equally likely to carry a Sephardic surname, as both groups marry Sephardic and Ashkenazi men roughly in equal proportions. Yet, we find large disparities between of AS and SA single women, who still carry their fathers' surname. We also find that Ashkenazi women married to Sephardic men earn less than their Sephardic counterparts despite having better educational attainment and being married to higher paid and better educated spouses. These findings are consistent with the interpretation that the measured gap in men's wages between SA and AS workers reflects discrimination based on ethnic affiliation, not differences in non-cognitive traits that are the result of differences in upbringing between AS and SA households.

We go further by distinguishing among people where surname is a better - or worse - signal of ethnicity. We build on the insight that a person's surname shapes market's perception of ethnicity more when labor market cannot discern a person's ethnicity through other observed means, such as skin tones. Ashkenazi Jews often are lighter in skin, eye color and hair than

the Sephardim. This diversity reflects intermingling with the populations among which Jews have lived. We use Von Luschan's chromatic scale and parents' country of origin to assign a skin tone to each person.

When we apply that to the analysis among men and women we find that the impact of father's (for men) and father's-in-law ethnicity (for married women) is larger. It is especially pronounced among married women with neither too dark nor too light skin tone. In contrast we find no effect for all others.

Name labels manipulate perception when ethnic names sound credible. To the best of our knowledge this is the first paper to incorporate this insight into the empirical design in order to identify the causal impact of perceived ethnicity in observational data.

Ethnic discrimination might reflect both the outcome of a "taste for discrimination" or the result of ethnic stereotypes. Statistical discrimination is difficult to identify, since wages vary over the life cycle due to reasons other than market learning. In the absence dataset that contains offspring of interethnic couples and data on training and other forms of investment in human capital, a more rigorous examination of the underlying mechanism is beyond the scope of this paper.

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A Data Appendix

I.a The Israeli Census

Our main sample includes Israeli-born Jews whose parents were born outside of Israel. These are classified into four subgroups (AA, SS, AS, and SA), where offspring of mixed couples (AS and SA) are about 4 percent of the main sample (Figure 1). The Census provides 2202 and 2049 observations in the male and female prime age AS and SA subsamples respectively. The appendix provides detailed information on the sample and summary statistics.

Since a three years army service at age 18 is mandatory in Israel, our sample includes individuals who are 22 to 65 year old, and our prime age sample includes individuals who are 30 to 55 year old. We exclude observations with missing data on age, gender, country of birth and parents' country of birth (for Israeli-born), educational attainment, and place of residence.[44] We classify the population into eight educational categories and nine localities of residence. Our wage sample excludes self-employed individuals or observations with imputed wages. We focus on full-time (at least 35 work hours per week), full-year (12 month) workers (hereafter FTFY) who worked the entire month for which salary is reported. We trim wage outliers when calculating mean wages by excluding the bottom and top one percentile of the salaried Jewish male FTFY workers in the wage distribution.

The census data does not provide information on family background other than parents' country of origin. Therefore, we utilize the 1972 census sample, the earliest to contain information on educational attainment and earnings, and the 1983 sample, the first to include community-level socioeconomic status measures to construct (i) a parents-offspring file that links children to their parents using the 1972 census file and (ii) a "synthetic" parents file with data taken from the 1983 census sample. The parents-offspring file covers the family background of children born between 1954 and 1972 that is individuals aged 23 to 41 in 1995.[45]

The "synthetic" parents file provides the characteristics of mothers and fathers in unions that the mother is at the age group that allows her to have children aged 30 to 55 in 1995. We further use the 1972 and 1983 census files to depict gaps in educational attainment and

[44] There are 1,113,420 observations in the census. Our process of sample selection leaves us with 163,173 males ages 22-65 and 106,459 males ages 30-55. After excluding individuals who were not born in Israel or whose parents were born in Israel we are left with 71,634 males ages 22-65 and 49346 males ages 30-55. See Appendix A1 for males and A2 for females.

[45] To provide a representative sample of the children's population we exclude children older than 18 years of age.

earnings between Sephardic (Asian-African) and Ashkenazi (European-American) Jews and provide an overview of inter- and intra-ethnic marriages over generations and time.

The 1983-1995 joint individual record matches observations from the 20 percent public-use micro samples taken from the 1983 and the 1995 Israeli censuses. As such, it covers approximately 4 percent of the Israeli population. Using a subsample of women who married between 1983 and 1995 we examine the impact of a woman's perceived ethnicity as signaled by her own origin before marriage and by her father-in-law's origin once married, on wages. Data processing for the 1972, 1983 and the linked 1983-1995 samples follows the same basic processing employed for the 1995 main sample, when applicable (summary statistics Table A3).

I.b Life History Study of Israeli Men

The Life History Study of Israeli Men (LHSIM) is a systematic stratified national probability sample of Jewish Israeli men born in 1954 who were randomly selected from the draft list of the army and lived in Israel in 1970 who were interviewed when they were approximately twenty-seven years old (Matras, Gila, and Bar Haim, 1984). In addition to standard socioeconomic and demographic indicators, the data set contains military test scores retrieved from the military files (Shavit, 1984; Shavit and Featherman, 1988). We use the version revised by Shavit in 1994. This version of the LHSIM includes scores of tests taken by the respondents before joining the IDF. These include verbal and analytic test scores. The interview consisted of retrospective questions about areas of life such as religious practice, which we utilize as well. Our main sample contains complete information on 1128 observations after excluding those who are foreign-born or have missing demographics.

Table 1
Home Environments, Scholastic Achievements and Occupational Choices
Israeli-Born Jews, by Father's and Mother's Origin

	Father's and Mother's Origin				Differences			
	AA	AS	SA	SS	SS-AA Gap	(S.E)	SA-AS Gap	(S.E)
Variables and Data Source	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Panel A: Family Background								
Source: Offspring-Parents file based on 1972 census (N = 187,240) and "Synthetic" Parents^ file based on 1983 census (N = 83,818)								
Father's education								
-Years of schooling completed	10.54	**9.15**	**10.19**	6.04	-4.50	(0.03)	**1.04**	(0.11)
-Matriculation	0.33	**0.18**	**0.31**	0.07	-0.26	(0.00)	**0.13**	(0.01)
-Academic degree	0.12	**0.04**	**0.08**	0.01	-0.11	(0.00)	**0.04**	(0.01)
Mother's education								
-Years of schooling completed	10.08	**8.31**	**9.81**	4.63	-5.45	(0.03)	**1.50**	(0.11)
-Matriculation	0.31	**0.15**	**0.27**	0.04	-0.27	(0.00)	**0.12**	(0.01)
-Academic degree	0.06	**0.02**	**0.04**	0.00	-0.05	(0.00)	**0.03**	(0.01)
Father's log hourly wages	1.64	**1.46**	**1.52**	1.24	-0.40	(0.00)	**0.06**	(0.02)
Mother's log hourly wages	1.36	**1.16**	**1.29**	0.86	-0.50	(0.01)	**0.13**	(0.05)
Number of siblings	2.10	**2.86**	**2.56**	4.40	2.30	(0.01)	**-0.30**	(0.04)
Community socioeconomics^^ Source: 1983 census - Socioeconomic Classification of Statistical Areas								
- CBS socioeconomic index	0.60	**0.55**	**0.64**	0.20	-0.41	(0.01)	**0.09**	(0.02)
-Log of monthly income per capita	5.02	**4.99**	**5.01**	4.87	-0.15	(0.00)	**0.02**	(0.01)
Appearance (Skin Tone: Von Luschan's Chromatic Scale)^^^								
Father's skin tone (mean of scale)	5.48	**5.64**	**7.85**	7.95	2.47	(0.00)	**2.21**	(0.02)
Mother's skin tone (mean of scale)	5.50	**7.82**	**5.74**	7.98	2.48	(0.00)	**-2.08**	(0.02)
Parents' skin tone (mean of scale)	5.49	**6.73**	**6.80**	7.96	-2.47	(0.00)	**0.07**	(0.01)
Panel B: Educational Attainment and Achievement on Cognitive Tests								
Source: 1995 census (men: N = 43,619 ; women: N = 45,351)								
	Mens' Education							
All Men								
-Total school years reported	14.20	**12.99**	**12.97**	11.57	-2.63	(0.03)	**-0.02**	(0.14)
Years in academic/vocational track after completing primary school								
-Academic	3.88	**2.38**	**2.74**	1.18	-2.70	(0.04)	**0.36**	(0.17)
-Vocational	2.31	**2.57**	**2.24**	2.41	0.10	(0.02)	**-0.33**	(0.11)

Variables and Data Source	AA (i)	AS (ii)	SA (iii)	SS (iv)	SS-AA Gap (v)	(S.E) (vi)	SA-AS Gap (vii)	(S.E) (viii)
Panel B Cont.								
Men completing 12 years of schooling								
Fraction completing 12 years of schooling	0.25	**0.35**	**0.34**	0.35	0.10	(0.00)	**-0.01**	(0.02)
Years spent in academic/vocational track								
-Academic	1.30	**1.04**	**1.32**	0.89	-0.42	(0.04)	**0.28**	(0.15)
-Vocational	2.62	**2.89**	**2.61**	3.08	0.45	(0.04)	**-0.27**	(0.15)
Men completing at least 13 years of schooling								
Fraction completing at least 13 years of schooling	0.60	**0.42**	**0.39**	0.21	-0.39	(0.00)	**-0.02**	(0.02)
-Total years	16.16	**15.58**	**16.02**	15.09	-1.08	(0.03)	**0.44**	(0.15)
-Fraction with academic degree	0.62	**0.48**	**0.57**	0.35	-0.27	(0.01)	**0.09**	(0.04)
-Years in university	3.42	**2.66**	**3.20**	1.92	-1.50	(0.04)	**0.53**	(0.20)
-Years in post-secondary	0.75	**0.92**	**0.77**	1.17	0.41	(0.02)	**-0.15**	(0.09)
Mens' matriculation rates	0.62	**0.46**	**0.53**	0.34	-0.28	(0.03)	**0.07**	(0.16)
(source: Life History Survey of Israeli Men (N=1,128) available for men only)								
-Standardized score of analytical test (source: Life History Survey of Israeli Men (N=1,128))								
Conditional on school years completed	0.56	**0.33**	**0.78**	0.28	-0.28	(0.06)	**0.45**	(0.21)
-Standardized score of verbal test								
Conditional on school years completed	0.71	**0.43**	**0.68**	0.32	-0.39	(0.05)	**0.25**	(0.21)
Womens' Education								
All Women								
-Total school years reported	14.21	**13.08**	**13.27**	11.85	-2.35	(0.03)	**0.20**	(0.14)
Years in academic/vocational track after completing primary school								
-Academic	4.47	**3.11**	**3.50**	1.74	-2.73	(0.03)	**0.38**	(0.16)
-Vocational	1.71	**1.90**	**1.76**	2.11	0.40	(0.02)	**-0.14**	(0.10)
Women completing 12 years of schooling								
Fraction completing 12 years of schooling	0.27	**0.39**	**0.37**	0.40	0.12	(0.00)	**-0.02**	(0.02)
Years spent in academic/vocational track								
-Academic	2.27	**1.93**	**2.03**	1.45	-0.82	(0.04)	**0.10**	(0.16)
-Vocational	1.65	**1.95**	**1.96**	2.52	0.87	(0.04)	**0.00**	(0.16)
Women completing at least 13 years of schooling								
Fraction completing at least 13 years of schooling	0.62	**0.42**	**0.44**	0.24	-0.38	(0.00)	**0.02**	(0.02)
-Total years	15.95	**15.63**	**15.91**	15.13	-0.82	(0.03)	**0.28**	(0.14)
-Fraction with academic degree	0.53	**0.42**	**0.52**	0.29	-0.24	(0.01)	**0.10**	(0.04)
-Years in university	2.82	**2.33**	**2.86**	1.58	-1.24	(0.04)	**0.53**	(0.19)
-Years in post-secondary	1.15	**1.31**	**1.07**	1.54	0.39	(0.02)	**-0.24**	(0.10)

Variables and Data Source		AA (i)	AS (ii)	SA (iii)	SS (iv)	SS-AA Gap (v)	(S.E) (vi)	SA-AS Gap (vii)	(S.E) (viii)
Panel C: Fertility and Religious Practices^^^^									
source: religious practice data is take from the LHSIM (N=1,1128)									
Number of own children is taken from the Israeli Census of 1995									
-Index of father's religious practices		0.43	**0.58**	**0.52**	0.79	0.37	(0.02)	**-0.07**	(0.09)
-Index of mother religious practices		0.41	**0.56**	**0.43**	0.71	0.30	(0.02)	**-0.13**	(0.08)
-Index of own religious practices		0.36	**0.49**	**0.35**	0.55	0.19	(0.02)	**-0.14**	(0.09)
-Number of own children		2.05	**2.00**	**1.92**	2.24	0.18	(0.02)	**-0.09**	(0.06)
Panel D: Occupations, Sectors and Work Status									
Source: Israeli Census of 1995.									
Occupations (1-Digit Classification)	Average Hourly Wage of AA Workers in Occupation in 1995 ^^^^^								
Father's Occupation									
Hourly wage of AA workers (in 1995) in each occupation weighted by the fraction of each origin in occupation		13.123	**12.078**	**13.289**	11.450	**-1.673**	(0.045)	**1.211**	(0.238)
Managers	$20	0.115	**0.085**	**0.181**	0.067	**-0.049**	(0.005)	**0.095**	(0.020)
Academic professionals	$18	0.153	**0.060**	**0.084**	0.016	**-0.136**	(0.005)	**0.024**	(0.015)
Other free professionals and technicians	$14	0.094	**0.065**	**0.099**	0.047	**-0.048**	(0.004)	**0.034**	(0.016)
Clerks	$13	0.114	**0.140**	**0.110**	0.131	**0.016**	(0.005)	**-0.030**	(0.018)
Service workers	$11	0.043	**0.069**	**0.051**	0.120	**0.077**	(0.004)	**-0.018**	(0.013)
Sales, agents	$11	0.069	**0.078**	**0.097**	0.088	**0.020**	(0.004)	**0.019**	(0.016)
Skilled workers in manufacturing, transportation and construction	$10	0.350	**0.429**	**0.291**	0.406	**0.056**	(0.008)	**-0.138**	(0.027)
Farm workers	$10	0.020	**0.032**	**0.057**	0.057	**0.037**	(0.003)	**0.025**	(0.012)
Unskilled workers in manufacturing	$8	0.041	**0.042**	**0.030**	0.068	**0.026**	(0.004)	**-0.012**	(0.010)
Own Occupation									
Hourly wage of AA workers in each occupation weighted by the fraction of each origin in occupation		15.018	**13.552**	**13.604**	12.013	-3.00	(0.055)	**0.053**	(0.262)
Managers	$20	0.209	**0.142**	**0.164**	0.076	-0.134	(0.005)	**0.021**	(0.026)
Academic professionals	$18	0.210	**0.122**	**0.116**	0.052	-0.158	(0.005)	**-0.006**	(0.023)
Associate professionals and technicians	$14	0.114	**0.117**	**0.106**	0.077	-0.037	(0.004)	**-0.011**	(0.023)
Clerical workers	$13	0.133	**0.148**	**0.133**	0.137	0.004	(0.005)	**-0.015**	(0.025)

Variables and Data Source		AA (i)	AS (ii)	SA (iii)	SS (iv)	SS-AA Gap (v)	(S.E) (vi)	SA-AS Gap (vii)	(S.E) (viii)
Panel D Cont.									
Agents, sales and service workers	$11	0.086	**0.133**	**0.140**	0.123	0.036	(0.005)	**0.007**	(0.025)
Manufacturing, construction and other skilled workers	$10	0.160	**0.254**	**0.276**	0.416	0.256	(0.006)	**0.023**	(0.032)
Skilled agricultural workers	$10	0.004	**0.005**	**0.007**	0.009	0.005	(0.001)	**0.001**	(0.006)
Unskilled workers	$8	0.017	**0.031**	**0.024**	0.057	0.040	(0.003)	**-0.007**	(0.012)
Missing occupation	--	0.066	**0.047**	**0.034**	0.054	-0.013	(0.004)	**-0.013**	(0.014)
Sector and Work Status									
Fraction working		0.791	**0.768**	**0.772**	0.714	**-0.076**	(0.004)	**0.005**	(0.019)
Monthly hours working (If working)		215	**213**	**217**	209	**-5.895**	(0.639)	**3.662**	(3.229)
Government sector	--	0.285	**0.245**	**0.246**	0.254	**-0.031**	(0.007)	**0.001**	(0.031)
Salaried workers	--	0.782	**0.767**	**0.756**	0.772	**-0.010**	(0.005)	**-0.011**	(0.023)
Self employed	--	0.205	**0.219**	**0.235**	0.221	**0.016**	(0.005)	**0.016**	(0.022)

Notes:

^To proxy family background we generate "synthetic" parents assuming mothers were 20 to 35 when they gave birth. For example a "synthetic mother" of a person aged 35 in 1995 has the characteristics of the average married woman born in 1925-40 in terms of her continent of origin and her spouse's origin. The "synthetic fathers" have the characteristics of those actually married to the “synthetic mothers".

^^ The Socioeconomic Index was constructed by The Israeli Central Bureau of Statistics (CBS) and is based on measures of income per capita, unemployment rates, fraction of students with matriculation eligibility, fraction of college students, transportation, demography and other measures for each locality.

^^^Von Luschan's Chromatic Scale: A method for classifyng skin color. We used the skin color for each country to merge each individual with the skin color of of his parents' country of birth.

^^^^The index is the the sum of five indicator varibles receiving '1` if the person reports he/his father observed this religious practice. The five practices are: wear Kippah, Does not eat bread on Passover, eats Kosher food, fasts on Yom Kippur r and Lays Tfillin. Yom Kippu is the holiest day of the year for religious Jews. Its central themes are atonement and repentance. Jews traditionally observe this holy day with fasting and intensive prayer, often spending most of the day in synagogue services. Kippah (or yarmulke) is a thin rounded skullcap traditionally worn at all times by observant Jewish men. Tfilin is phylacteries. Unique measures for mothers include "covered her hair" and "went to the Mikve". Mikve is a bath used for the purpose of ritual immersion.

^^^^^ For each occupation we calculated the average hourly wage of an AA worker. Hourly wage is presented in current US Dollars ($) and was converted from New Israeli Shekels (NIS) by a rate of 3.04, the average exchange rate in September 1995 (Source: Bank of Israel)

Table 2
Log Hourly Wage Gaps by Father's and Mother's Origin, Males

Variables		(i)	(ii)	(iii)	Score on Standardized Van Luschan Chromatic Scale^^ Is *Within* a Band Of 1(SD) (iv)	Score on Standardized Van Luschan Chromatic Scale^^ Is *Within* a Band Of 0.5(SD) (v)	Score on Standardized Van Luschan Chromatic Scale^^ Is *Outside* a Band Of 0.5(SD) (vi)	Score on Standardized Van Luschan Chromatic Scale^^ Is *Outside* a Band Of 1(SD) (vii)
Father born in Asia/Africa Mother born in Europe/America	SA	**-0.070** (0.042)	**-0.078** (0.035)	**-0.117** (0.032)	**-0.122** (0.034)	**-0.143** (0.047)	**-0.099** (0.051)	**-0.077** (0.118)
Father born in Europe/America Mother born in Europe/America	AA	0.272 (0.025)	0.065 (0.022)	0.017 (0.020)	-0.014 (0.021)	-0.112 (0.112)	0.041 (0.032)	0.099 (0.085)
Father born in Asia/Africa Mother born in Asia/Africa	SS	-0.186 (0.024)	-0.067 (0.022)	-0.063 (0.019)	-0.066 (0.020)	-0.075 (0.027)	-0.041 (0.032)	-0.016 (0.085)
Controlling for								
Education & Experience		No	Yes	Yes	Yes	Yes	Yes	Yes
Occupation, Industry & Location		No	No	Yes	Yes	Yes	Yes	Yes
R-squared		0.14	0.34	0.49	0.48	0.49	0.49	0.52
Observations		18659	18659	18659	10801	4111	14548	7858
*AET(2005) Multiplier^*		*N.A*	*-3.028*	*-1.663*	*-1.946*	*-1.615*	*-1.010*	*-0.923*

Notes: The population sample is taken from the 1995 Israeli census and consists of Israeli-born Jewish males, full-time full-year salaried workers, ages 30-55. The benchmark group consists of Israeli-born men with European/American-born fathers and Asian/African-born mothers. The first column reports crude wage gaps, the second column reports wage gaps conditional on potential experience and highest diploma received, and the third column in addition controls for a full set of dummy variables for each occupation and industry and each area of residence. We add a dummy variable indicating a missing occupation/industry. Potential experience is calculated as [age]-[school years completed]-[6] and we control for a quartic in potential experience. Highest diploma received is represented by 8 dummy variables. We control for a full set of dummy variables for each area of residence in the year of the census. We define "full-time full-year" as working at least 35 hours per week and 12 months a year.

^The AET multiplier, following the methodology in Altonji, Elder and Taber (2005), indicates how much larger the normalized shift in observables has to be relative to the normalized shift in the distribution of unobservables to explain away the SA effect.

^^Von Luschan's Chromatic Scale: A method for classifyng skin color. We used the skin color for each country to merge each individual with the skin color of of his parents' country of birth.

( ) Robust standard errors are reported in parentheses

Table 3
Log Hourly Wage Gaps by Father's and Mother's Origin, Females

		All Women:			**By Marital Status:**			
					Ever Married		**Never Married**	
Variables		(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Father born in Asia/Africa	SA	**-0.009**	**-0.032**	**-0.003**	**-0.004**	**0.016**	**-0.067**	**-0.248**
Mother born in Europe/America		(0.047)	(0.041)	(0.036)	(0.049)	(0.037)	(0.164)	(0.146)
Father born in Europe/America	AA	0.143	-0.014	-0.025	0.142	-0.025	0.157	-0.085
Mother born in Europe/America		(0.029)	(0.026)	(0.024)	(0.031)	(0.026)	(0.082)	(0.079)
Father born in Asia/Africa	SS	-0.213	-0.106	-0.070	-0.223	-0.071	-0.128	-0.125
Mother born in Asia/Africa		(0.028)	(0.025)	(0.023)	(0.030)	(0.025)	(0.081)	(0.081)
Controlling for								
Education & Experience		No	Yes	Yes	No	Yes	No	Yes
Occupation, Industry & Location		No	No	Yes	No	Yes	No	Yes
R-squared		0.09	0.27	0.50	0.10	0.51	0.06	0.58
Observations		10725	10725	10725	9586	9586	1139	1139

Notes: The population sample is taken from the 1995 Israeli census and consists of Israeli-born Jewish females, full-time full-year salaried workers, ages 30-55. The benchmark group consists of Israeli-born men with European/American-born fathers and Asian/African-born mothers. In the first panel: the first column reports crude wage gaps, the second column reports wage gaps conditional on potential experience and highest diploma received, and the third column in addition controls for a full set of dummy variables for each occupation and industry and each area of residence. In the second panel: we estimate wage gaps by marital status while ommiting the specification of the second column from the first panel. We add a dummy variable indicating a missing occupation/industry. Potential experience is calculated as [age]-[school years completed]-[6] and we control for a quartic in potential experience. Highest diploma received is represented by 8 dummy variables. We control for a full set of dummy variables for each area of residence in the year of the census. We define "full-time full-year" as working at least 35 hours per week and 12 months a year.

( ) Robust standard errors are reported in parentheses

Table 4
Log Hourly Wage Gaps by Father's and Father-in-Law's Origin, Females

		All		Score on Standardized Van Luschan Chromatic Scale^^ is Within 1 Standard Deviation	
				Yes	No
Panel A: All Married Women		(i)	(ii)	(iii)	(iv)
Father born in Europe/America Father-in-Law born in Asia/Africa	HWSA	**-0.053** (0.029)	**-0.050** (0.026)	**-0.059** (0.029)	**-0.007** (0.040)
Father born in Europe/America Father-in-Law born in Europe/America	HWAA	0.059 (0.028)	0.025 (0.026)	0.033 (0.029)	0.050 (0.037)
Father born in Asia/Africa Father-in-Law born in Asia/Africa	HWSS	-0.125 (0.016)	-0.073 (0.014)	-0.070 (0.017)	-0.080 (0.033)
Mother Sephardic		**0.001** (0.026)	**-0.008** (0.023)	**0.005** (0.025)	N/A
Controlling for					
Education & Experience		Yes	Yes	Yes	Yes
Occupation, Industry & Location		No	Yes	Yes	Yes
R-squared		0.295	0.535	0.542	0.569
Observations		7093	7093	4305	2788
Panel B: Only Married Women From AS or SA Origin					
Husband From Sephardic Origin		**-0.116** (0.082)	**-0.084** (0.049)	**-0.100** (0.053)	**0.002** (0.136)
Mother Sephardic		-0.086 (0.081)	0.056 (0.049)	0.083 (0.054)	-0.227 (0.153)
Controlling for					
Education & Experience		Yes	Yes	Yes	Yes
Occupation, Industry & Location		Yes	No	No	No
R-squared		0.803	0.292	0.314	0.574
Observations		333	333	284	49

Notes: The population sample is taken from the 1995 Israeli census and consists of Israeli-born Jewish females, full-time full-year salaried workers ages 30-55. Panel B is restricted only to women from AS or SA origin. We consider women whose father-in-law's origin is known. The benchmark group in the top panel consists of Israeli-born women with Asian/African-born fathers and European/American-born father-in-laws (HWAS). The benchmark group in the bottom panel consists of Israeli-born women with Asian/African-born father-in-laws. In each panel the first column reports wage gaps conditional on potential experience and highest diploma received and the and the second column in addition controls for a full set of dummy variables for each occupation and industry and each area of residence.

Notes for Table 4 Continued: We add a dummy variable indicating a missing occupation/industry. Potential experience is calculated as [age]-[school years completed]-[6] and we control for a quartic in potential experience. Highest diploma received is represented by 8 dummy variables. We control for a full set of dummy variables for each area of residence in the year of the census. We define “full-time full-year” as working at least 35 hours per week and 12 months a year. In the third and fourth column of each panel we estimate the specification of the second column dividing the sample into two sub-samples. In column (iii) we limit the sample to persons with values of the standardized Von Luschan's Chromatic Scale between 1 and -1. In column (iv) we limit the sample to persons with values of the standardized Von Luschan's Chromatic Scale that are smaller than -1 or greater than +1

^Von Luschan's Chromatic Scale: A method for classifyng skin color. We used the skin color for each country to merge each individual with the skin color of of her parents' country of birth.

( ) Robust standard errors are reported in parentheses

Table 5
The Effect of a Change in Perceived Ethnicity on Log Hourly Wages, Females

Variables	(i)	(ii)
Change in Perceived Ethnicity^	**-0.16**	
	(0.09)	
Change in Perceived Ethnicity		**-0.09**
Between 1983 and 1995 **from A to S**		(0.15)
Change in Perceived Ethnicity		**0.19**
Between 1983 and 1995 **from S to A**		(0.11)
R-squared	0.17	0.17
Observations	244	244

Notes: The dependent variable in all columns is the change in log hourly wages between 1983 and 1995. The population sample is taken from the 1983-1995 linked Israeli census file and consists of Israeli-born Jewish, salaried working women, ages 18-39 in 1983, who were single in 1983 and married between 1983 and 1995. In the first column the benchmark group consists of women whose observed ethnicity did not change between 1983 and 1995. In the second column the benchmark consists of women who did not change their observed ethnicity (married a man of their own father's ethnic group). Control variables included in both columns are potential experience quartic, interactions between potential experience and an indicator for father from Africa/Asia (isr_asaf), indicators for working FTFY in 1983 or in 1995 and dummies for school years completed.
^ The variable "changed ethnicity" gets the value: (-1) if the woman's observed ethnicity changed from Sephardic in 1983 to Ashkenazi in 1995, (1) if the woman's ethnicity changed from Ashkenazi 1983 to Sephardic in 1995 and (0) if the woman's observed ethnicity did not change between 1983 and 1995.

( ) Robust standard errors are reported in parentheses

Table A1

Sample Averages for Males Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=43,619)				FTFY Sample (N=18,659)			
	AA^^	AS	SA	SS	AA	AS	SA	SS
Distribution								
Fractions	0.38	0.03	0.02	0.58	0.42	0.03	0.02	0.53
Numbers	16444	1289	710	25176	7842	548	293	9976
Marital status								
Married	0.88	0.84	0.84	0.85	0.91	0.88	0.91	0.91
Divorced	0.05	0.05	0.05	0.04	0.04	0.04	0.02	0.02
Widowed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single	0.07	0.10	0.10	0.11	0.05	0.08	0.06	0.07
Education^								
School Years Completed	14.1	12.9	12.9	11.6	14.4	13.1	12.9	11.8
HSD_0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HSD_1_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HSD_5_8	0.03	0.05	0.07	0.13	0.02	0.03	0.06	0.09
HSD_9_11	0.13	0.19	0.20	0.30	0.05	0.10	0.12	0.20
HSG	0.21	0.31	0.29	0.35	0.20	0.31	0.33	0.37
HSGBAG	0.12	0.15	0.14	0.10	0.11	0.15	0.10	0.10
POSTSEC	0.20	0.17	0.16	0.13	0.21	0.18	0.16	0.14
BA	0.23	0.14	0.14	0.06	0.24	0.16	0.13	0.07
AD	0.13	0.05	0.07	0.02	0.16	0.07	0.09	0.02

^ HSD=High school dropout (number suffix represents school years completed) , HSG=High school graduate certificate,

HSGBAG=High school graduate with a matriculation certificate POSTSEC=Postsecondary education BA=College graduate, AD=Advanced degree

^^ AA - Father born in Europe/America and Mother born in Europe/America; AS - Father born in Europe/America and Mother born in Asia/Africa

SS - Father born in Asia/Africa and Mother born in Asia/Africa; SA - Father born in Asia/Africa and Mother born in Europe/America

Sample Averages for Males Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=43,619)				FTFY Sample (N=18,659)			
	AA	AS	SA	SS	AA	AS	SA	SS
Labor Market								
Worked	0.79	0.77	0.77	0.71	1.00	1.00	1.00	1.00
FTFY	0.68	0.63	0.63	0.57	1.00	1.00	1.00	1.00
Self Employed	0.18	0.18	0.20	0.17	0.00	0.00	0.00	0.00
Salaried	0.62	0.60	0.58	0.56	1.00	1.00	1.00	1.00
Other^	0.20	0.21	0.21	0.26	0.00	0.00	0.00	0.00
Government	0.30	0.28	0.27	0.27	0.29	0.24	0.25	0.25
Potential Experience	22.7	18.6	20.3	20.1	22.2	18.1	20.5	19.8
Log of Hourly Earnings	------	------	------	------	3.65	3.38	3.31	3.19
Occupations								
Academic Professionals	0.17	0.09	0.09	0.03	0.21	0.12	0.12	0.05
Associate Professionals and Technicians	0.09	0.08	0.09	0.05	0.11	0.12	0.11	0.08
Managers	0.15	0.09	0.12	0.05	0.21	0.14	0.16	0.08
Clerical Workers	0.09	0.09	0.08	0.07	0.13	0.15	0.13	0.14
Agents, Sales Workers and Service Workers	0.09	0.13	0.13	0.11	0.09	0.13	0.14	0.12
Skilled Agricultural	0.02	0.02	0.02	0.02	0.00	0.01	0.01	0.01
Industry, Construction and Other Skilled Workers	0.14	0.23	0.21	0.32	0.16	0.25	0.28	0.42
Unskilled	0.02	0.02	0.02	0.04	0.02	0.03	0.02	0.06
Missing Occupation^^	0.24	0.26	0.24	0.30	0.07	0.05	0.03	0.05

^ Individuals who were not self employed or salaried workers worked in a cooperative, kibbutz or as unpaid family members

^^ Individual did not work or occupation is either not reported or reported with an error

Sample Averages for Males Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=43,619)				FTFY Sample (N=18,659)			
	AA	AS	SA	SS	AA	AS	SA	SS
Locality in 1995								
Three Major Cities	**0.24**	**0.23**	**0.23**	**0.17**	**0.24**	**0.22**	**0.24**	**0.17**
Jerusalem	0.06	0.07	0.07	0.07	0.05	0.05	0.09	0.07
Tel Aviv	0.10	0.10	0.10	0.07	0.09	0.10	0.08	0.07
Haifa	0.08	0.06	0.06	0.03	0.10	0.07	0.06	0.03
Localities 2-199K	**0.65**	**0.68**	**0.68**	**0.75**	**0.76**	**0.78**	**0.76**	**0.83**
100-199K	0.26	0.31	0.30	0.29	0.28	0.35	0.33	0.31
20-100K	0.29	0.25	0.29	0.32	0.35	0.28	0.32	0.37
2 -20k	0.11	0.11	0.09	0.14	0.12	0.14	0.11	0.16
Rural areas	**0.06**	**0.05**	**0.05**	**0.06**	------	------	------	------
Moshav	0.06	0.05	0.05	0.06	------	------	------	------
Kibbutz	0.0	0.0	0.0	0.0	------	------	------	------
Other	**0.04**	**0.04**	**0.03**	**0.03**	------	------	------	------

Table A2

Sample Averages for Females Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=45,351)				FTFY Sample (N=10,725)			
	AA^^	AS	SA	SS	AA	AS	SA	SS
Distribution								
Fractions	0.37	0.03	0.02	0.59	0.39	0.03	0.02	0.57
Numbers	16799	1251	732	26569	4137	338	181	6069
Marital status								
Married	0.83	0.81	0.82	0.84	0.75	0.81	0.80	0.80
Divorced	0.08	0.09	0.08	0.07	0.11	0.09	0.09	0.09
Widowed	0.02	0.01	0.01	0.01	0.02	0.00	0.02	0.01
Single	0.08	0.09	0.08	0.08	0.11	0.10	0.09	0.10
Education^								
School Years Completed	14.2	13.1	13.3	11.9	14.2	13.1	13.2	12.0
HSD_0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HSD_1_4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HSD_5_8	0.02	0.04	0.05	0.10	0.01	0.03	0.02	0.06
HSD_9_11	0.09	0.15	0.13	0.25	0.04	0.07	0.05	0.14
HSG	0.19	0.27	0.24	0.34	0.20	0.28	0.27	0.38
HSGBAG	0.17	0.22	0.21	0.16	0.20	0.26	0.31	0.22
POSTSEC	0.25	0.19	0.18	0.15	0.17	0.15	0.12	0.12
BA	0.24	0.13	0.17	0.06	0.24	0.15	0.17	0.07
AD	0.09	0.05	0.07	0.01	0.13	0.07	0.06	0.01

^ HSD=High school dropout (number suffix represents school years completed) , HSG=High school graduate certificate,

HSGBAG=High school graduate with a matriculation certificate POSTSEC=Postsecondary education BA=College graduate, AD=Advanced degree

^^ AA - Father born in Europe/America and Mother born in Europe/America; AS - Father born in Europe/America and Mother born in Asia/Africa

SS - Father born in Asia/Africa and Mother born in Asia/Africa; SA - Father born in Asia/Africa and Mother born in Europe/America

Sample Averages for Females Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=45,351)				FTFY Sample (N=10,725)			
	AA	AS	SA	SS	AA	AS	SA	SS
Labor Market								
Worked	0.70	0.66	0.69	0.59	1.00	1.00	1.00	1.00
FTFY	0.31	0.32	0.32	0.28	1.00	1.00	1.00	1.00
Self Employed	0.07	0.06	0.06	0.03	0.00	0.00	0.00	0.00
Salaried	0.64	0.61	0.63	0.56	1.00	1.00	1.00	1.00
Other^	0.29	0.33	0.31	0.40	0.00	0.00	0.00	0.00
Government	0.47	0.38	0.38	0.36	0.48	0.39	0.38	0.44
Potential Experience	21.2	18.3	18.6	19.4	22.7	18.6	19.7	19.8
Log of Hourly Earnings	------	------	------	------	3.35	3.20	3.19	2.99
Occupations								
Academic Professionals	0.16	0.07	0.09	0.03	0.19	0.09	0.08	0.03
Associate Professionals and Technicians	0.17	0.12	0.15	0.09	0.13	0.11	0.14	0.08
Managers	0.03	0.03	0.03	0.01	0.07	0.07	0.06	0.03
Clerical Workers	0.22	0.26	0.22	0.23	0.43	0.51	0.47	0.56
Agents, Sales Workers and Service Workers	0.09	0.12	0.15	0.13	0.10	0.13	0.15	0.16
Skilled Agricultural	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Industry, Construction and Other Skilled Workers	0.01	0.01	0.02	0.03	0.02	0.01	0.05	0.05
Unskilled	0.01	0.02	0.02	0.05	0.01	0.02	0.02	0.04
Missing Occupation^^	0.31	0.36	0.32	0.42	0.05	0.06	0.03	0.04

^ Individuals who were not self employed or salaried workers worked in a cooperative, kibbutz or as unpaid family members

^^ Individual did not work or occupation is either not reported or reported with an error

Sample Averages for Females Born in Israel to Parents of Mixed Origin, Ages 30-55, the 1995 Israeli Census

	All Individuals (N=45,351)				FTFY Sample (N=10,725)			
	AA	AS	SA	SS	AA	AS	SA	SS
Locality in 1995								
Three Major Cities	**0.25**	**0.23**	**0.24**	**0.17**	**0.31**	**0.27**	**0.25**	**0.21**
Jerusalem	0.07	0.07	0.08	0.07	0.07	0.08	0.08	0.10
Tel Aviv	0.10	0.11	0.10	0.07	0.13	0.12	0.11	0.08
Haifa	0.09	0.06	0.05	0.03	0.11	0.07	0.07	0.04
Localities 2-199K	**0.65**	**0.70**	**0.68**	**0.75**	**0.69**	**0.73**	**0.75**	**0.79**
100-199K	0.26	0.31	0.29	0.30	0.25	0.32	0.34	0.32
20-100K	0.29	0.27	0.29	0.32	0.34	0.30	0.25	0.33
2 -20k	0.10	0.12	0.11	0.13	0.10	0.11	0.15	0.14
Rural areas	**0.06**	**0.05**	**0.04**	**0.05**	------	------	------	------
Moshav	0.06	0.05	0.04	0.05	------	------	------	------
Kibbutz	0.0	0.0	0.0	0.0	------	------	------	------
Other	**0.04**	**0.02**	**0.04**	**0.02**	------	------	------	------

Table A3
Sample Averages
Offspring-Parents File, "Synthetic" Parents File and the LHSIM Data

	Origin by Parents' Continent of Birth			
Data Set and Source	AA^	AS	SA	SS
Parents-Offspring				
Source: 1983 census				
Number of Observations	41552	6296	3736	135656
Father's Age	44.4	40.7	37.1	41.8
Father's Years of schooling	10.5	9.1	10.2	6.0
Father's Matriculation	0.33	0.18	0.31	0.07
Father's Academic degree	0.12	0.04	0.08	0.01
Father's log hourly wages	1.64	1.46	1.52	1.25
Mother's Age	39.4	35.6	32.7	36.6
Mother's Years of schooling	10.1	8.3	9.8	4.6
Mother's Matriculation	0.31	0.15	0.27	0.04
Mother's Academic degree	0.06	0.02	0.04	0.00
Mother's log hourly wages	1.36	1.16	1.29	0.86
Offspring's Age	10.4	8.2	6.8	8.9
Number of Siblings	2.1	2.9	2.6	4.4
"Synthetic" Parents				
Source: 1983 census				
Number of observations	37568	3400	2010	40840
Father's Age	55.7	51.8	50.0	52.0
Father's Years of schooling	10.8	9.9	11.1	7.1
Father's Matriculation	0.34	0.23	0.37	0.09
Father's Academic degree	0.16	0.08	0.16	0.02
Father's log hourly wages	5.22	5.12	5.28	4.88
Mother's Age	52.0	47.5	46.6	47.6
Mother's Years of schooling	10.4	9.2	10.8	5.5
Mother's Matriculation	0.33	0.18	0.36	0.06
Mother's Academic degree	0.11	0.04	0.11	0.01
Mother's log hourly wages	4.84	4.80	4.94	4.49

^ AA - Father born in Europe/America and Mother born in Europe/America; AS - Father born in Europe/America and Mother born in Asia/Africa; SS - Father born in Asia/Africa and Mother born in Asia/Africa; SA - Father born in Asia/Africa and Mother born in Europe/America

Table A3 Continued

Data Set and Source	Origin by Parents' Continent of Birth			
	AA	AS	SA	SS
Life History Study of Israeli Men				
Number of Observations	430	27	17	667
School Years Completed	13.0	11.7	12.2	11.0
I.D.F Analytical Test Scores	22.18	19.81	22.47	19.12
I.D.F Verbal Test Scores	13.61	11.00	12.65	10.11
Wears "kippa"	0.15	0.12	0.00	0.13
Fasts on "Yom Kippur"	0.52	0.72	0.59	0.86
Father Wears "kippa"	0.22	0.23	0.18	0.55
Father Fasted on "Yom Kippur"	0.58	0.77	0.76	0.98

^ AA - Father born in Europe/America and Mother born in Europe/America; AS - Father born in Europe/America and Mother born in Asia/Africa; SS - Father born in Asia/Africa and Mother born in Asia/Africa; SA - Father born in Asia/Africa and Mother born in Europe/America

The data is taken from the 1995 Census and includes the entire Jewish population and recent immigrants. The figure divides the Israeli-born Jewish population, ages 22-65 in 1995, into three sub populations by parents' origin: (i) both parents born outside Israel (71%) (ii) one parent born in Israel (13%) and (iii) both parents born in Israel. (16%) Those whose parents were born outside of Israel are further classified into four groups by parents' continent of birth. Parents classified as Ashkenazi were born in Europe, America, Australia or New-Zealand. Parents classified as Sephardic were born in Asia or Africa. The two groups AS and SA are the focus of this paper: they contain about 4% of all Israeli-born Jews ages 22-65 in 1995.

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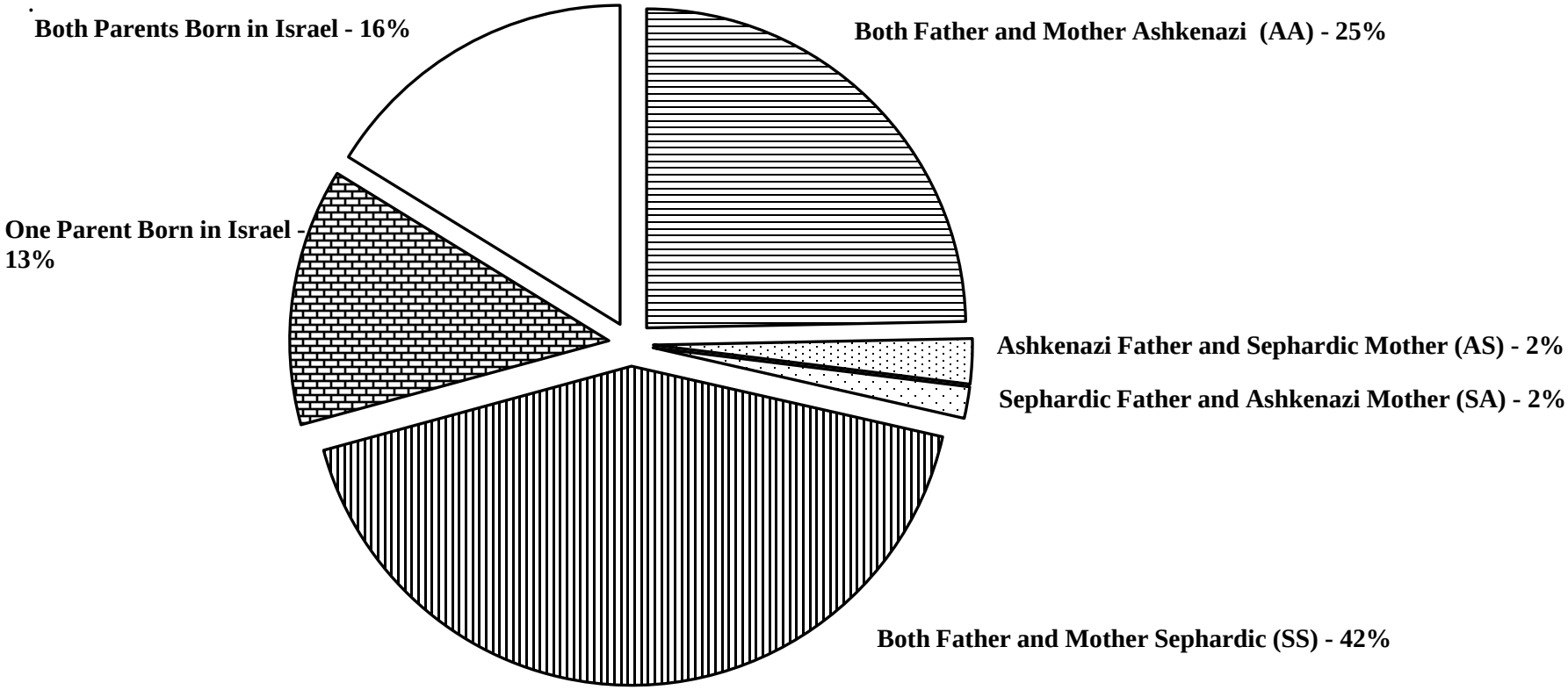

Figure 1
The Israeli-Born Jewish Population, Ages 22-65, by Parents' Continent of Birth, Israel 1995

The figure shows: (i) educational outcomes (source: 1995 Israeli census), IDF analytical and verbal standardized test scores (source: LHSIM) and hourly wage gaps (wage sample: full time full year, salaried workers, 1995 Israeli census) and (ii) educational outcomes and hourly wage gaps for parents to Israeli-born Jewish males who were ages 1-18 in 1972 (source: Offspring-Parents file) . The benchmark group consists of Israeli-born Jewish men with European/American-born fathers and Asian/African-born mothers (AS).

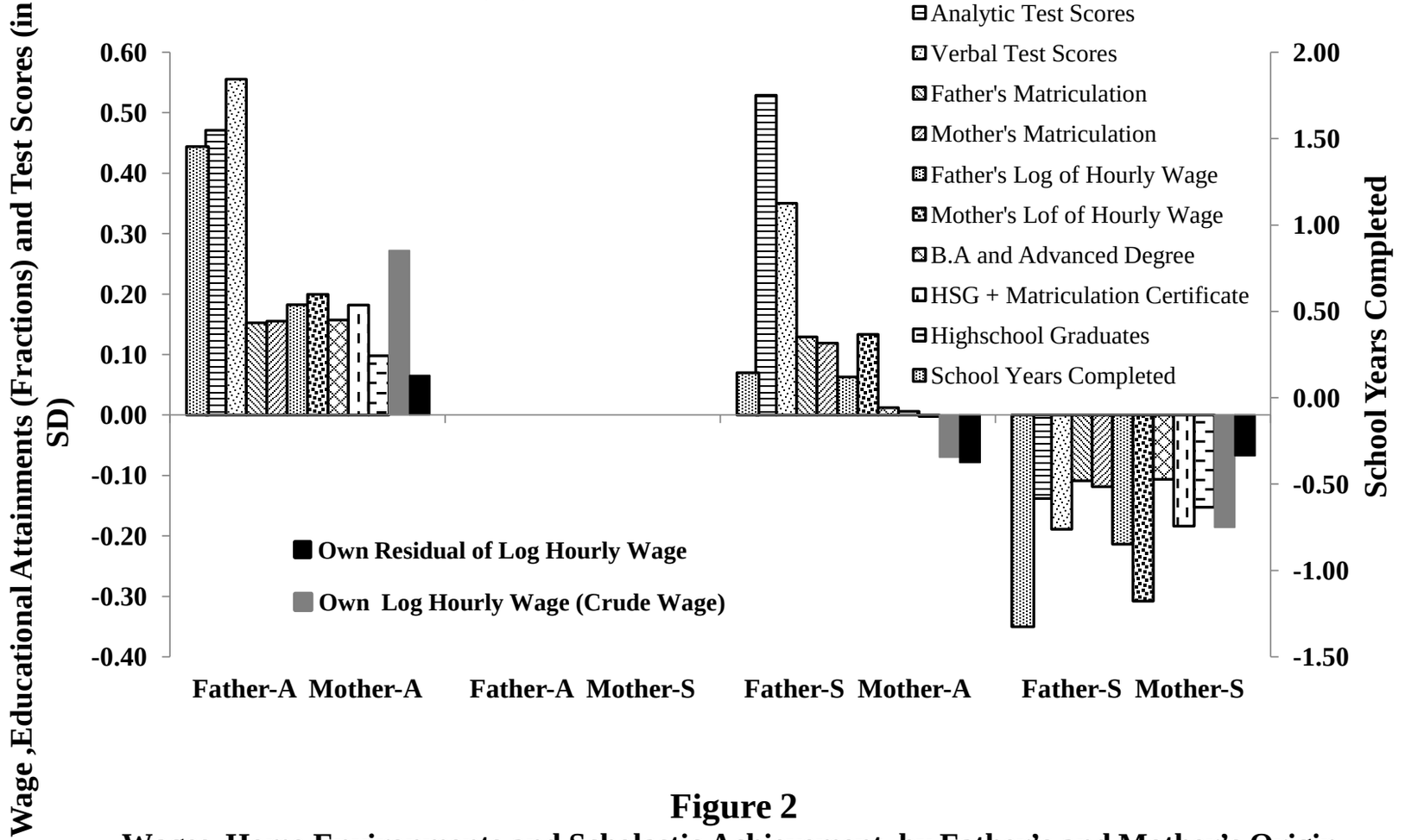

Figure 2

Wages, Home Environments and Scholastic Achievement, by Father's and Mother's Origin, Israeli-Born, Jewish Males, ages 30-55, the 1995 Israeli Census

The population sample is taken from the 1995 Israeli census. The figure shows the gaps in log hourly wages and fraction with college education or advanced degree between groups of Israeli-born Jewish women ages 30-55 in 1995 (solid and horizontally striped bars, respectively) and between their husbands (checkered and vertically striped bars, respectively). Women are classified into four groups by father's and father-in-law's continent of birth. The benchmark group consists of Israeli-born women with Asian/African-born fathers and European/American-born father-in-laws (HWAS).

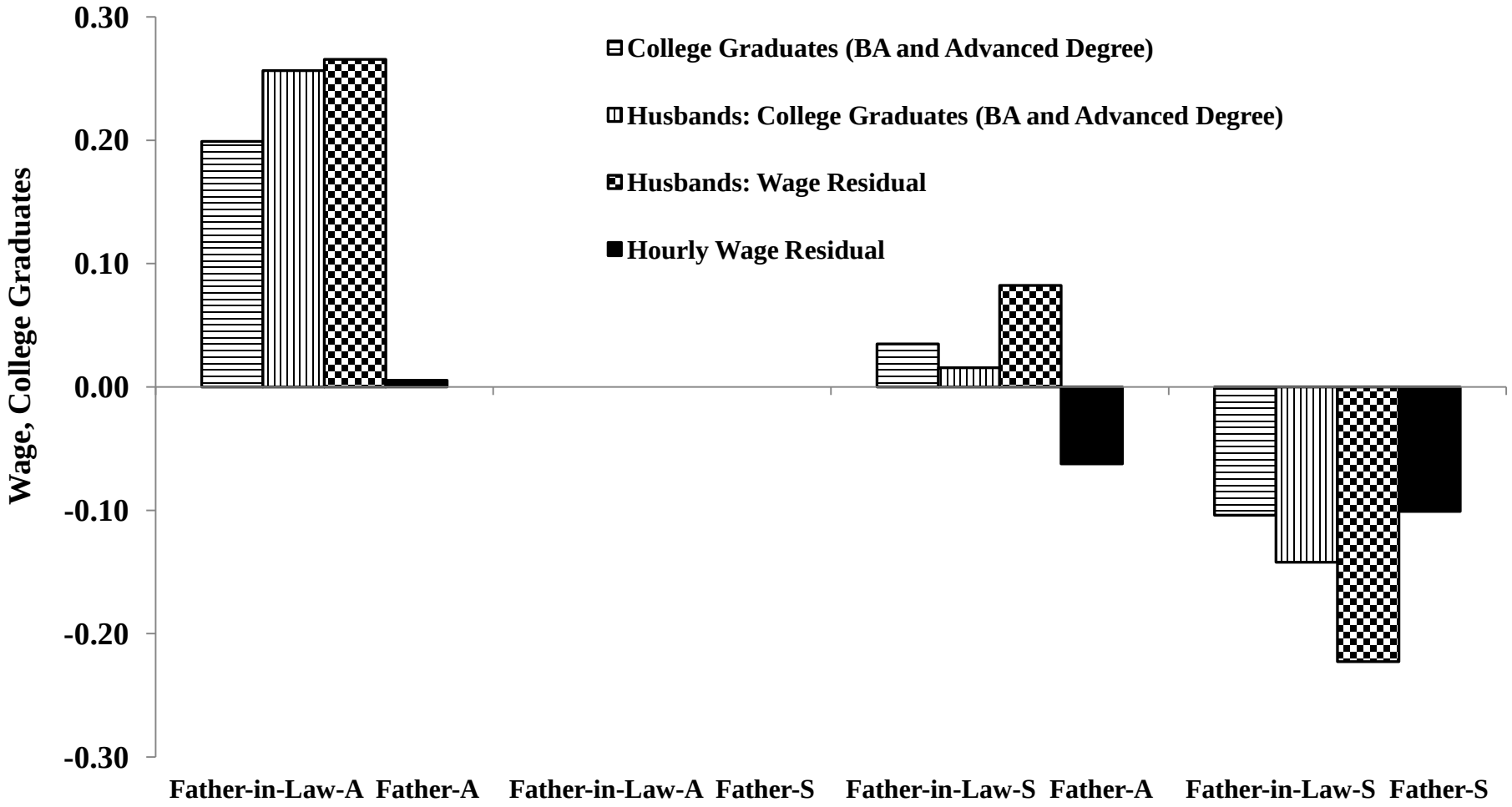

Figure 3

The Gaps in Educational Attainment and Wages Between Married Women and Between their Husbands by Father's and Father-in-Law's Origin

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