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Assess Self-reported Age Discrimination**

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Age, Cohort and Perceived Age Discrimination: Using the Life Course to Assess Self-reported Age Discrimination

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Self-reported discrimination is linked to diminished well-being, but the processes generating these reports remain poorly understood. Employing the life course perspective, this paper examines the correspondence between expected age preferences for workers and perceived age discrimination among a nationally representative sample of 7,225 working women, followed between 1972-1989. Analyses find that perceived age discrimination is high in the 20s, drops in the 30s and peaks in the 50s. This curvilinear pattern matches external reports of age preferences and is robust to a variety of controls and model specifications. Additionally, the primary driver of perceived age discrimination is age – not cohort or historical period. These findings suggest that perceived age discrimination is a useful indicator of population-level exposure to work-related age discrimination among women.

Introduction

Recent studies have linked self-reported discrimination to a variety of inequalities, including health, employment and income (Mays, Cochran and Barnes 2007; Williams, Neighbors and Jackson 2003). One limitation of this research is the potential bias inherent in self-reported measures. The concern is the extent to which self-reported discrimination reflects exposure to biased treatment as opposed to variation in how individuals identify experiences as discriminatory. Although perceptions *per se* are important, measures of self-reported discrimination nonetheless presume an objective experience and an attribution of the experience (Kessler, Michelson and Williams 1999).

Our study's goal is to investigate the pattern of reporting of age discrimination across the adult life course in order to examine the predictive validity of such reports. The life course perspective helps shape our study (for reviews see Elder, Johnson and Crosnoe 2003; Marshall and Mueller 2003). First, a life course perspective views aging as a life-long process. This suggests that concerns about age discrimination are not only relevant in later life, but may ebb and flow across the entire life course. For example, employers and the general public appear to discriminate against both younger and older workers (Johnson and Neumark 1997; Nelson 2005). Second, the life course perspective views the experience

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of aging as structured by institutions, roles and norms. Because institutions are age-graded, exposure to age discrimination should vary by age, with certain ages at higher risk of *exposure* than others (Giles and Reid 2005). This variation in exposure means that if we follow an individual over time, the probability that she will *report* age discrimination should also vary as she ages. Finally, a life course perspective argues that individual aging occurs within historical contexts, raising the possibility that perceptions and awareness of age discrimination varies not only by age, but by birth cohort. In this paper, we assess how closely individual reports of work-related age discrimination match these expected ages of exposure and the extent to which these reports vary across birth cohorts.

Longitudinal data from the Mature and Young Women's Cohorts of the National Longitudinal Surveys (NLS) are used to examine reports of discrimination between 1972 and 1988. Unlike previous cross-sectional studies of age discrimination, the NLS cohorts allow us to follow a nationally representative sample of U.S. women spanning several birth cohorts. Participants were asked on four occasions whether they had experienced age discrimination at work. We use these data to address three questions. First, do patterns of perceived age discrimination vary by age in a way that reflects previously identified age preferences for workers? Second, does age-related variation in perceived age discrimination persist after controlling for potentially confounding influences such as depression or education level? Third, to what extent do reports of age discrimination reflect changes related to age per se and to what extent do they represent variation in reporting by cohort? We focus on women in this study primarily because of data availability, but an advantage of doing so is that experiences of age discrimination in the workplace likely vary by gender. Attention specifically to women thus provides a more focused investigation of age discrimination. Additionally, given the rapid changes in women's labor force experience, closer attention to age and cohort patterns of women's age discrimination is particularly important.

Perceived Discrimination

Discrimination can be defined as the actions arising from institutions and individuals that disproportionately and systematically harm members of socially marginalized groups (Feagin and McKinney 2003). The study of perceptions of discrimination has become an important field of inquiry. The general assumption is that perceptions form one way of measuring the exposure to social experiences encountered by persons in marginalized groups.

There are several reasons to explore perceptions of discrimination. First, these perceptions are fairly commonly reported. Using nationally representative data, Kessler and colleagues (1999) found that 33 percent of the sample reported experiencing a major instance of discrimination in their lifetime, while 61 percent reported experiencing discrimination on an everyday basis. Second, individual perceptions of discrimination have been linked to broader levels of structural discrimination. For example, Gee (2002) noted that Asian Americans living in areas with residential redlining against Asian Americans were more likely to report racial discrimination. Third, perceptions of discrimination provide one barometer for human rights, allowing for the assessment of individual's feelings of their just

and civil treatment. Fourth, perceptions of discrimination appear consequential for well-being (Feagin 1991; Krieger 2003; Sigelman and Welch 1991). Perceived discrimination has been linked to a wide range of employment and health outcomes (Gee et al. 2007; Johnson and Neumark 1997; Kessler, Michelson and Williams 1999; Krieger and Sidney 1996; Neumark and McLennan 1995; Schulz et al. 2006). Discrimination in the workplace, for example, has been associated with greater likelihood of stress, distress and functional limitations among women in the United States (Mays et al., 1996; Pavalko et al., 2003). Based on the high prevalence of discrimination and its robust association with mental disorders, Kessler and colleagues (1999:224) speculate that “discrimination is among the most important of all the stressful experiences that have been implicated as causes of mental health problems.” Thus, perceived discrimination is an important area because it connects structural inequity to individual outcomes.

We are only beginning to understand the circumstances under which individuals are likely to report discrimination. Evidence suggests that the relationship between exposure and reporting is complex. Minorities and women are more likely to report racial and gender discrimination (Kessler, Michelson and Williams 1999; Sigelman and Welch 1991). Members of marginalized groups, however, may sometimes underreport experiences of discrimination in order to protect their self-esteem and avoid the invalidation of their experiences by others (Harrell 2000). Additionally, internalized oppression and the incorporation of derogatory beliefs about one’s in-group may lead some individuals to not report discrimination when it has occurred (Krieger and Sidney 1996; Pheterson 1986). Studies have documented the “person-group discrimination discrepancy,” finding that individuals are more likely to perceive racial discrimination against one’s group, rather than themselves (Crosby 1976). Additionally, reports of discrimination vary by social class, ethnic identity, acculturation, geography and other dimensions, but the reasons for these variations are still debated (Forman, Williams, and Jackson 1997; Gee 2002; Noh et al. 1999; Pavalko, Mossakowski and Hamilton 2003). This variation suggests that it would be helpful to restrict the scope of inquiry to a specific group (e.g. women) and to a particular setting (e.g. workplace) when investigating the mechanisms that drive the reporting of discrimination.

Despite the recognized complexity of perceptions of discrimination, there is little assessment of their validity and reliability (National Research Council 2004). A few studies have examined the factor structure, reliabilities and potential response biases of discrimination scales (Brown 2001; Gomez and Trierweiler 2001; Krieger et al. 2005). However, predictive validity is seldom examined, with the notable exception of Hampton and Heywood (1993) who found that female physicians’ perceived wage discrimination were associated with the actual discrepancy between their wages and those of male physicians. They concluded that perceptions of gender discrimination were accurately reported, but it is unclear how their study generalizes to other populations or other types of discrimination.

Discrimination based on factors such as gender, race and age are linked by the common theme of unfair treatment. Research on age discrimination may shed unique insights into research on discrimination more generally because of

one important observation: age discrimination is the one type of unfair treatment to which *all* individuals have some risk of exposure, but this risk varies across their life course.

This risk of age discrimination and prejudice has been well characterized. This includes stereotyping of older persons with regards to sexual activity, intelligence, conservatism, social engagement and discrimination in hiring, consumer advertising and health care (Butler 1975; Nelson 2005; Palmore 2001). In some circumstances, age discrimination is more prominent than other types of discrimination. For example, Sigelman and Sigelman (1982) found that college students exhibited more age discrimination than race or gender discrimination in voting for a hypothetical mayoral candidate.

Hypotheses about Age and Cohort Patterns of Age Discrimination

We expect a concordance between self-reports and our understanding of how age structures exposure to discrimination, predicting that perceptions of age discrimination should increase during ages where age discrimination is most likely to happen. Specifically, we hypothesize that age discrimination in the workplace should be relatively high in the 20s, drop in the 30s, and rise steadily thereafter. We now explain the rationale for the “age hypothesis.”

One way of assessing exposure to age discrimination is to look at employers’ preferences for the age of workers. Although research does not provide a precise picture of the ages when workers are most and least preferred, it does suggest some general patterns. First, attitudes about older workers are more negative than those about younger workers. More than a half century of research has documented negative perceptions towards older workers (Kalavar 2001; Rosen and Jerdee 1979; Tuckman and Lorge 1952). Older age has been linked to narrowed economic opportunities, including pay inequities and barriers to seeking new jobs (Bendick, Jackson and Romero 1996; Bendick, Brown and Wall 1999; Chan and Stevens 2001; Hirsch, Macpherson and Hardy 2000; Hutchens 1988;).

Second, it appears that employers and the lay public prefer workers in their 30s and that negative attitudes begin to rise around age 40. For example, in response to an open-ended question, college students reported that they viewed the optimal age for a physician to be 39 and for a bus driver to be 32 (Kalavar 2001). McGoldrick and Arrowsmith (2001) found that 22 percent of job advertisements in the United Kingdom explicitly stated an upper age for employment. In those advertisements that did note an upper age limit, the mean age listed was 37. Stated preferences of optimal ages of workers declined after the 30s (Kalavar 2001). Not coincidentally, the Age Discrimination in Employment Act of 1965 begins protections against age discrimination at age 40 (U.S. Equal Employment Opportunity Commission 1965).

Third, there are also negative stereotypes and behaviors against younger workers (Butler 1975; Thompson 1997; Westman 1991). Rodham (2001) argued that an overemphasis on older persons in the ageism literature has resulted in little attention to younger adults, producing an “ageist ageism literature.” Her ethnographic work among academicians documented prejudicial attitudes against younger workers, such as in the comment (p.177), “I don’t know – these

twenty five year olds coming in with PhDs, what do they know about anything?" Others have also suggested that young persons are an understudied underclass, noting concerns about basic rights and concerns about employability (MacDonald 1997; Maguire and Maguire 1997).

In sum, while we lack research that would allow us to pinpoint the exact patterns of age preferences, research suggests that these preferences do vary across the adult life course in a nonlinear fashion. In this study, we assume that these stated age preferences are proxies for variation in workers' *exposure* to age discrimination across the life course. The main question guiding our study is whether worker *perceptions* of age discrimination match this pattern. A close correspondence between exposure and perceptions provides even stronger evidence that perceptions of discrimination are a valid indicator of exposure. We hypothesize that perceptions of age discrimination vary across the life course in a curvilinear pattern, expecting that reports of age discrimination should be relatively high in the 20s, decline in the 30s, and increase thereafter. The null hypothesis is that the reporting of age discrimination does not vary by age and will exhibit no change across the life course.

An alternative hypothesis is that variation in perceived discrimination reflects cohort differences rather than changes as individuals age. Young adulthood is a particularly malleable period in the formation of political attitudes (Alwin and Krosnick 1991). Cohorts of women who entered adulthood during or after the Civil Rights era may be particularly sensitive to discrimination because concerns about equality based on age and other social categories were highly salient during their formative years. This may lead them to be more aware of and more likely to recognize discrimination (Kessler, Michelson and Williams 1999). Support for this hypothesis would indicate that whether or not one perceives that she has experienced age discrimination is sensitive to the political climate during one's formative years. Hence, differences in cohort sensitivity, rather than age per se, may account for variation in the reporting of discrimination based on age.

Testing these competing hypotheses requires that we uncouple the effects of variation in age from variation in cohort and historical period. However, analyses that separate these effects are notoriously difficult because all three concepts are measured by some combination of the time of measurement and the year of birth. There is no perfect solution to the age-period-cohort dilemma (Alwin and McCammon 2003; Glenn 2003), but our analyses take advantage of the longitudinal, multi-cohort design of the NLS to distinguish these processes as fully as possible. While multi-cohort longitudinal data can separate age and cohort effects, we cannot completely rule out the influence of period effects. In the case of perceived discrimination, a potential period effect is the increase in workplace and legislative avenues for reporting discrimination since the Civil Rights era, and increasing attention to prejudice and discrimination in the workplace. These historical changes may have created a greater willingness to report these actions when they occur.

Following the advice of Glenn (2003) and others (Alwin and McCammon 2003), we introduce "side information" that controls directly for these potential period influences rather than relying on the more crude indicator of survey year. Period changes in attention to discrimination would not be expected to only affect

age discrimination – we should see similar period effects in perceptions of sex and racial discrimination. Accordingly, our models include women's reports of whether they have been discriminated at work because of their race/ethnicity or their gender at each survey wave as a control for these general period shifts in awareness and structural opportunities for reporting discrimination.

Methods

Data

We use data from the National Longitudinal Surveys of Mature Women (NLSMW) and Young Women (NLSYW). These samples of U.S. women were surveyed by the U.S. Bureau of Labor Statistics and the Center for Human Resource Research at Ohio State University. To our knowledge, this is the only source of longitudinal data from a nationally representative sample with repeated questions on perceived discrimination spanning a substantial period of time.

The NLSMW began in 1967 with a sample of 5,083 women ages 30 through 40; the NLSYW began in 1968 with 5,159 respondents ages 14 through 24. Our analyses are based on the surveys administered from 1972 to 1989 because these surveys included identical questions about workplace discrimination. We exclude 653 women whose birth years are outside of our defined birth cohorts.

In 1972, 88 percent of the original NLSMW sample and 93 percent of the original NLSYW sample remained in the survey. By 1988-89, retention for the NLSMW and the NLSYW was 61 percent and 68 percent, respectively. The slightly higher rate of attrition for the NLSMW is primarily due to more deaths in the older sample. Comparisons between the NLS samples and the Current Population Survey found that the NLS sample continues to be comparable to the general population through the 1980s (Zagorsky and Rhoton 1999a.).

Attrition in the NLS surveys results in the survey becoming more select over time, but an even greater factor in sample attrition is our decision to eliminate women who have not worked at all in the previous five years. Women are retained in our analyses for as many surveys as they continued to work, but as the older (1922-26 and 1927-31) cohorts approach retirement age, the eligible sample size drops considerably. In contrast, in the younger cohorts, particularly the 1948-1952 cohort, the eligible sample size increases as women move from schooling into the labor force. For all cohorts, the sample becomes more selective in terms of race and education, becoming increasingly white and more educated across the survey years. The largest concern about attrition is whether increasing selectivity over time systematically biases our estimates of discrimination, especially if women who experience discrimination are more likely to die or leave the sample. While we cannot retrieve lost cases, particularly those lost to sample attrition, we will estimate models that assess the sensitivity of our results to varying levels of attrition.

Questions about discrimination were asked in face-to-face interviews during the 1972, 1978, 1983, 1988 surveys for the NLSYW and 1972, 1977, 1982, 1989 surveys for the NLSMW.¹ In the 1972, 1977/89, 1982/83 and 1988/89 surveys, respondents were asked whether they had been discriminated against in the workplace in the past five years because of their age, race, sex or other characteristic (e.g.,

religion). In all surveys, women were asked about their discrimination experiences regardless of their current employment status. Thus, if a woman had worked in the previous five years but left her job because of discrimination, she would have had an opportunity to report this in the NLS surveys. In later surveys, all women were asked about work discrimination, even if they had not worked at all in the previous five years. In the earliest survey this question was only asked if women had been employed at some point in the previous five years. To allow consistent comparisons across survey waves, we exclude women who had not worked at all in the previous five years for each survey period. For example, if a woman had worked at any time between 1967 and 1972 but was not employed between 1972 and 1977, she would be included for the 1972 survey, but not for the 1977 survey. After these exclusions, we are left with a working sample of 7,225 women which produce 18,210 person-period observations.

Cohort Definitions

We divide the NLSMW and NLSYW samples into five five-year birth cohorts (1922-1926; 1927-1931; 1932-1936; 1943-1947; 1948-1952) in order to track patterns of perceived age discrimination as women age within each birth cohort. Our primary interest is in the contrast between women who entered adulthood during the Civil Rights era and those who grew up in earlier time periods. However, the boundaries defining “the Civil Rights era” and “young adulthood” are not clearly defined. We thus divide women into five-year birth cohorts to examine patterns of change across successive cohorts as women get closer to the intersection between when they were in their early 20s and the timing of the Civil Rights era, including the Age Discrimination Employment Act of 1965 (U.S. Equal Employment Opportunity Commission 1965).

Dependent Variable

Age discrimination is a binary variable indicating whether a woman reported experiencing age discrimination at work in the past five years. The exact wording of the questions on discrimination varies across surveys, but all questions assess work-related age discrimination in the five years prior to the interview date. For example, the 1983 NLSY Questionnaire asks “Since January, 1978, do you feel that, as far as work is concerned, you have been in any way discriminated against because of race, religion, sex, age, marital status, nationality, handicap, or for any other reason?”² If a respondent answers that they have experienced discrimination, a follow-up question asks the type (e.g. gender, race, age, etc.). Respondents are allowed to list as many types as they feel apply.

Independent Variables

We include several time-varying independent variables. Our main time-varying variable is the *respondent’s age*. Because the literature suggests that the relationship between age and reports of age discrimination should be higher at both younger and older ages, our models include age, age-squared and age-cubed in order to capture this potential non-linearity. *Region of residence*

contrasts those living in the South to those living in other parts of the United States. Region is included because prior studies suggest that patterns of racial and other kinds of discrimination vary by location and may be more endemic in the South (Flint 2004; Schuman et al. 2005). The *average number of weeks worked per year* in the past five-year period allows us to control for variation in a woman's exposure to workplace discrimination.³ We also control for *current employment status* measured as a dummy variable, contrasting those employed to those not

Table 1: Descriptive Statistics, by Birth Cohort and Survey Period for Women Employed During Previous Five Years

Birth Cohort Survey Period	1922-1926					1927-1931					1932-1936				
	1972	1977	1982	1988	-89	1972	1977	1982	1988	-89	1972	1977	1982	1988	-89
N	952	820	684	515		948	828	754	642		886	855	805	709	
Age, mean	47.9	52.8	57.8	64.8		43.1	48.1	53.1	60.1		38.0	43.0	47.9	54.9	
White %	70.4	72.2	73.7	75.3		68.7	71.4	72.0	72.9		71.4	72.6	73.3	74.6	
Years of Education, mean	10.8	11.0	11.1	11.1		11.2	11.4	11.5	11.6		11.4	11.5	11.6	11.7	
South %	40.4	40.2	38.6	39.6		39.5	40.1	39.5	40.2		38.4	37.5	37.8	39.9	
Currently Employed %	80.1	81.7	74.4	46.4		77.8	83.5	81.4	67.4		75.2	83.0	84.0	79.1	
Weeks Worked, mean	36.8	40.3	41.1	32.3		34.4	40.3	42.9	37.7		31.9	38.9	42.9	39.5	
Depression, %	8.4	14.5	17.4	15.3		5.9	15.3	15.3	10.7		4.1	11.6	13.0	11.1	
Occupation															
Prof./Man/Tech %	15.7	19.9	22.2	23.1		20.1	23.2	24.4	24.0		19.0	23.2	23.6	25.7	
Cler/Sales/Serv %	54.3	54.4	54.5	55.3		53.8	52.8	54.6	55.8		54.6	53.1	54.5	54.3	
Farm/Labor/etc. %	30.0	25.7	23.2	21.6		26.1	24.0	21.0	20.3		26.4	23.7	21.9	20.0	
Discrimination, %															
Any	11.3	16.1	14.3	7.4		9.8	11.6	17.0	12.0		9.3	15.7	15.9	14.1	
Age	3.4	7.9	8.0	3.9		2.0	3.6	6.4	6.7		1.2	2.8	3.5	6.9	
Race	2.2	2.4	2.3	.6		2.3	2.4	4.0	1.4		1.9	4.1	3.2	3.2	
Gender	6.5	6.5	5.6	1.9		5.2	5.2	7.0	2.0		6.1	8.1	9.2	4.8	

currently employed. Current or most recent *occupation* is measured as a series of dummy categories, contrasting professional, managerial, and technical workers to clerical, sales and service and farm, operatives and laborers. We include a binary measure of *depression*, indicating whether the participant reported feeling depressed, anxious, nervous or tense during each survey period. This control is included because depression may make individuals more likely to perceive discrimination and also because discrimination increases the risk of depression (Gee et al. 2007; Kessler et al. 1999; Pavalko et al. 2003). As mentioned above, the saliency and awareness of discrimination may have increased over time. To control for these potential period shifts, we add measures of perceived *gender discrimination* and of *racial/ethnic discrimination at work*, asked in identical fashion to the question on age discrimination.

A number of time-invariant covariates are also used. Our models control for *race/ethnicity* because perceptions of discrimination vary across racial and ethnic groups (Kasschau 1977; Kessler, Michelson and Williams 1999). We also control

Table 1. continued

Birth Cohort Survey Period	1943-1947			1948-1952			
	1972	1977	1982	1972	1977	1982	
N	603	1131	1029	485	1639	1349	1460
Age, mean	26.7	32.7	37.7	22.6	27.9	32.9	37.9
White %	74.3	75.0	75.6	69.5	71.0	70.8	74.0
Years of Education, mean	12.5	12.7	12.7	11.8	13.0	13.0	13.1
Lives in South %	44.4	42.9	42.6	37.1	39.0	40.3	38.1
Currently Employed %	100.0	69.4	82.8	100.0	68.6	79.6	87.9
Weeks Worked, mean	37.3	32.2	38.8	31.9	33.2	38.4	43.5
Depression, %	1.7	9.9	11.1	1.4	10.2	8.7	8.9
Occupation							
Prof./Man/Tech %	21.1	27.0	29.2	6.6	25.9	31.5	37.1
Cler/Sales/Serv %	56.9	53.3	53.7	71.5	55.5	51.1	46.9
Farm/Labor/etc. %	22.1	19.7	17.1	21.9	18.6	17.3	16.0
Discrimination, %							
Any	11.1	14.1	16.4	13.2	17.9	16.5	18.6
Age	1.5	0.7	1.8	3.7	1.5	0.7	1.5
Race	2.0	3.9	3.2	4.1	5.4	3.5	4.2
Gender	7.0	8.6	9.3	5.2	9.3	8.2	11.2

Notes: * 18,210 observations based on 7,225 cases.

Prof/Man/Tech refers to professional, managerial and technical jobs.

Cler/Sales/Serv refers to clerical, sales and service jobs.

Source: National Longitudinal Surveys of Mature and Young Women

for years of education attained by age 30 because several studies have found that more educated persons are more likely to report discrimination (Kessler, Michelson and Williams 1999; Sigelman and Welch 1991). Because education varies across the life course and the age of the sample varies widely, we chose age 30 as a single reference point by which most women have completed their education.

Table 1 presents descriptive statistics for each birth cohort and each survey wave. In 1972, the most recent cohort of women (born 1948-1952) averaged 22.6 years of age, whereas the oldest cohort (born 1922-1926) averaged 47.9 years. By the end of the observation period (1988/89), the youngest cohort averaged 37.9 years of age versus 64.8 for the oldest cohort. Not surprisingly, the oldest cohort declines in the number of weeks worked as they approached retirement age, dropping from 36.8 weeks in 1972 to 32.3 weeks by 1988-89. In contrast, the youngest cohorts increased the number of weeks worked as they moved into midlife. In addition to age differences, there are cohort differences in work. Consistent with historical trends in women's labor force participation (Costello and Stone 1994), newer cohorts worked more weeks than prior cohorts. For example, in their early 40s, women from the 1927-1931 cohort averaged 34.4 weeks of work in the past year, whereas women from the 1943-47 cohort averaged 43.5 weeks of work at that age. There were also steady increases in the percentage of women working in professional, managerial and technical jobs by the time they were in their early 40s, rising from 20.1 percent of the sample for the 1927-31 cohort to 35 percent of the sample for the 1943-47 cohort. Because women's employment and other factors such as depression and weeks worked vary by age and cohort, it will be important to assess whether these factors influence their reporting of age discrimination.

Table 1 provides initial evidence that reports of age discrimination also vary by age and cohort, ranging from a low of 0.7 percent for the youngest cohort in 1982 (when they averaged 32.9 years of age) to a high of 8 percent for the oldest cohort in 1982 (57.8 years of age). Across all cohorts, reports of age discrimination were relatively high in the 20s and lowest in the 30s. For example, 3.7 percent of the 1948-52 cohort reported age discrimination in their early 20s, but less than one percent reported discrimination in their early 30s. Reports of discrimination began to rise thereafter. In this same cohort, the reporting of discrimination climbed to 1.5 percent by the time respondents averaged 38 years of age. Likewise, among the 1922-26 cohort, reports of discrimination rose from 3.4 percent in the late 40s to 8.0 percent in their late 50s. However, among this cohort, there was also a decline to 3.9 percent when respondents were in their mid 60s.

Patterns of reported age discrimination did not closely follow the patterns of racial or gender discrimination. For example, among the 1948-52 cohort, reporting of age discrimination dropped from 3.7 to 0.7 percent in the decade from early 20s to early 30s (the 1972 to 1983 surveys). Yet, among this same cohort, reports of racial discrimination remained similar across this period while reports of gender discrimination rose from 5.2 to 8.2 percent. These descriptive data suggest a unique pattern of age-related reporting for age discrimination. More importantly, to the extent that racial, gender and age discrimination are jointly subject to period influences, the lack of a systematic pattern in reporting by year suggests that the historical periods under observation do not strongly influence reports of discrimination.

Analytic Strategy

A unique strength of our design is that we have measures of perceived age discrimination at multiple points in a woman's life course. We begin examining the observed relationship between age and the percent of women who report age discrimination. Next, we model the prevalence of discrimination in order to control for variables that might explain the observed age variation in reports of discrimination. This allows us to assess the extent to which age variation in reports of age discrimination at work are attenuated by the introduction of controls to the model. To account for lack of independence among observations due to the panel structure of our data, a population-average logit model (Fitzmaurice, Laird and Ware 2004; Rabe-Hesketh and Skrondal 2005) is estimated using Stata's (2005) *xtlogit* command. After estimating a given model, we compute predicted probabilities of reported age discrimination. These probabilities are not predictions for individuals, but rather are population averages for given levels of the predictors. These probabilities, sometimes referred to as marginal probabilities (Rabe-Hesketh and Skrondal 2005), can be interpreted as predictions for the probability of discrimination for respondents with a given set of characteristics.

Next, we re-estimate these models using a fixed effects model in order to eliminate the effects of both observed and unobserved stable characteristics of individuals (Allison 2005; Firebaugh and Beck 1994; Schnitker and John 2007). Fixed effects models only estimate within-person variation in reports of age discrimination; all characteristics that do not change as these women age are dropped in these models. Characteristics that are relatively stable in adulthood and that might influence perceptions of discrimination include personality factors and experiences from childhood (e.g. experiences with discrimination, family class background). Because these stable characteristics, whether observed or not, are controlled in fixed effects models, they provide a more stringent test of whether changes in reports of age discrimination change as individuals age. However, fixed effects estimates are conservative because they are based solely on those cases where values of the dependent variable change over time. Given that reports of age discrimination are relatively rare, our results for fixed effects models are based on 418 individuals producing 1,333 cases.

Our final models assess the sensitivity of our results to the attrition in our sample in later survey years. Sample attrition is of particular concern if it confounds the temporal processes of interest, such as if women are increasingly likely to be missing from the sample as they age; this is particularly the case for the earlier cohorts of women. While we cannot retrieve lost cases, we can make the sample equally restrictive in earlier and later survey waves by limiting our analysis sample to only those women who remain in the sample through the last survey wave. If the age variation persists in this restricted sample, it suggests that the age hypothesis is robust to sample attrition.

Results

Figure 1 shows that the observed pattern of perceived age discrimination indeed varies by age. The solid line indicates the proportion of individuals reporting age discrimination for a given age, with the dotted lines showing the corresponding

95 percent confidence intervals. Reports of age discrimination are higher when women are in their 20s, drop to their lowest levels around age 35, and then steadily rise between ages 35-55. For the most part, the patterns in Figure 1 are consistent with our expectations based on age preferences. However, an unexpected finding is that after peaking around age 55, reports of age discrimination begin to decline. This may reflect the greater selectivity of the sample as women retire, particularly if women at greatest risk of experiencing age discrimination are those most likely to retire early.

Next, we assess whether the non-linear association between age and self-reported age discrimination holds after controlling for confounding variables. Model 1 of Table 2 estimates the probability of discrimination solely as a function

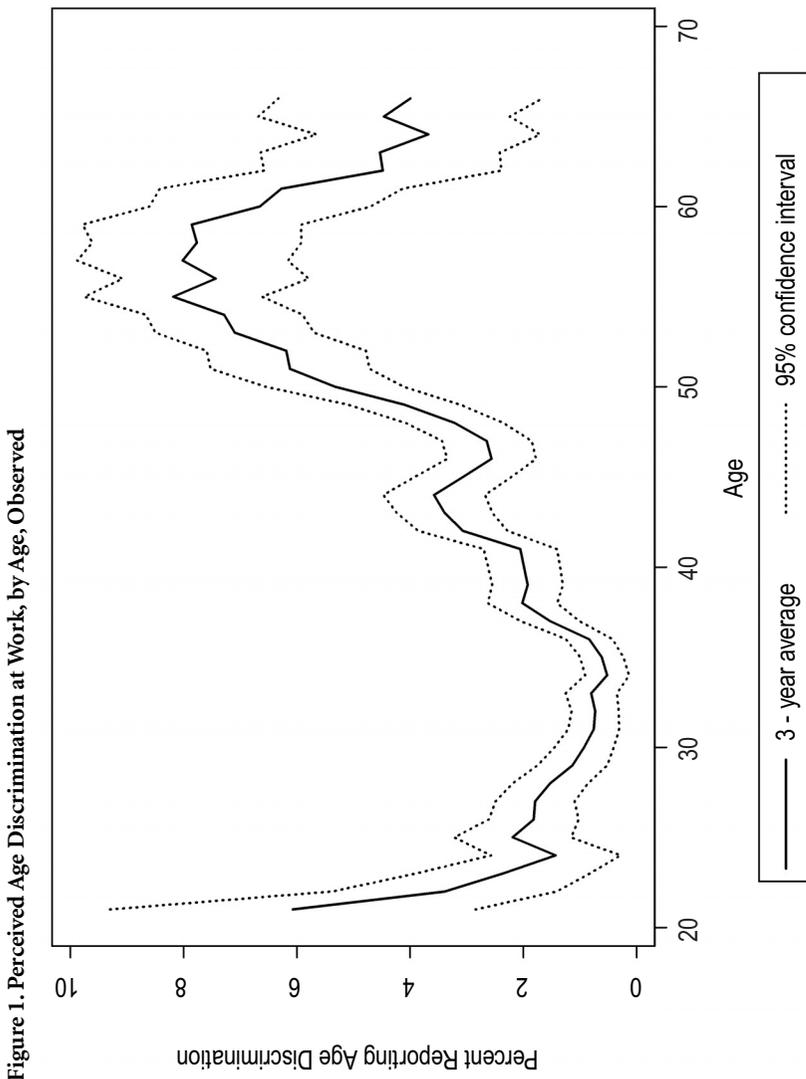


Figure 1. Perceived Age Discrimination at Work, by Age, Observed

of age (including age-squared and age-cubed). The cubic association with age is statistically significant ($\chi^2 = 231.7$, $df = 3$, $p < .001$). Model 2 adds controls for race, region, education, employment, occupation, weeks worked, depression and reports of gender and racial discrimination. Many of these covariates are associated with the likelihood of reporting age discrimination. For example, women who are depressed, more educated, and white are more likely to report that they have

Table 2: Population and Fixed Effects Models Predicting Age Variation in Perceived Age Discrimination^a

	Model 1: Population Average	Model 2: Population Average w/Controls	Model 3: Fixed Effects	Model 4: Restricted Population Average
Age	-1.49*** (-9.66)	-1.70*** (-10.33)	-2.21*** (-8.00)	-1.54*** (-7.83)
Age-squared	.04***	.04***	.05***	.04***
Age-cubed	-.0003*** (-9.74)	-.0003*** (-10.62)	-.0004*** (-8.14)	-.0003*** (-8.22)
White		.37** (2.81)		.34* (2.10)
Years of Education		.09*** (4.10)		.10*** (3.87)
Lives in South		-.20 (-1.90)	.27 (.64)	-.33** (-2.60)
Currently Employed		.06 (.44)	.06 (.28)	.05 (.29)
Weeks Worked in Past 5 Years		-.02*** (-4.97)	-.02** (-2.89)	-.02*** (-3.56)
Depressed		.46*** (3.71)	.40 (1.77)	.59*** (4.07)
Occupation ^b				
Professional, Managerial, Technical		-.09 (-.77)	-.05 (-.22)	-.09 (-.70)
Farm, Laborer, Manual		-.21 (-1.59)	.28 (1.12)	-.34* (-1.99)
Perceived Race Discrimination		1.57*** (9.91)	.86** (3.02)	1.55*** (8.20)

experienced age discrimination in the past five years. Those who have worked more weeks in the past five years are less likely to report discrimination. Finally, women who report either racial or gender discrimination at work are also more likely to report age discrimination.

Despite the significant association of many of these covariates with reports of age discrimination, the curvilinear age pattern of perceived age discrimination remains

significant ($\chi^2 = 297.0$, $df = 3$, $p < .001$) and the shape of age curve remains similar in models with and without controls. Figure 2 illustrates the similarity in the predicted pattern of perceived age discrimination in models with and without controls, comparing predictions based on estimates from Models 1 and 2. The pattern provides strong support for the age hypothesis.

While the consistency of the age pattern between these different models suggests that the curvilinear age pattern in perceived age discrimination is robust, it is possible that perceptions are sensitive to a range of personality and other stable characteristics not measured in our models. Model 3 of Table 2 shows the results of a fixed-effects model. This model is based on only those whose reports of age discrimination change over time, controlling for all characteristics that do not change over time, whether observed or not. We continue to find that perceived age discrimination varies systematically with age in ways that are very consistent with the results from models 1 and 2.

In Model 4, we assess the sensitivity of these findings to the increasing selectivity of the sample in later survey waves. Estimates in Model 4 are based only on those women who remain in the sample at the 1988-89 survey wave using a population averaged model. Once again, the strong curvilinear age pattern in perceived age discrimination is found, thus suggesting that the observed age variation is not an artifact of an increasingly select sample. The persistence of this curvilinear pattern in this restricted sample, particularly the drop in reports of age discrimination after age 55, means that this later life decline is

Table 2 continued

Perceived Gender Discrimination	1.49*** (12.89)	.91*** (4.44)	1.58*** (12.11)
Constant	15.08*** (7.26)	16.39*** (7.40)	14.06*** (5.16)
N	18210	18210	13431
chi2	231.7***	573.3***	178.8***
			439.8***

Notes: *p < .05 **p < .01 ***p < .001, two-tailed test

^a t statistics in parentheses

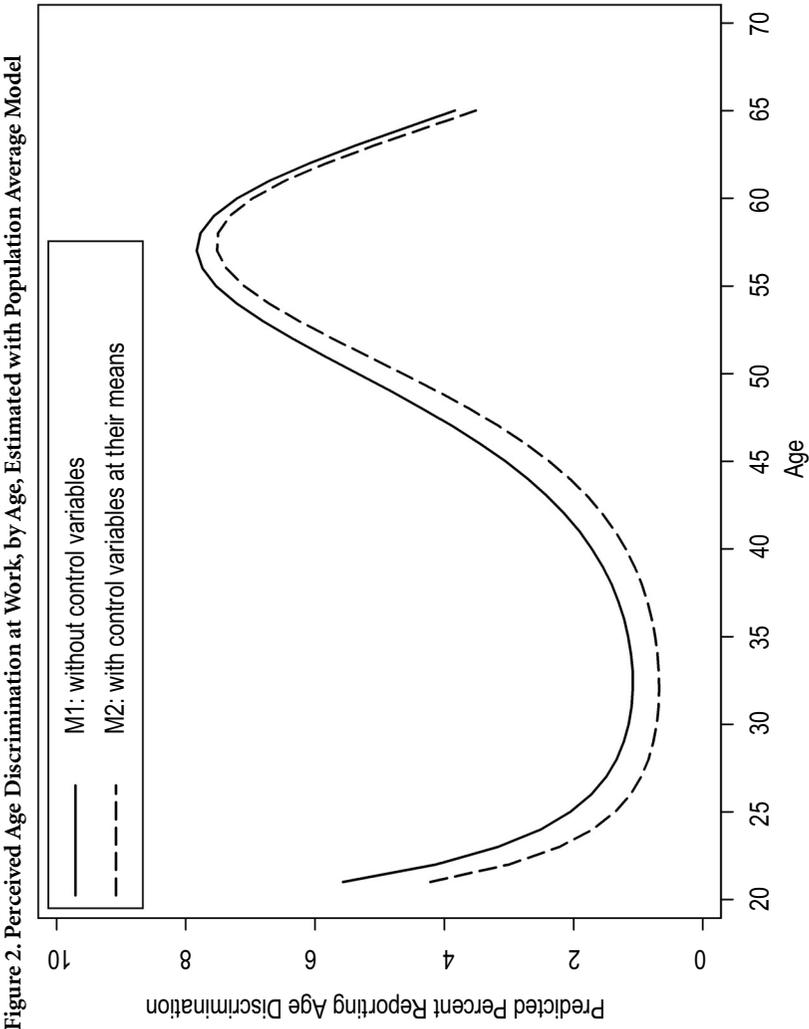
^b Comparison group for occupation is clerical, sales and service

Source: National Longitudinal Surveys of Mature and Young Women

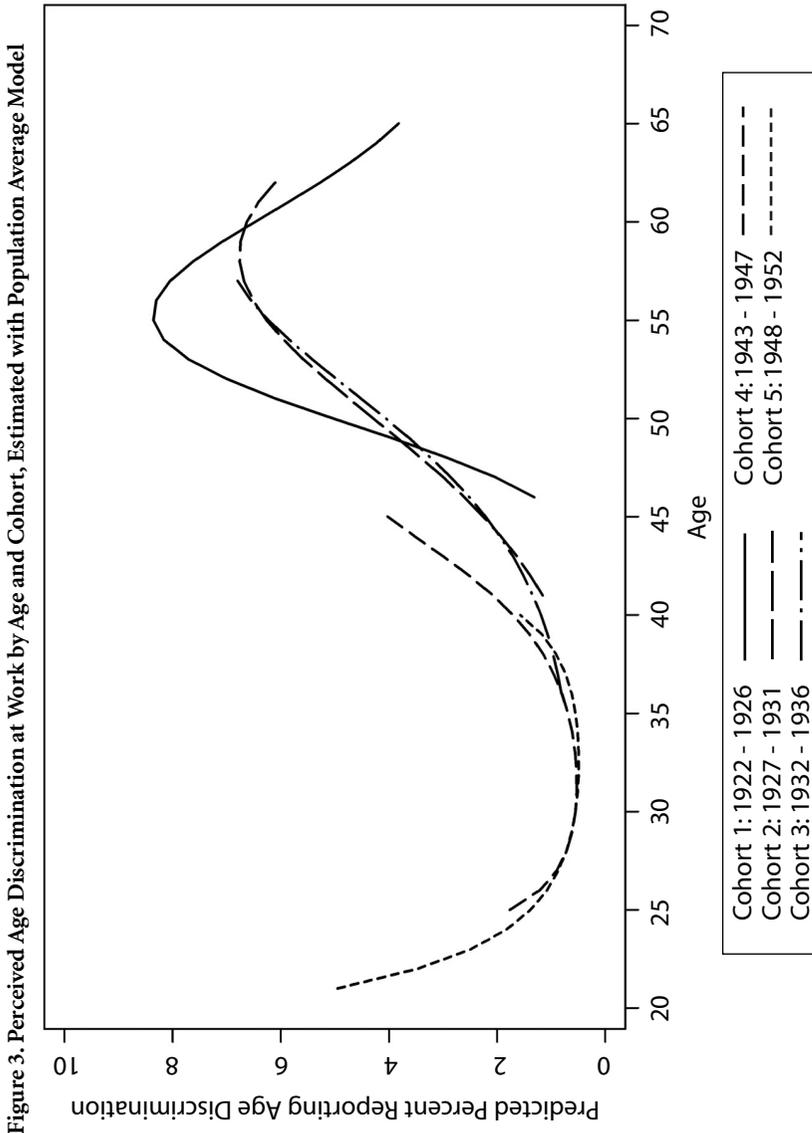
not explained by increasing selectivity of workers in the sample. However, it is important to note that despite this decline, the reports of age discrimination in the 60s are still higher than in the 30s.

Our results provide strong support for the age hypothesis, but it is possible that these age patterns may be confounded by cohort variation in perceived age discrimination. Of particular interest is whether the younger more recent cohorts of women who grew up in the Civil Rights era are more sensitized to age discrimination.

Figure 3 graphs predicted levels of perceived age discrimination by both age and cohort. These values are based on a population average model that includes the same controls as Model 2, but allows the effects of age to vary by cohort (Appendix A includes estimates from the model on which this figure is based). We find little support for the cohort sensitization hypothesis. The youngest cohort



(1948-1952) does not report more age discrimination than older cohorts in the ages that overlap (i.e. ages 30-40). The second youngest cohort (1943-1947) does appear to report slightly more age discrimination when they are ages 40-45. The most notable cohort difference is the higher incidence of perceived age discrimination for ages 50-60 among the oldest (1922-1926) cohort. Although we might expect this cohort of women, who came into adulthood in the 1940s, to be less sensitized to age discrimination, it is also possible that they were most likely to have the greatest exposure to age-based discrimination in the workplace because they were the trailblazers in women's increased labor force participation, particularly as they aged. Thus, while there is some variation between the cohorts,



the data are inconsistent with the cohort sensitization hypothesis and, by far, the greatest variation is by age rather than cohort.

Discussion

Increasing evidence suggests that perceptions of discrimination may have negative consequences for health, well-being and employment (Mays, Cochran and Barnes 2007; Williams, Neighbors and Jackson 2003), but the nature of those perceptions remains unclear. To what extent are these perceptions susceptible to the various lenses through which people filter and interpret those experiences? While no single study can fully unravel the complex relationship between how people are actually treated and their perceptions of that treatment, the investigation of how reports vary over time and across cohorts provides valuable information about the predictive validity of perceived age discrimination.

Although it is intuitive that reports of age discrimination should vary by age, our study is the first that we know of that actually observes these changes among multiple cohorts of women for 40 years of adult life. We find that the likelihood that women report age discrimination varies as women move across the adult life course. The percent of women in their early to mid 20s reporting age discrimination is relatively high, but drops as these women move into their 30s. Reports of age discrimination begin to rise again as women move into their 40s and peak in the 50s, before declining somewhat when women get closer to retirement. Our results are similar to a recent cross-sectional study of university-affiliated volunteers that found that perceived age discrimination was highest among respondents ages 18-26 and 61-92, and lowest among those ages 33-50 (Garstka, Hummert and Branscombe 2005).

More importantly, these age-related patterns of perceived age discrimination match age preferences for workers cited by employers and others (Kalavar 2001; McGoldrick and Arrowsmith 1993). If we assume that reported age preferences are a good proxy for exposure to age discrimination, then this close match between preferences and perceptions provides strong evidence that perceived age discrimination is a valid indicator of unfair treatment. Our confidence in the validity of these perceptions is further strengthened by the robust nature of this relationship. Although a number of covariates such as depression, education and race covary with perceived age discrimination, controlling for these potential confounders does not substantially alter the age-related pattern.

The validity of perceived discrimination is further reinforced by the relatively low variation in reports of age discrimination between cohorts. More recent cohorts of women who entered adulthood during the Civil Rights era, and thus who might be most sensitized to discriminatory treatment, do not report significantly more age discrimination than previous cohorts. Indeed, the one cohort that does stand out is the earliest cohort of women. As pioneers in the growth in women's labor force participation, this cohort was most likely at the greatest risk of being exposed to discriminatory treatment. Most striking, however, was that reporting of discrimination was more similar than different between the cohorts. Further, despite some cohort variation, the age variation remained robust.

The one exception to a close match between exposure and perception is our finding that perceived age discrimination declines after age 55. While discrimination is still reported at later ages at a rate roughly double that reported by women in their 30s, women in their early 60s are much less likely to perceive that they have experienced age discrimination than those in their early to mid 50s. One explanation for this decline is that the sample becomes far more selective after age 55, but we found that the curvilinear peak in the mid-50s and subsequent decline persisted even after restricting the sample to women who were still in the study sample at the last survey. Thus, neither attrition from the sample proper nor attrition from the labor force appears to account for this later life decline in perceived age discrimination.

An alternative explanation for this drop is that older workers are partially (but not completely) shielded from work-related age discrimination because of their experience, gravitas and institutional power (i.e. by occupying higher level positions in their workplaces). This explanation is consistent with observations that older persons are given both positive and negative stereotypes (Levy et al. 2000; Palmore 1999). Another explanation is that women begin to view the hiring and promotion practices at their current job as more fair as they approach retirement and view their time at the job as limited. In some respects, these decisions may be defined as less about age per se, and more about one's expected tenure at the job. Finally, although our attrition analyses account for exit from the workforce, it does not account for movement between jobs. Thus, the decline in age discrimination may also reflect women moving to a new work setting where they experience less discrimination. While we lack data to directly test these explanations, future research on this topic may help us better understand the changing nature of worker's perceptions about age. Despite the decline, it is also important to recall that perceptions of age discrimination at this age are still higher than at age 30.

Our analysis also highlights the importance of a life course perspective when researching age discrimination (Nelson 2005). Many studies assume a linear increase in age-based unfair treatment, highlighting the experiences of older individuals. For example, Butler (1975:12) defined ageism as "systematic stereotyping [and]... discrimination against people because they are old." More recently, Palmore (2001:527) stated that ageism is "discrimination against a category of people – in this case, against older people." The non-linear pattern in our data, particularly the relatively high reporting of age discrimination in the 20s, suggests that these definitions require qualification. Our findings are consistent with research documenting the difficulties faced by young persons when establishing their work careers, including rules favoring workers with seniority and employer preferences for workers with prior job experience (Kite and Johnson 2005; MacDonald 1997; Rodham 2001). These findings serve as an important reminder that age discrimination is not simply discrimination against the elderly.

While this article provides new information about perceived discrimination, it is limited in several respects. First, although the multi-cohort, longitudinal design of the NLS surveys provides valuable leverage for disentangling age, cohort and period effects, we make several assumptions about these interrelated factors in interpreting our findings. Most importantly, we assume that any period effects in perceived age discrimination are similar to period effects in reports of gender

and race discrimination, and that controlling for perceived gender or race discrimination controls for these period influences. If we have not adequately controlled for period effects, then our findings of a curvilinear age pattern are most likely conservative estimates of age variation. More than likely, the period effect between 1970-1990 would be represented by a linear increase in awareness and reporting of discrimination. If so, uncontrolled period effects should flatten the curvilinear pattern we find across the life course. Furthermore, according to Firebaugh (1997:10), there is "often only one plausible explanation for a particular nonlinear pattern" with regards to untangling period, cohort and age effects; this observation suggests that periods and cohorts are not the main drivers of perceived age discrimination because of the robust nonlinearity of age.

Second, while our broader interest is in the validity of perceived discrimination, the generalizability of these findings to other types of discrimination, to men, and to more recent time periods and birth cohorts is limited. It would be important to assess whether the patterns found here apply to men of similar cohorts. Further, the NLS surveys are unique in both the early time period when questions about work discrimination were first asked and the repeated attention to this topic over time. Changes in the wording of discrimination questions in the mid-1990s, however, limit our ability to assess stability and change in perceived discrimination across longer periods of time and to examine women past age 65. Hence, future studies should examine how perceived age discrimination changes with age among workers beyond the ages we observe in the present study.

Future research should also investigate the extent to which perceived discrimination has changed since the early 1990s and assess whether subsequent cohorts differ from those observed in this study. This research could include an investigation of industry or occupation-specific patterns. For example, definitions of "young" and "old" workers may vary by industry (e.g. between academia and information technology). While beyond the scope of this study, comparisons in age and cohort patterns of perceived discrimination across different types of discrimination (i.e. age, gender and race) may also provide valuable information about similarities and differences in these types of unfair treatment.

However, these limitations are also strengths. The types of age discrimination one experiences varies by role, context and gender. By focusing on a specific type of discrimination within a specific context, we trade generalizability for greater precision in assessing a particular type of discrimination. The focus on work-related discrimination is particularly important because the consequences of unfair treatment in that setting may influence one's socioeconomic position.

A growing body of research has greatly expanded our understanding of gender and racial discrimination, but attention to age discrimination remains underdeveloped. While all types of discrimination share a basis in biased treatment, age discrimination differs from other types of unfair treatment in one important respect: everyone is at risk of age discrimination at one or more points in their life. In addition to being an important topic in its own right, this basic fact makes age discrimination a valuable tool for informing more general questions about discrimination.

Notes

1. Both NLSYM and NLSMW ask about discrimination in 1995, but unfortunately the questions were worded differently. Although relationships between age and reports of discrimination are similar when the 1995 data are included, the change in wording introduces methodological artifacts. Accordingly, we restrict our analyses to the earlier surveys.
2. The main variations in wording on the discrimination items between 1972 to 1989 are 1.) whether or not respondents are asked about specific years in which discrimination occurred (such as since January, 1978) or asked more generally about their experiences "in the past 5 years" and 2.) whether respondents are first asked about work discrimination and then the type (gender, age, race, etc.) or whether they are asked about each type of discrimination separately.
3. Women working fulltime may have greater exposure than part-time workers. However, measuring work exposure by the average hours worked over the five-year period would not distinguish between those who worked consistently but in a part-time job from those who worked more sporadically in a full-time job. An average of the number of weeks worked each year provides a clearer indicator of the pattern of labor force involvement.

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Appendix A. Estimates of Perceived Age Discrimination by Age and Cohort, Population Average Models

	β	T-value
White	.34**	2.65
Years of Education	.09***	3.94
Lives in South	-.21*	-2.05
Depressed	.45***	3.62
Currently Employed	.06	.46
Weeks Worked in Past 5 Years	.02***	-5.09
Occupation ^a		
Professional, Managerial, Technical	-.10	-.81
Farm, Laborer, Manual	-.21	-1.61
Perceived Race Discrimination	1.56***	9.86
Perceived Gender Discrimination	1.48***	12.78
Cohort 1	-171.90*	-1.98
Cohort 2	-10.20	-.15
Cohort 3	10.13	.19
Cohort 4	47.15	1.64
Cohort 5	8.79	.48
Cohort 1* Age	8.29	1.77
Cohort 1* Age Squared	-.13	-1.61
Cohort 1* Age Cubed	.0007	1.45
Cohort 2* Age	-.10	-.03
Cohort 2* Age Squared	.01	.12
Cohort 2* Age Cubed	-.0001	-.20
Cohort 3* Age	-1.24	-.35
Cohort 3* Age Squared	.03	.40
Cohort 3* Age Cubed	-.0002	-.42
Cohort 4* Age	-4.33	-1.72
Cohort 4* Age Squared	.11	1.58
Cohort 4* Age Cubed	.001	-1.42
Cohort 5* Age	-.72	-.38
Cohort 5* Age Squared	.003	.04
Cohort 5* Age Cubed	.0002	.25
N	18210	
Chi-square	3458.8***	

Notes: *p < .05 **p < .01 ***p < .001

^aComparison group for occupation is clerical, sales and service