

AGE DISCRIMINATION LEGISLATION IN THE UNITED STATES

DAVID NEUMARK*

Legislation prohibiting age discrimination in the United States dates back to the 1960s, when along with the Equal Pay Act and the Civil Rights Act barring discrimination against women and minorities, Congress passed the 1967 Age Discrimination in Employment Act. Questions regarding the rationale for and effectiveness of age discrimination legislation are likely to become increasingly important in light of a rapidly aging population in the United States (and other industrialized countries). This article provides a summary, critical review, and synthesis of what we know about age discrimination legislation. It first traces out the legislative history and the evolving case law and discusses implementation of the law. It then reviews the existing research on age discrimination legislation—research that addresses the rationale for the legislation, its effectiveness, and criticisms. (JEL J1, J7, L3)

I. INTRODUCTION

Legislation prohibiting age discrimination in the United States dates back to the decade of the 1960s, when along with the Equal Pay Act and the Civil Rights Act barring discrimination against women and minorities, Congress passed the 1967 Age Discrimination in Employment Act. Gender and race discrimination per se, along with the impact of the Equal Pay Act and Civil Rights Act, have been the primary focus of researchers studying discrimination and by far the more vociferously debated.

But a thorough analysis and understanding of age discrimination legislation is critical. The U.S. Census Bureau's "middle series" projections indicate that by 2025 the share of the U.S. population aged 65 and over will grow from about 13% to 19%, and the share aged 55 and over will grow from 21% to 30% (see www.census.gov/population/projections/nation/summary).

*Scott Adams, Robert Hutchens, Richard Posner, and anonymous referees provided helpful comments. The views expressed are those of the author only and do not reflect those of the Public Policy Institute of California. Much of the author's research on age discrimination was supported by the National Institute on Aging, grant K01-AG00589.

Neumark: Senior Fellow, Public Policy Institute of California; Professor of Economics, Michigan State University; and Research Associate, National Bureau of Economic Research. Public Policy Institute of California, 500 Washington Street, Suite 800, San Francisco, CA 94111. Phone 1-415-291-4476, Fax 1-415-291-4428, E-mail neumark@ppic.org

A rapidly aging population in the United States (and a similar phenomenon in other industrialized countries) threatens to vastly increase the social costs of any discriminatory barriers to older workers' employment or, alternatively, to magnify any costs or distortions caused by age discrimination legislation.

The goal of this article is to provide a summary, critical review, and synthesis of what we know about age discrimination legislation. In so doing, the article first traces out the legislative history and the evolving case law and discusses implementation of the law. It then moves on to review the existing research on age discrimination legislation—research that addresses the rationale for the legislation, its effectiveness, and criticisms.

II. AGE DISCRIMINATION LEGISLATION IN THE UNITED STATES

A. *The Evolution of Age Discrimination Legislation*

Governmental efforts to counter age discrimination in the United States predate the 1967 Age Discrimination in Employment Act

ABBREVIATIONS

ADEA: Age Discrimination in Employment Act
EEOC: Equal Employment Opportunity Act
OWBPA: Older Workers Benefits Protection Act

TABLE 1
Key Federal Age Discrimination Legislation

Year	Legislation	Provisions
1967	Age Discrimination in Employment Act (ADEA)	Prohibited discrimination based on age, covering those aged 40–65, including discrimination based on age within this protected age range.
1975	Age Discrimination Act	Prohibited age discrimination in all programs or activities receiving federal assistance, including state or local government units that receive federal funds.
1978	ADEA amendments	Extended the age range for the protected group to 40–70, raising the mandatory retirement age to 70 in the process. Eliminated mandatory retirement for most federal employees. Granted some exemptions or delays for raising mandatory retirement age.
1986	ADEA amendments	Eliminated upper age limit, thus banning mandatory retirement, with very limited exemptions.
1990	Older Workers Benefit Protection Act	Regulated financial inducements to retire.

(ADEA). The U.S. Civil Service Commission abolished maximum ages of entry into federal employment in 1956. Paralleling the executive orders that established affirmative action, Executive Order 11141, issued in 1964, established a policy against age discrimination among federal contractors, although administrative procedures for handling complaints were apparently not established (Miller, 1966). In addition, the 1965 Older Americans Act was designed to encourage research and programs to aid the aged, but also stated among its general objectives “the opportunity for employment with no discriminatory personnel practices because of age.” Again, though, no administrative procedures were established.

Although federal actions prior to the ADEA were largely ineffectual, state statutes paralleling the later federal legislation were passed beginning in the 1930s, and as of 1960 eight states had age discrimination statutes along with enforcement mechanisms.¹ The state statutes were part of states’ Fair Employment Practices Acts establishing state-level commissions to counter discrimination. These commissions first sought conciliation in response to claims of age discrimination. But they also had the power to hold hearings, issue findings of probable cause, and seek court-enforced orders for employers to cease and desist from discriminatory practices (Lockard, 1968; Miller, 1966).² Evidence on the effects of state statutes is discussed later, but it is noteworthy

that when federal legislation was later established, the role of antidiscrimination commissions in states with their own age discrimination statutes was explicitly recognized, with enforcement generally first deferred to the state agency responsible for enforcing the antidiscrimination statute (U.S. Code, Section 633).³

Federal legislation, which is summarized in Table 1, began in earnest with the 1967 ADEA. The 1967 ADEA prohibited discrimination based on age, covering those aged 40–65, and including discrimination based on age within this protected age range (Piette, 1995).⁴ The purpose of the act was to “promote employment of older persons based on their ability rather than age; to prohibit arbitrary age discrimination in employment; to help employers and workers find ways of meeting problems arising from the impact of age on employment” (U.S. Code, Section 621).

The ADEA was followed by the 1975 Age Discrimination Act, which prohibited age discrimination in all programs or activities receiving federal assistance, including state or local government units that receive federal funds. Amendments in 1978 extended the age range for the protected group to 40–70, raising the mandatory retirement age to 70 in the process,

3. This pertained to many states that enacted age discrimination legislation in the 1960s as well. See also U.S. Department of Labor (1965) and Friedman (1984) for discussions of the effectiveness of state laws.

4. The ADEA originally applied to federal and state employees. However, in a recent case (*Kimel v. Florida Board of Regents*, 2000) the courts ruled that state employees were not authorized to sue states under the ADEA because the U.S. Constitution does not give Congress the power to subject states to suits at the hands of private individuals.

1. See Neumark and Stock (1999) for a compendium of state age discrimination laws.

2. For more discussion of state antidiscrimination statutes in the context of race discrimination, see Neumark and Stock (2000).

and also eliminating mandatory retirement for most federal employees (Stone, 1980).⁵ The ADEA currently covers all private employers with 20 or more employees, state and local governments (including school districts), the federal government, employment agencies, and labor organizations.

An important change occurred in 1979, when the U.S. Equal Employment Opportunity Commission (EEOC) took over administrative responsibility for the ADEA from the Department of Labor and, with respect to federal employment, from the U.S. Civil Service Commission (Stone, 1980). This change increased the power of the ADEA, because it was accompanied by more resources and a greater prevalence of “pattern and practice” lawsuits (by the EEOC).

The last direct amendments to the ADEA were passed in 1986, eliminating the upper age range for defining the protected class and hence prohibiting mandatory retirement. As this took away employers’ most direct means of inducing workers’ retirement, subsequent legislation—the 1990 Older Workers Benefits Protection Act (OWBPA)—turned to regulation of financial inducements to retire. One of the important requirements was that retirement incentive schemes be offered to anyone over a minimum age, rather than to workers in a specific age range, placing some limits on the ability of employers to induce retirement through financial incentives (Issacharoff and Harris, 1997).⁶ At the same time, the OWBPA codified the types of retirement incentives that can be used and how they can be implemented, such as establishing the ground rules for waivers of workers’ rights to sue under the ADEA (Albert and Schelberg, 1989).⁷

5. The 1978 amendments delayed the imposition of the higher mandatory retirement age until 1982 for tenured employees of educational institutions and continued to allow mandatory retirement at ages 65–69 for individuals in “bona fide executive or high policy-making” positions with access to a sufficiently high pension benefit (Stone, 1980), and for employers with fewer than 20 employees. These amendments also established the right to a jury trial when there were factual issues regarding monetary liabilities.

6. In addition, the OWBPA limited offsets of pension benefits against severance payments, raising the cost borne by employers when involuntarily terminating older workers.

7. The Employees Retirement Income Security Act of 1975 regulated pension (and other) benefits, potentially limiting opportunistic behavior of employers toward older workers. Posner (1995, chap. 12) provides an excellent overview of pension regulations.

B. Prohibited and Allowed Practices under the ADEA

The current ADEA has many parallels to Title VII of the Civil Rights Act prohibiting gender and race discrimination. Hence, it defines as illegal many of the same activities prohibited under Title VII,⁸ and, as will be discussed, the legal interpretations of the ADEA and Title VII are intertwined. Prohibited actions include using an individual’s age as a basis for refusal to hire an applicant, discharge of an employee, or setting other conditions of employment. The ADEA also regulates the behavior of employment agencies and labor unions. Among other things, these two types of agents, as well as employers, are prohibited from using any advertisement relating to employment indicating preferences, limitations, and so on, based on age (U.S. Code, Section 623).

At the same time, the ADEA permits some roles for age in the labor market. In this sense it differs from Title VII, which largely treats gender and race as factors that have to be ignored, granting only very limited exceptions (e.g., in occupations such as locker room attendants and actors). For example, the ADEA protects the use of a bona fide seniority system, as long as it is not used to evade the purposes of the act. It also recognizes that some work limitations may arise with age, permitting the use of age as a bona fide occupational qualification, although the legal standard for establishing these is very high.⁹ The ADEA also recognizes that benefit costs may be higher for older workers and allows employers to offer younger and older workers benefits that cost the same, even if the actual benefit delivered to older workers is worth less. Finally, the ADEA acknowledges

8. Indeed, the ADEA had its origins in Title VII. Members of the House and Senate initially tried to introduce a prohibition of age discrimination into Title VII (Crawshaw-Lewis, 1996), but settled on instructing the Secretary of Labor to study age discrimination in employment, with the goal of recommending legislation “to prevent arbitrary discrimination in employment because of age.” This led to the enactment of the ADEA three years later (Stone, 1980).

9. According to the Code of Federal Regulations, an employer asserting an age-related bona fide occupational qualification defense has to prove that the age limit is “reasonably necessary” to the business, and that either (1) all or almost all individuals excluded from the job by virtue of the age limit are in fact disqualified from doing the job, or (2) some of the individuals excluded on the basis of age could not be excluded based on some trait that could be discerned without reference to age (U.S. Code, Section 1625).

that employee pension plans (and some other benefits) are inextricably linked to both age and seniority, and it establishes careful guidelines to clarify what is and is not permitted.

III. IMPLEMENTATION OF AGE DISCRIMINATION LEGISLATION

A. EEOC Enforcement

The EEOC is currently responsible for enforcing the ADEA. Claims of age discrimination may emanate from individuals or from the EEOC. A party wishing to pursue civil action on an age discrimination claim must first file a charge with the EEOC (or, in states with parallel age discrimination statutes, at the state level). Depending on the facts of the charge, the EEOC can investigate with different levels of priority. The charge may be dismissed if the EEOC does not think there was a violation of law, in which case the complainant may still pursue a civil action in court. If the charge is not dismissed, the EEOC can seek a settlement with the agreement of both sides, or the charge may be mediated if both sides are interested. If conciliation or mediation are unsuccessful, the EEOC can decide to file suit. Or, if it nonetheless chooses not to file suit, the complainant may still do so. The same basic process is supposed to operate whether the complainant is an individual or a group, although resource constraints and maximizing impact are likely to result in the EEOC choosing to file suit in larger cases. In addition, the EEOC can use commissioner charges or directed investigations to pursue discrimination charges that do not surface via individually initiated charges (see U.S. EEOC, 1998).

Possible remedies for discrimination include back pay; hiring, promotion, or reinstatement; front pay;¹⁰ or other actions that will "make the individual whole." Payment of attorneys' fees, expert witness fees, and court costs can also be sought. Under the ADEA, a plaintiff has a right to a jury trial and liquidated damages, which are damages required to compensate for a

loss—in contrast to punitive damages, which are in excess of actual damages and are intended to punish the offender. Punitive damages may be sought where a finding supports a charge of intentional discrimination, or if the employer acted with malice or reckless indifference, although punitive damages cannot be sought from federal, state, or local governments.

Recent figures describing EEOC activities are presented in Tables 2 and 3. Table 2 provides information on selected types of issues reflected in complaints filed with the EEOC for fiscal year 2000. Figures are reported for the ADEA, Title VII, and all statutes, to indicate the types of issues that are more or less likely to arise in charges filed under the ADEA. Because a single discrimination charge may cover multiple issues (and fall under multiple statutes), a breakdown by selected issues is reported, as well as the total number of charges.

The table reveals first that the ADEA and Title VII account for a preponderance of charges received at the EEOC (94.7% in 2000). Not surprisingly, issues such as benefits relating to pensions and retirement, layoffs, and discharges figure more prominently in ADEA cases, although by only a small factor in the case of discharges. Conversely, issues more directly related to race or gender (such as sexual harassment) are rarely alleged in ADEA cases, and wage issues are somewhat less prevalent in ADEA cases than in Title VII cases.

Table 3 reports on EEOC activity.¹¹ Panel A covers the resolution of charges filed with the EEOC.¹² Again, these are broken down by ADEA resolutions, Title VII resolutions, and the totals, although the distributions differ relatively little. Of the ADEA charges resolved in 1999, 5.3% were settled, which means that the charge was disposed of with benefits to the party that brought the charge, with the settlement recorded. In contrast, 3.7% were classified as withdrawals with benefits, meaning that the charge was withdrawn after the charging party received benefits. Nearly a quarter of cases (23.3%) were closed administratively for reasons like failure to communicate on the part of a charging party, closure of related litigation that makes the charge futile, a determination of

10. Front pay compensates a victim in situations where in principle reinstatement or nondiscriminatory placement would be an available remedy but either is not ordered or cannot be accomplished for reasons peculiar to the individual claim (for example, because of hostility between the parties). It is distinguished from back pay, in which a victim is reinstated and awarded pay that would have been received absent the prior discrimination.

11. These figures include charges filed with the EEOC as well as those transferred to the EEOC from state Fair Employment Practice agencies.

12. This refers to resolutions occurring in the year, not necessarily resolutions of charges filed in that year.

TABLE 2
Receipt of Discrimination Charges by EEOC, by Issue (2000 Fiscal Year, Preliminary)

	ADEA		Title VII		All Statutes	
	Total	Column %	Total	Column %	Total	Column %
<i>Selected issues</i>						
Benefits	468	1.9	1,033	1.0	1,986	0.9
Benefits, retirement/pension	1,620	6.6	283	0.3	2,042	0.9
Discharge	6,763	27.5	26,346	24.9	41,902	19.3
Hiring	1,973	8.0	3,320	3.1	6,548	3.1
Layoff	1,137	4.6	1,793	1.7	3,465	1.6
Promotion	1,645	6.7	7,415	7.0	10,047	4.6
Retired, involuntary	217	0.9	83	0.1	372	0.2
Sexual harassment	266	1.0	9,328	8.8	10,064	4.6
Terms of employment	2,578	10.5	13,806	13.0	19,178	8.8
Wages	1,099	4.5	6,188	5.8	9,013	4.2
Total issues	24,586		105,854		216,839	
Total charges	15,926		59,215		79,325	

Source: These figures come from the EEOC’s Web site (www.eeoc.gov) and directly from the EEOC.

Note: The number of issues exceeds the number of charges because individuals may file charges claiming multiple types of discrimination.

TABLE 3
EEOC Administrative and Legal Activity, 1999 Fiscal Year

	ADEA		Title VII		All Statutes	
	Total	Column %	Total	Column %	Total	Column %
<i>A. Resolutions by type</i>						
Settlements	816	5.3	3,748	6.3	6,094	6.2
Withdrawals with benefits	578	3.7	2,084	3.5	3,593	3.7
Administrative closures	3,601	23.3	14,265	24.1	23,570	24.1
No reasonable cause	9,172	59.4	35,614	60.3	58,174	59.5
Reasonable cause	1,281	8.3	3,374	5.7	6,415	6.6
Total resolutions	15,448		59,085		97,846	
<i>B. Breakdown of reasonable cause determinations</i>						
Successful conciliations	184	14.4	859	25.5	1,578	24.6
Unsuccessful conciliations	1,097	85.6	2,515	74.5	4,837	75.4
<i>C. Litigation and monetary benefits</i>						
Lawsuits filed by EEOC or joined by EEOC	40		324		439	
Monetary benefits from litigation (millions)	\$43.3		\$46.9		\$96.9	
Monetary benefits excluding litigation (millions)	\$38.6		\$119.1		\$210.5	

Source: These figures come from the EEOC’s Web site (www.eeoc.gov) and directly from the EEOC.

Note: In the litigation figures (panel C), the total column includes cases filed under more than one statute, sometimes including the ADEA or Title VII.

no jurisdiction, and so on. For the vast majority of the remaining charges, the EEOC found no reasonable cause “to believe that discrimination occurred based upon evidence obtained in investigation.”

Panel B of Table 3 breaks down those charges in which there was a determination

of reasonable cause, showing that in only about 14% of ADEA cases is there successful conciliation (compared with 25.5% for Title VII cases). Panel C reports on EEOC litigation and monetary benefits, covering suits filed by the EEOC or plaintiffs’ suits joined by the EEOC. Clearly, only a small fraction of unsuccessful

TABLE 4
Key Court Decisions Regarding Age Discrimination

Year	Case	Content
1971	<i>Griggs v. Duke Power Co.</i>	Established disparate impact cases.
1973	<i>McDonnell Douglas v. Green</i>	Established evidence and burden of proof for intentional discrimination.
1976	<i>Mastie v. Great Lakes Steel Corp.</i>	Allowed employer to look at salary and fringe benefit costs in reduction in force cases, as long as decision is based on individual assessment.
1977	<i>International Brotherhood of Teamsters v. United States</i>	Established disparate treatment cases.
1981	<i>Texas Department of Community Affairs v. Burdine</i>	Established evidence and burden of proof for intentional discrimination.
1987	<i>Metz v. Transit Mix, Inc.</i>	Ruled that allowing a company to replace an employee based on the higher cost of employing him or her could violate the intent of the ADEA.
1993	<i>Hazen Paper Co. v. Biggins</i>	Noted that the ADEA was concerned with employment decisions based on age stereotyping but allowed decisions to be based on factors like seniority that may be strongly correlated with (but analytically distinct from) age. Instructed lower courts to look for evidence of whether age actually motivated the decision.

conciliations result in litigation by the EEOC, although the monetary benefits collected are quite high per lawsuit. The final row reports benefits excluding litigation. As the data show, these can be as high or higher in total but cover a far greater number of charges.

B. Case Law

Aside from the text of the original legislation and EEOC regulations, the effects of age discrimination legislation in practice are strongly influenced by the evolving case law, which helps establish the types of charges that will be found in violation of the ADEA, the types of cases (i.e., nature of evidence) that may be brought, and the burden of proof. Based on the parallels between the ADEA and Title VII, some of the critical case law arose in race discrimination cases brought under the latter.¹³ The most important case law is summarized in Table 4.

In ADEA cases, the plaintiff's ultimate burden is to prove that the action of the employer was taken on the basis of age, which does not require that age was the sole factor but was the determining factor. As in other areas of discrimination, this can be proven in one of two ways. The first is to prove disparate treatment, established in *International Brotherhood of Teamsters v. United States* (1977) and other cases, which requires that an employer intentionally treated someone less favorably

because of their age (Starkman, 1992). As an example, several cases in the 1970s alleging failure to hire based on age focused on help-wanted advertising that stated or implied that older applicants would be treated less favorably (Piette, 1995). Other examples of discriminatory intent may include defendants referring to a worker or applicant as too old or making other disparaging comments about age.

In disparate treatment cases, plaintiffs first try to establish direct evidence of intent to discriminate. In the absence of such direct evidence, the precedents established in *McDonnell Douglas v. Green* (1973), and *Texas Department of Community Affairs v. Burdine* (1981) are used to determine whether intentional discrimination has occurred. First, the plaintiff tries to establish a prima facie case for discriminatory intent (which may rely in part on statistical evidence; Piette, 1995), ruling out the most likely nondiscriminatory explanations of the action. The burden of proof then shifts to the employer to offer a legitimate nondiscriminatory explanation. Finally, the plaintiff can rebut the employer's explanation, most commonly by trying to prove that the nondiscriminatory explanation is false (Crawshaw-Lewis, 1996).¹⁴

13. Issacharoff and Harris (1997) critique the application of the race and gender discrimination "model" to age discrimination cases.

14. Crawshaw-Lewis (1996) criticizes the use of the *McDonnell Douglas/Burdine* test to determine whether age discrimination occurred, arguing that it pays insufficient attention to animus and stereotyping based on age and has difficulty sorting out whether age actually motivated a decision (p. 771).

The second route is to prove disparate impact, established in *Griggs v. Duke Power Co.* (1971). Rather than proving discriminatory intent, such cases require first that an employer's policy that may appear neutral in fact impacts older individuals adversely, and second, that the practice cannot be justified by business necessity (Starkman, 1992). An instructive example is provided by fitness requirements for hiring into a job. These may appear neutral (because they are based on something other than age), but in many cases are apt to disproportionately disadvantage older workers or job applicants. Courts have generally found them allowable only if they can be demonstrated to be absolutely necessary for the specific tasks to be performed (Piette, 1995). Disparate impact cases are more likely to rely solely on statistical evidence (Piette, 1995), in part because such cases have to establish the differences in how the practices in question impacted different groups, and in part because it is not necessary to prove discriminatory intent. Relative to race and gender discrimination cases, disparate impact claims are less common under the ADEA (Lindemann Schlei and Grossman, 1983), because establishing legal significance is difficult when the standard is a comparison to what would occur as part of the normal progression of older workers out of the labor force and their replacement with younger workers (*Kephart v. Institute of Gas Technology*, 1981). According to Crawshaw-Lewis (1996), recent court rulings have undermined the use of disparate impact cases under the ADEA.

Up to now, the discussion of case law applies equally well to the ADEA and Title VII. But case law surrounding the ADEA has had to wrestle with the unique problem of allowing employers to pay some attention to age. The ADEA only prohibits arbitrary age discrimination, allowing employers to take actions "where the differentiation is based on reasonable factors other than age" (U.S. Code, Section 623); this phrase introduced the "reasonable factors other than age" defense. As examples of this, in *Mastie v. Great Lakes Steel Corp.* (1976) the court ruled that an employer could look at salary and fringe benefit costs in determining which workers to dismiss in a reduction in force, as long as the decision is "predicated upon an individual as opposed to a general assessment." Focusing on the salary issue, in *Metz v. Transit Mix, Inc.*

(1987), the court ruled explicitly on the question of the excessive salary of an older worker, deciding that allowing the company to replace the employee based on the higher cost of employing him would violate the intent of the ADEA. The court raised two issues. First, the plaintiff's salary was based directly on years of service (not age per se); second, the defendant did not offer to reduce the salary paid to the plaintiff. *Metz* opened the courts to consideration of age discrimination claims in dismissal cases based on high salaries, requiring plaintiffs to show that age and salary were strongly linked and that salary motivated the decision (Crawshaw-Lewis, 1996). In other cases, though (e.g., *Holt v. Gamewell*, 1986), the courts disallowed age discrimination claims based on salary considerations.

This question received further attention in *Hazen Paper Co. v. Biggins*, in which the U.S. Supreme Court on the one hand noted that the ADEA was concerned with employment decisions based on age stereotyping, but on the other hand allowed decisions to be based on factors like seniority that may be strongly correlated with (but analytically distinct from) age, instructing lower courts to look for evidence of whether age actually motivated the decision (Crawshaw-Lewis, 1996). Although *Hazen* concerned a pension status case, its reasoning has been applied to other age cases, and it has in some ways made plaintiff's cases more difficult by noting that decisions based on factors correlated with age were not necessarily sufficient to establish age discrimination. In particular, since *Hazen* the courts have been much less favorable to age discrimination disparate impact claims based on the argument that an employer's decision was motivated by the higher salary of an older worker, with some courts ruling that firing employees based on high compensation stemming from seniority does not violate the ADEA (Crawshaw-Lewis, 1996, p. 781).

IV. RATIONALE FOR AGE DISCRIMINATION LEGISLATION

This section discusses the rationale for age discrimination legislation, examining both evidence of age discrimination and incentives for employers to discriminate based on age. These topics cannot be discussed, however, without confronting the issue of what is meant by *age discrimination*. The simplest definition of

discrimination, which implicitly underlies much of the empirical work on race and gender discrimination (Neumark, 1988), is distaste on the part of employers for hiring from certain subgroups of the population, as in the classic Becker (1971) employer discrimination model. Such discriminatory tastes are most easily interpreted as based on animus. An alternative definition that may have largely identical observable implications, and be viewed by the law as equally onerous, is based on incorrect stereotypes, which—like animus—lead employers to treat workers differentially based on some characteristic (such as age) that is in fact unrelated to productivity or costs. Either of these forms of discrimination, when applied to older workers, would appear to fit the definition of arbitrary age discrimination explicitly prohibited by the ADEA.¹⁵

However, employers may also engage in differential treatment based on age for reasons unrelated to animus or incorrect stereotypes; interpreting whether such treatment is discriminatory is difficult. Indeed the case law recognizes the inevitable tension here, trying to distinguish between differential treatment based solely on age and behavior based on factors that happen to be related to age but are not necessarily driven by age-related considerations per se, and additionally barring some types of behavior that might be justified on productivity or cost grounds while allowing others. These distinctions set the stage for an expanded view of age discrimination beyond simple arbitrary discrimination, perhaps most commonly when an employer has an economic incentive to treat workers differentially because of age yet cannot mount an adequate defense based on reasonable factors other than age.

Empirically, of course, it is extremely difficult to distinguish between these different types of behavior. The ensuing discussion, therefore, often refers to differential treatment based on age, which may sometimes (but not always), reflect discrimination of the type outlawed by the ADEA. Alternatively, especially when discussing evidence from empirical tests, the

discussion sometimes refers to behavior or results consistent with age discrimination, again to emphasize that it may or may not reflect actual discrimination. Finally, another possibility that must sometimes be considered is whether a pattern of behavior consistent with differential treatment by employers instead reflects preferences or choices that vary across workers of different ages.

A. Evidence of Differential Treatment of Older Workers Prior to the ADEA

Empirical tests for evidence consistent with age discrimination are far less numerous and at the same time more varied and sometimes less direct than are those relating to race or gender discrimination. There are most likely two reasons for this. First, research on age discrimination had and continues to have less urgency, because along many dimensions older workers are better off economically than other groups and do not suffer the sizable pay differences associated with gender and unemployment rate differences (and to a lesser extent pay differences) associated with race. Second, regression-based empirical methods for testing for race and gender discrimination, although potentially problematic, have a simple intuitive appeal because race or gender per se are not thought to affect productivity (although they may pick up unobserved productivity differences), and race, at least, is probably not thought to affect tastes for work versus leisure. In contrast, such analyses may well be inappropriate for studying age discrimination, because age per se may affect productivity and tastes for leisure.¹⁶

Nonetheless, it is probably fair to say that there was a good deal of evidence consistent with age discrimination from the period prior to the ADEA. Two sets of facts were documented in the pre-ADEA period to make the case that older workers suffered from discrimination. The first concerned unemployment. Miller (1966) noted that although unemployment rates were generally highest for teens and young adults, there were also some indications that older workers who lost their jobs had a more difficult time finding new jobs than did prime-age workers. In particular, in 1963

15. Crawshaw-Lewis (1996) cites the record of the debate from the *Congressional Record*: “The bill recognizes two distinct types of unfair discrimination based on age: First, the discrimination which is the result of misunderstanding of the relationship of age to usefulness; and second, the discrimination which is a result of a deliberate disregard of a worker’s value solely because of age” (p. 770).

16. An additional practical concern is that race and gender are binary variables, whereas age is continuous and age discrimination is barred over a large age range, making it difficult to isolate the group adversely impacted by discrimination.

the unemployment rate for men over age 55 was a full percentage point higher (4.5%) than for men aged 35–54 (3.5%). Perhaps more tellingly, durations of unemployment were longer for older men, with average durations of 21 weeks for men over age 45, compared with 14 weeks for men age 45 and under. Furthermore, Miller suggests that unemployment comparisons may understate the problem, because older individuals who cannot find work are more likely to leave the labor force and hence not appear as unemployed.¹⁷ Finally, Miller cites survey evidence of hiring practices in various cities carried out just prior to the ADEA, which found that while workers over age 45 were 25% of the unemployed, they constituted only 8.6% of new hires.¹⁸

Although such evidence is consistent with discrimination, it need not reflect discrimination. For example, in models of long-term incentive contracts (Lazear, 1979)—described in more detail later—high-tenure workers are paid more than their marginal product, whereas newly employed workers are paid considerably less than their marginal product. Thus, employers generally would not offer newly hired older workers a wage as high as they earned on their previous job. Similarly, in a model with specific human capital investment, older workers with high tenure will tend to be paid more than their best wage at an alternative employer. In either case, as long as reservation wages are formed partly on the basis of predisplacement wages, older workers will find fewer wage offers acceptable (Valletta, 1991), which may explain the long spells of joblessness experienced by older workers who suffer involuntary job losses (e.g., Chan and Stevens, 2001). Note, however, that both the Lazear and specific human capital models predict that it is tenure on the previous job, rather than age per se, that might increase the lengths of spells of joblessness. Although age and tenure are obviously related, their separate effects can be estimated. Valletta specifies a model for lengths of jobless spells of permanently displaced workers, allowing for nonlinear effects of age and tenure. Though he finds that among men the highest-tenure

workers have longer spells of joblessness—consistent with the models—he also finds that lengths of jobless spells rise sharply for workers in their 50s and early 60s for all men and white-collar women. The strong age effects independent of tenure suggest that Lazear contract or specific human capital models do not fully explain the longer unemployment durations of older workers.

Shapiro and Sandell (1985) provide additional evidence of reemployment difficulties for displaced older workers, using data from the National Longitudinal Survey of Older Men that cover 1966–78, a period predating the transfer to the EEOC of enforcement authority for the ADEA. They first choose a sample of involuntary job losers and estimate a wage equation for the predisplacement job accounting for both age and tenure. They then use this estimated regression to predict wages on the postdisplacement job, in the most relevant case accounting for the loss of tenure resulting from the job loss, and adjusting for age. Finally, they ask whether the gap between the predicted and actual wage on the subsequent job varies with age. The adjustments for age and tenure are important to control for other sources of larger wage losses among older men. Without the adjustment for tenure, the wage loss could be attributable to loss of specific human capital, which might be highest for the oldest workers. Similarly, adjusting for age should allow for depreciation of general human capital at older ages. The findings indicate that only men aged 65 and older appear to suffer disproportionately large wage losses upon displacement. However, Shapiro and Sandell (1985) suggest that this is at best weak evidence of age discrimination because the sample from which they estimate the wage structure using predisplacement wages only goes to age 63, and therefore they are unable to control for the possibility of much sharper depreciation of human capital at ages 65 and beyond.¹⁹ They also note that predisplacement wages may reflect the effects of discrimination, so that their evidence does not provide a general test for age discrimination but rather for age discrimination affecting displaced workers.

17. Unemployed workers are measured in the United States as those individuals who do not have a job but are looking for work.

18. The evidence comes from a study by the U.S. Department of Labor (1965). This survey covered cities in states lacking anti-age discrimination statutes.

19. One possibility they do not explore is that the Social Security earnings test leads workers aged 65 and over to choose lower-wage jobs (presumably entailing less effort or hours). Johnson and Neumark (1996) present evidence consistent with this effect for older men.

The second set of facts regarding age discrimination prior to the ADEA, in addition to the level or duration of unemployment, concerns age restrictions in hiring. Miller (1966) cites surveys conducted in New York in 1957 and 1958 in which 42% of firms had maximum age restrictions of 50 years for new hires. A U.S. Department of Labor study found that in a 1965 survey conducted in five cities in states without anti-age discrimination statutes, nearly 60 percent of employers imposed upper age limitations (usually between ages 45 and 55) on new hires (U.S. Department of Labor, 1965, cited in Hutchens, 1988). Clearly this evidence undermines the notion that higher and longer unemployment of older workers reflected solely worker choice.

There is additional evidence of a quite different nature from the period following the passage of the original ADEA but prior to more vigorous enforcement of the ADEA beginning in 1979, and hence to some extent informative about age discrimination prior to the ADEA as we now know it. Johnson and Neumark (1997) study data from the National Longitudinal Survey of Older Men for the period 1966–80, focusing on self-reported age discrimination as captured in the question, “During the past five years, do you feel that so far as work is concerned, you were discriminated against because of your age?” Longitudinal information on responses to this question, and on subsequent labor market behavior, is used to study the impact of age discrimination.²⁰ They find, first, that a relatively small percentage of older men (7%) reported age discrimination. However, this figure refers only to men with jobs and hence would not fully cover discrimination in hiring. Second, they find that workers who report age discrimination are more likely to separate from their current employer and less likely to be employed subsequently and that those who report discrimination and separate from their employer suffer a wage loss on the order of 10%. Thus, this evidence points to other adverse consequences of differential treatment

by age (as perceived by workers) in the period prior to EEOC enforcement of the ADEA.

Using a quite different research strategy, Rosen and Jerdee (1977; see also Rosen and Jerdee, 1976) conducted a study of managerial behavior toward workers of different ages. Specifically, managers were given hypothetical scenarios regarding personnel decisions (covering, as examples, unsatisfactory performance, investment in training, and promotion) and asked how they would respond. However, for some survey respondents the worker involved was described as young (age 32), whereas for others the worker involved was described as old (age 61). The researchers reached three main conclusions. First, managers perceive older workers as less flexible and more resistant to change. Second, managers are less inclined to provide support for career development and training of older workers. Third, promotion opportunities for older workers are more likely to be restricted in jobs requiring flexibility, creativity, and high motivation. Rosen and Jerdee suggest that these attitudes likely have real impacts in denying older workers opportunity, although their evidence does not speak to this directly.

B. Employer Incentives for Differential Treatment Based on Age

The preceding evidence is certainly consistent with discrimination against older workers based on age. However, it does not tell us much about the source of the discriminatory behavior, which is of interest both from the perspective of the economist trying to understand behavior in the labor market and analyze the need for legislation prohibiting age discrimination and, as amply illustrated, from the perspective of the law trying to establish what type of behavior is prohibited by the ADEA.

The simplest hypothesis, perhaps, is that age discrimination is based on animus toward older workers. As demonstrated by Becker (1971), employer animus toward a particular group essentially creates an economic incentive (defined over profits and tastes for employment of various types of workers) for the employer to discriminate against that group. Animus-based discrimination may generate inefficiencies at the economy-wide level as human resources are not put to their most effective use (as long as we do not take account of

20. Johnson and Neumark focus on those individuals who switch from reporting no age discrimination to reporting age discrimination to attempt to net out the effects of unobserved individual differences in the propensity to report discrimination that might be correlated with labor market behavior. They also control for general job satisfaction to account for other negative job characteristics that might cause a worker to report age discrimination.

discriminating employers' pernicious tastes in evaluating social welfare).²¹

However, the original Department of Labor report arguing for passage of the ADEA maintained that it was not animus that drove discrimination against older workers, but rather assumptions "about the effect of age on [workers'] . . . ability to do a job when there is in fact no basis for those assumptions" (U.S. Department of Labor, 1965, p. 20). Moreover, it seems difficult to view age discrimination in the same light as race discrimination, for which there is a well-documented history of animus. Posner (1995) further points out that "the kind of 'we-they' thinking that fosters racial, ethnic, and sexual discrimination is unlikely to play a role in the treatment of the elderly worker" (p. 320), because the people who make the firing and hiring decisions are often older individuals. In addition, Issacharoff and Harris (1997) argue that the legislative history of the ADEA indicates that age discrimination was perceived to be quite different from and more complex than blind or arbitrary prejudice, such as that based on race, national origin, and so on.

As noted, the alternative view that runs through the Department of Labor report is that employers hold incorrect negative stereotypes about older workers. Some of these possible stereotypes were discussed in the context of Rosen and Jerdee's (1977) work. Other research has documented stereotypes that discount the productivity and competence of older workers (e.g., Kite and Johnson, 1988). Employers holding negative stereotypes about older workers would quite naturally perceive it in their interest to treat workers differentially based on age.

The use of stereotypes—in the sense of imputing to individuals their group characteristics—is well understood in economic models. When employers have imperfect information about productivity- or cost-related characteristics of workers but know something about the average relationship between these characteristics and the groups to which workers belong (e.g., age, race, or gender), then using information on group averages may be an efficient way of processing information about workers or applicants, relative to other screening

mechanisms (Posner, 1995, chap. 13). This is referred to as statistical discrimination (Phelps, 1972). But if employers use stereotypes that are on average incorrect, there is potentially a rationale for prohibitions of differential treatment of older individuals based on them. Indeed there are economic models in which government action to prohibit discrimination based on incorrect negative stereotypes can "correct" the false stereotypes, although the reverse (i.e., causing the stereotypes to be self-fulfilling) can also occur (Coate and Loury, 1993).

What does the evidence suggest about the validity of negative stereotypes regarding older workers? Earlier studies in industrial gerontology explored the effects of aging on productivity or supervisor appraisals (which could reflect stereotypes) and found evidence of productivity either holding steady or declining slightly (see Meier and Kerr, 1976; Fleischer and Kaplan, 1980). More recent studies (McNaught and Barth, 1992; Jablonski et al., 1990) confirm this.²² Other evidence points to declines in acuteness of vision or hearing, ease of memorization, computational speed, and so on (see the evidence reviewed in Posner, 1995, chap. 4). However, older workers may offset these declines with greater effort, and some faculties may increase with age, as others decrease. As an example, Posner (1995, chap. 7) argues that aging is associated with declines in creativity but increases in leadership ability. Thus, there may be a case for assuming that productivity declines slightly with age. However, there is likely to be tremendous variation within age groups; Jablonski et al. (1990) indicate that the within group variation is far greater than the between group variation. In this case negative stereotypes about older workers and classifications based on them seem likely to act—at least sometimes—in an arbitrary fashion, harming many productive older workers, although it is difficult to establish whether, on average, employers' stereotypes are erroneous.

Finally, there are plausible nondiscriminatory economic incentives for employers to treat workers differentially based on age. The simplest of these may be incentives based on

21. Holzer and Neumark (2000), in the context race and gender discrimination, discuss the conditions under which this type of discrimination generates inefficiencies.

22. For more details, see the brief review in Hurd (1996). As Posner (1995) points out, some of this evidence may be prone to upward selection bias in estimates of the productivity of older workers, if it comes from active workers and the most productive older workers tend to remain employed.

accurate stereotypes or generalizations. For example, as noted by Miller (1966), because of the higher likelihood of illness and death among older workers, costs of health insurance and life insurance are likely to be higher for them. Similarly, there may be less time over which to recoup an investment in training when hiring an older worker (although younger workers may be more likely to leave the firm for another job). In principle, the employer may be able to adjust the wage or compensation package to compensate for the differential costs. But there may be barriers to doing so, stemming from the law or other issues of workforce management (precluding, for example, paying an older worker a lower wage than a younger worker to compensate for higher health insurance costs associated with employment of the former). It might be undesirable for the law to prohibit differential treatment based on these considerations, and in some cases it does not (see, e.g., the discussion of benefits in section II.B of this article).

A more complicated set of economic incentives and consequent issues for government policy comes from models of the long-term attachment of workers to employers in the context of providing incentives to workers to exert effort (or not to shirk). In the basic model that captures these ideas (Lazear, 1979), employers pay young, low-tenure workers less than their marginal product and pay older, high-tenure workers more than their marginal product. The underpayment in the younger years, and the fact that the worker is never fully paid for his or her "lifetime" productivity until retirement, provides an incentive for the worker to work hard and avoid losing his or her job.

The Lazear model creates three types of incentives for differential treatment of workers based on age. First, the model explains the existence of mandatory retirement. As Lazear shows, older workers end up with wages in excess of the marginal value of their leisure, so they will not choose to retire at the date at which the discounted lifetime stream of wage payments catches up to the discounted lifetime stream of marginal productivity. This, Lazear argues, necessitates mandatory retirement.

Second, Lazear-type contracts may impose barriers to hiring older workers, because these contracts likely impose some component of fixed costs that can be amortized only over a shorter period for older workers (Hutchens, 1986). Barriers to paying new older workers

much lower wages than current older workers can lead to the same result because they make it impossible to bring in new older workers at wages initially below their marginal products.²³

Third, Lazear contracts provide an incentive for the employer to behave opportunistically, discharging workers unfairly (i.e., not for "shirking" as understood in the original implicit contract) before their retirement date, so as to pocket some of the difference between a worker's productivity and compensation to date. One argument against incentives for employers to behave opportunistically appeals to reputation effects; specifically, doing so once will damage or destroy the employer's ability to enter into similar long-term incentive contracts in the future. However, reputation effects require fairly strong conditions to work. One possible barrier, discussed in Neumark and Stock (1999), is that information asymmetries between workers and firms allow firms to claim that layoffs of older workers are due to changed economic conditions, which workers cannot fully verify. In addition, institutional innovations may arise that allow employers to circumvent damages to reputation stemming from opportunistic behavior. For example, abrogations of Lazear contracts can be carried out following hostile takeovers, because when the company is subsequently resold the new owner suffers no loss of reputation. Consistent with this, Gokhale et al. (1995) provide evidence that hostile takeovers of corporations are associated with reductions in employment of more senior workers, particularly where older workers earn relatively high wages.

When there are incentives for opportunistic renegeing, there are two potential arguments for legislation prohibiting age discrimination. First, such legislation may represent a precommitment device (Schelling, 1983), offering workers protection against opportunistic behavior by employers by effectively barring dismissals disproportionately weighted toward older workers, and at the same time solving the problem that commitments to adhere to Lazear contracts may be in employers' interests but are

23. As Issacharoff and Harris state, "Because a reduction in pay to a level approximating productivity would appear to be a dignitary affront to the employee and would be potentially disruptive within the firm, the life-cycle wage pattern has the predictable effect of freezing unemployed older workers out of the job market altogether" (1997, p. 780).

not credible when made by employers acting on their own (Neumark and Stock, 1999; Jolls, 1996). Second, there may be negative externalities from employers renegeing, as workers at other firms raise their subjective probabilities of their own employer renegeing when they see other employers doing the same, leading to less backloading of pay and higher required compensation to achieve the same incentives to avoid shirking (Lazear and Moore, 1984).

Whether there are direct incentives to treat workers differentially based on their age depends on the “correct” model of the age-earnings profile. Some of the same incentives posed by the Lazear model also exist in the forced-saving model of rising age-earnings profiles. In this latter model, a preference for rising consumption coupled with an inability to save—phenomena for which there is some evidence in the psychological literature—leads workers to prefer rising wage profiles as a forced-saving mechanism (Frank and Hutchens, 1993).²⁴ As in the Lazear model, this leads to wages that are below marginal product for new workers and most likely above marginal product for more senior workers (unless workers are willing to trade off extraordinarily large amounts to obtain rising earnings). In contrast, a simple market-clearing model in which workers are always paid according to their current productivity (which is consistent with a rising age-earnings profile if there is general human capital investment) does not provide any economic basis for opportunistic discharges of older workers. Finally, in the original Becker model of specific human capital investment older workers are paid less than their marginal product, so employers have particularly strong incentives to retain them.²⁵ Thus, evidence against the constant market-clearing model, and in particular in favor of Lazear contracts or forced saving, would provide a more solid basis for suspecting that employers face economic incentives to treat older workers adversely.

The economics literature testing alternative models of the age-earnings profile is too vast to

be reviewed here, but some general comments and examples of findings are in order. To date, research has yielded some evidence consistent with each of the alternatives. For example, Neumark (1995) reports evidence consistent with the forced-saving model. In particular, individuals with a demonstrated preference for forced saving—in the form of overpayment of income taxes during the year—are on steeper age-earnings profiles. There is also evidence consistent with the Lazear model. As an example, Hutchens (1986) constructs an index for industry-occupation pairs measuring the hiring of older workers relative to employment of older workers. Thus, lower values of the index indicate jobs that tend to employ but not hire older workers. Hutchens reports that the index is negatively related to job characteristics associated with Lazear contracts, such as pensions and mandatory retirement, indicating that in such jobs hiring of older workers is suppressed. Neumark and Taubman (1995) find that key characteristics of earnings profiles are most consistent with the general human capital model.

The mixed evidence may arise because elements of each model contribute to rising age-earnings profiles. Viewed in this way, the important point is that some evidence contradicts the spot market view of the labor market and provides evidence of wages that are higher than marginal product for older workers. As long as this empirical characterization is correct for some part of the workforce—whatever the relative importance of alternative sources of upward-sloping profiles—there are some incentives for employers to treat older workers differentially based on their age.

V. EMPIRICAL EVIDENCE ON THE EFFECTS OF AGE DISCRIMINATION LEGISLATION

The effectiveness of age discrimination legislation in the United States and elsewhere has not been widely researched. Nonetheless, there is a small base of research on which to draw to try and reach some provisional conclusions. The evidence is of three types. First, there is some direct evidence on the effects of age discrimination legislation on labor market outcomes, which can tell us whether the legislation is having at least some of its intended effects. Second, there is empirical research on the existence of evidence consistent with age discrimination in the post-ADEA regime.

24. This preference for upward-sloping wage profiles means that workers are willing to trade off present value of earnings for rising wages. Survey evidence consistent with willingness to accept this trade-off is reported in Loewenstein and Sicherman (1991).

25. However, this result does not hold up in an efficient contracts model with specific human capital investment (Carmichael, 1983).

TABLE 5
Evidence on the Effectiveness of Age Discrimination Legislation

Study	Period Covered	Findings
<i>A. Direct evidence</i>		
Neumark and Stock (1999)	1940–80	State and federal anti–age discrimination statutes boost employment of workers aged 60 and over by about 6 percentage points. No discernible effect of elimination of mandatory retirement, but test is weak.
Adams (2001)	1964–67	State antidiscrimination statutes boost employment of workers aged 60 and over by about 5.6 percentage points. State antidiscrimination statutes have little effect on the relative probability that an older worker is a new hire, although there is some evidence of negative effects for workers aged 65–70. State antidiscrimination statutes also reduce retention of older workers. But retirements fall substantially, overwhelming these effects and leading to the increase in employment.
Ashenfelter and Card (2000)	1986–96	Elimination of mandatory retirement for professors resulted in large reductions in retirement at or just beyond the previous retirement age.
<i>B. Continuing evidence of age discrimination</i>		
Hutchens (1988)	1983	Older new hires are clustered in a narrower set of industries and occupations than younger new hires or all older workers.
Hirsch et al. (2000)	1983–98	Occupations that are less open to older new hires have steeper experience profiles and higher prevalence of pensions. Exclusion of older new hires has fallen only slightly if at all.
Adams (2002)	1992–94	Self-reported age discrimination with respect to promotions is associated with lower subsequent wage growth, and higher self-assessed probability of retirement at age 62 or 65.
<i>C. Critiques of the ADEA</i>		
Neumark and Stock (1999)	1940–80	Age discrimination legislation resulted in steepening of age-earnings profiles for new labor market entrants.

Finally, there is evidence bearing on some central critiques of the ADEA. This evidence is described shortly and is summarized in Table 5.

A. Direct Evidence

The direct evidence on age discrimination legislation simply tries to ascertain the direction and magnitudes of the effects of the legislation on labor market outcomes that ought to be affected. This can be viewed as asking whether the legislation has some of its intended effects, without speaking to the much more difficult questions of whether age discrimination legislation on net reduces costs associated with discriminatory behavior, or the optimal level or type of antidiscrimination effort.

Neumark and Stock (1999) study the effects of age discrimination legislation by exploiting the existence of antidiscrimination statutes in some states prior to the ADEA. Specifically, they look at changes in employment rates of older workers (in the protected age group) relative to younger workers. The state statutes are helpful because otherwise it is impossible to disentangle the effects of federal legislation

from other time-series changes. If the only policy variation is the advent of federal legislation, then a change in relative employment of older workers when the ADEA passes, or when its enforcement was assigned to the EEOC, could be attributable to other changes over time in factors influencing the relative employment of older workers. This is a legitimate concern because the 1970s and first half of the 1980s witnessed sharp changes (declines, in fact) in relative employment and labor force participation of older individuals, with factors such as social insurance programs (Social Security), pension growth, and health receiving considerable attention as possible explanations (e.g., Lumsdaine and Mitchell, 1999). With the state statutes, though, the advent of federal legislation can be separately identified by using the states that already had an anti–age discrimination statute to control for other aggregate changes in relative employment of older individuals and using only the relative difference between these states and the other (“treatment”) states to identify the effect of the policy change. In addition, of course, because the state statutes are implemented at different

times, their direct effects can be estimated to draw stronger inferences regarding the effects of age discrimination legislation.

Using census data from 1940, 1950, 1960, 1970, and 1980 and treating the federal law as binding or enforced only after the 1979 amendments, Neumark and Stock find that age discrimination laws boost employment rates of protected workers under age 60 by a small amount (0.008) but boost employment rates of protected workers aged 60 and over by a substantially higher amount (0.06). The estimates of the effects of the state-level age discrimination statutes in isolation are of a similar or slightly larger magnitude.

An additional important component of the ADEA is its prohibition of mandatory retirement. Neumark and Stock attempt to apply the same strategy to estimating the effects of the prohibition of mandatory retirement. However, because they do not focus on the oldest workers and because few states banned mandatory retirement prior to the federal legislation, they have very limited information on the basis of which to estimate the effects of banning mandatory retirement. They do not find statistically significant evidence that banning mandatory retirement boosted employment of older workers. This may be because the data are uninformative, or it may arise because employers are able to use pension incentives to induce retirement at given ages even without mandatory retirement (Lazear, 1982, 1995). But the findings are consistent with earlier research by Burkhauser and Quinn (1983) and Fields and Mitchell (1994) suggesting weak impacts of mandatory retirement on retirement ages.

In recent work, Adams (2001) replicates the employment analysis using variation in state antidiscrimination laws from 1964 to 1967, when a number of states enacted such laws. Using essentially the same empirical strategy and data from the Current Population Survey, Adams finds that age discrimination laws boosted employment of protected workers aged 60 and over by about 0.056, very close to the Neumark and Stock estimates.

Adams also takes the analysis further, estimating the effects of age discrimination laws on new hires. He first argues that the direction of effects of anti-age discrimination statutes is ambiguous a priori. On one hand, these laws should reduce hiring discrimination and hence boost hiring of older workers. On the other

hand, if older workers are retained longer because of age discrimination legislation, hiring of (other) older workers may fall. Similarly, anti-age discrimination legislation could strengthen long-term commitments between workers and firms or simply increase the cost of hiring older workers, hence generating a preference for hiring younger workers and reducing hiring of older workers. Given that the Current Population Surveys that Adams uses do not have tenure data, he uses two methods to classify new hires, acknowledging that neither is perfect. The first is based on workers who are employed at the time of the survey but report some period of nonemployment during the prior year, whereas the second requires that the person who had some nonemployment also searched for work in the prior year (which is meant to remove from the group of new hires those who returned to the same job). Unfortunately, these measures fail to pick up workers who started a new job without an intervening spell of nonemployment. Using essentially the same empirical strategy as for the analysis of employment effects, Adams finds little evidence of effects of age discrimination laws on the relative probability that an older worker is a new hire, with the possible exception of some evidence indicating a reduced probability for 65–70-year-olds. Clearly, though, there is no evidence of a positive effect on hiring.

Finally, the positive employment effect, coupled with no evidence of a positive effect on hiring, suggests that age discrimination laws boost retention of older workers. In his final analysis, Adams finds that age discrimination laws are associated with substantial reductions in retirement among older workers. Thus, more of them are remaining in the labor force, and even though hiring probabilities may worsen slightly, the reduction in retirement leads to a net increase in retention and in employment.²⁶ Adams further suggests that the decline in hiring may be driven by the decreased retirement of older workers entailing fewer job openings.

A recent study of faculty retirement by Ashenfelter and Card (2000) provides perhaps the best evidence to date on the effects of eliminating mandatory retirement, although the

26. As further evidence that this is a causal consequence of age discrimination laws, Adams finds that for workers older than the highest protected age, retirement rises and employment falls.

evidence is limited to a single, narrow occupation—university professors. The authors do a before-and-after comparison based on the elimination of mandatory retirement for professors under federal law; an earlier cross-sectional comparison of institutions, a subset of which had no mandatory retirement because of state law; and a pooled analysis allowing for a richer comparison. The findings are quite striking because both the state and federal uncapping of mandatory retirement appear to lead to large drops in retirement at ages 70 and 71 and concomitant large increases in the proportion of 70-year-old faculty that are teaching two years later. This evidence may differ from that discussed earlier (Neumark and Stock, 1999) because professors are typically on defined contribution pension plans, which sharply limit the ability of the employer to create financial inducements to retire at particular ages, whereas Lazear's work (1982, 1995) showing that employers could structure benefit plans to induce retirement at desired ages is based on defined benefit plans.²⁷ In addition, the academic profession may be quite unique, in part because the job is not physically demanding.

B. Continuing Evidence of Differential Treatment Based on Age

Another avenue of research that can be viewed as assessing the effectiveness of the ADEA tests for evidence consistent with age discrimination in the period following passage of the ADEA. Continued existence of discrimination would not necessarily imply failure of the law. Antidiscrimination legislation presumably never aims to eliminate all discrimination, just deter the more egregious and costly varieties; as an example of this, antidiscrimination laws have typically not applied to the smallest employers. In addition, because age discrimination law has been strengthened over time, evidence consistent with discrimination after its initial implementation but preceding its current form would not necessarily imply ineffectiveness of the current law.

Building on his earlier work, Hutchens (1988) develops segregation curves used for contrasting distributions of workers across

industries and occupations. His analysis of 1983 Current Population Survey data shows that newly hired older workers are clustered in a smaller set of industries and occupations than are newly hired younger workers or all older workers. This could be attributable to any of the possible bases for differential treatment based on age—including discrimination—that were already discussed. In addition, though, as Hutchens acknowledges, the data could reflect preferences among older workers taking new jobs for a narrower set of jobs. However, Hutchens argues that coupled with other evidence—including larger wage losses of displaced older workers, longer spells of unemployment, and the existence of upper age limits prior to the enactment of laws barring age discrimination—this clustering likely reflects discrimination.²⁸

Hirsch et al. (2000) present evidence that occupations that appear more closed to older new hires have steeper experience profiles and higher prevalence of pensions, evidence that more directly ties reduced reemployment opportunities for older workers to considerations arising from Lazear contracts. They also report only slight improvement over time in the occupational segregation facing new hires among older workers and hence are reluctant to conclude that the problem is declining in importance.

One powerful means of testing for discrimination by race, ethnicity, and gender is the use of audit studies. In audit studies, matched pairs of job applicants that are identical (at least on average in a set of audits) except for the race, ethnicity, or gender of the applicants are sent to apply for jobs. Under quite reasonable conditions, differential treatment of the applicants

27. Defined benefit pension plans specify pension payments based on a formula involving salary near the end of the career and years of service. Defined contribution plans are based on payments by employers into investment funds, which on retirement form the basis of the pension.

28. Garen et al. (1996) present a model in which tax rules requiring equal fringe benefits coupled with age discrimination laws barring lower wage payments to older workers deter hiring of older workers when defined benefit pension plans are used. This occurs because firms want to structure pensions to reduce turnover (presumably because of training), but because reducing turnover is not an issue for older hires, pension costs are effectively higher for them. At the same time, age discrimination laws preclude employers paying lower wages to older workers to compensate for the higher benefit costs. They also find some evidence consistent with this conjecture, as more generous defined benefit plans are associated with reduced employment prospects for older workers. This offers an alternative explanation for Hutchens's evidence and may point to some negative effects of age discrimination laws, although any source of wage constraints—not just the age discrimination laws—coupled with the benefit rules could generate the findings in Garen et al. (1996).

based on race, ethnicity, or gender can be taken as direct evidence of discrimination.²⁹ Bendick et al. (1996) have tried to apply this technique to study age discrimination in hiring by sending out matched pairs of résumés of older and younger job applicants and report some evidence consistent with favorable treatment of younger applicants. However, matching qualifications or résumés of older and younger applicants is problematic. If their “constructed” work experience were identical, then obviously the older applicant would have to have very little experience, or the younger applicant an impossible amount of experience. In either case, such an applicant would be highly unusual; in particular, an older applicant with little prior experience could arguably be viewed less favorably than a younger applicant with little prior experience.³⁰ Thus, there are inherent difficulties in applying audit studies to age discrimination.

Finally, Adams (2002) revisits the approach of using self-reported measures of age discrimination. He uses data from the 1992 and 1994 waves of the Health and Retirement Study, which includes a question about whether workers believe that their employer gives preference to younger workers in promotion. Although repeated observations on this question are not available, Adams is able to include information on the perceived work environment and fairness of one’s pay to try to control for other negative aspects of the workplace that might not be related to age discrimination per se. He finds no wage differential associated with reported age discrimination. However, he does find evidence that

reported age discrimination is associated with lower wage growth across the two waves, and with a reduced expectation of working at age 62 or 65, consistent with deleterious effects of age discrimination.³¹

C. Critiques of the ADEA

Evidence of direct positive effects of the ADEA on older individuals and workers bears on one of the simpler but potentially important critiques of the ADEA. In particular, Posner (1995, chap. 13) argues that the ADEA acts to reduce hiring of older workers. First, the costs of hiring these workers are increased as a result of their legal rights under the ADEA. Second, because damages in hiring discrimination cases are likely to be small, and injunctive relief—hiring the older worker who has filed a claim—is unlikely to be attractive to a plaintiff, legal action is unlikely to be effective in increasing hiring of older workers. The evidence on the effects of the ADEA on hiring of older individuals points, if anything, to slightly reduced hiring, consistent with this critique. Overall, though, the evidence points to increased employment of older individuals. This suggests that while the ADEA may have proven somewhat ineffective in addressing the behavior that was most often cited in justifying it—namely, hiring discrimination—it nonetheless had positive impacts on older individuals.

A more fundamental critique of the ADEA, originally attributable to Lazear (1979), is that rather than furthering antidiscriminatory goals, the ADEA acts largely to provide a windfall to older workers. Such an interpretation is not contradicted by evidence that age discrimination legislation boosts employment of older workers. Lazear first argues that mandatory retirement was part of an efficient long-term incentive contract and acceptable to older workers *ex ante* (i.e., when they were young). But because in his model older workers earn more than the value of their leisure when they near the time of retirement, it is in their interest to eliminate mandatory retirement. Yet doing so would—Lazear argued—impair the ability of workers and firms to enter into efficient long-term incentive contracts. Thus, he concludes, on eliminating mandatory retirement “current older workers will enjoy a small

29. For applications to discrimination by race or ethnicity, see Fix and Struyk (1993) and Kenney and Wissoker (1994). For applications to discrimination by gender, see Neumark (1996) and Goldin and Rouse (2000).

30. This is reflected in the research design used by Bendick et al. Their artificial job applicants, aged either 32 or 57, were always described as having 10 years of experience in the occupation in which they were seeking employment. In the applications for one of the jobs they studied (executive secretary), the résumés for the older applicants accounted for low experience relative to the applicant’s age by indicating that the applicant had been out of the labor force raising children, whereas in the applications for the other two occupations the resumes indicated that prior to the 10 years in the current occupation the applicant had been a high school teacher. Without judging the question of whether an employer should regard midstream career changes or time out for childrearing as negative (or commitment to a career at age 22 as positive), employers clearly *could* regard them as such and hence have a potentially nondiscriminatory reason for treating the older applicants less favorably.

31. With only the two waves of the Health and Retirement Study, Adams’ ability to track actual retirement is limited.

once-and-for-all gain at the expense of a much larger and continuing efficiency loss that affects all workers and firms adversely” (Lazear, 1979, pp. 1283–84). But as discussed, both on the basis of empirical work on mandatory retirement and Lazear’s own theoretical work on inducing retirement via pensions, this perspective on the effect of eliminating mandatory retirement may have been too pessimistic.

Some criticism of the ADEA goes well beyond Lazear’s specific focus on mandatory retirement and argues that the entire structure of anti-age discrimination legislation reflects rent-seeking behavior on the part of older workers. Issacharoff and Harris (1997) argue that the original intent of Congress in passing the ADEA was to eliminate the kind of discrimination that was reflected in maximum age limits for new hires (p. 793). In contrast, citing evidence in Schuster and Miller (1984), they note that the typical ADEA plaintiff is seeking redress over dismissal (discharge or involuntary retirement), not discrimination in hiring; see also Table 3.³² Based on this evidence, and evidence on the race of complainants, they argue that the ADEA has largely become a form of protection against wrongful discharge for older white males, a form of protection that does not generally exist in the United States (Schuster and Miller, 1984, p. 796).³³

However, the prevalence of discharges among ADEA claims does not necessarily imply that the ADEA is best characterized as rent-seeking. First, Issacharoff and Harris (1997) note that refusal to hire cases are more difficult to prove, and, as was already noted, Posner argues that damages in hiring cases are not likely to be large. But the most egregious hiring discrimination cases may nonetheless surface. Second, and potentially more important, the prevalence of discharge cases may reflect employers opportunistically renegeing on Lazear contracts. Issacharoff and Harris (1997) are aware of the incentive for

opportunism but dismiss the ADEA as an appropriate way to combat this, arguing that “if the source of the risk to older workers is economics, in general, and opportunistic breaches, in particular, a real question emerges as to why this problem should be folded into the antidiscrimination rubric” (p. 800). Although there may be, then, some inconsistency between the original intent of the ADEA and its evolution over time, there is nonetheless a policy argument for legislation that prevents this type of opportunistic behavior.³⁴

For more direct evidence, Neumark and Stock (1999) implement an empirical test of the alternative interpretations of age discrimination legislation. In particular, they argue that if age discrimination laws acted predominantly as a rent-seeking mechanism for older workers, their passage would reduce the use of long-term incentive (Lazear) contracts for new labor market entrants. If instead the predominant effect was to strengthen such contracts by reducing opportunistic behavior on the part of employers, the use of such contracts would be reinforced. They test these alternative views by asking whether age discrimination laws result in flatter or steeper age-earnings profiles of new entrants, with the former corresponding to the rent-seeking hypothesis, and vice versa. The evidence points quite unambiguously toward the hypothesis that the predominant effect of age discrimination legislation is to strengthen long-term incentive contracts, because age-earnings profiles for new entrants steepen following the passage of age discrimination laws. Although this does not rule out age discrimination legislation leading to some appropriation of rents by older workers, rent-seeking does not appear to be the best characterization of the overall effects of the legislation. Rather, its main effect appears to have been to strengthen the ability of workers and firms to enter into long-term incentive contracts, contradicting the assertion of Issacharoff and Harris that “the ADEA’s casual introduction of the anti-discrimination norm into the career-wage relationship has significantly damaged the life-cycle arrangement” (1997, p. 823).

32. Schuster and Miller do not have a sample of discrimination charges but instead focus only on court cases using a LEXIS search. They then select a small subset of cases that were decided on substantive matters; a much higher proportion were decided on procedural issues. Posner (1995, chap. 13) presents similar evidence.

33. Issacharoff and Harris further elaborate on the role of the American Association of Retired Persons in lobbying for amendments to the ADEA and other legislation that benefited older workers, attempting to identify the “agent” of the rent-seeking or capture theory of the ADEA.

34. The authors do, however, suggest some alternatives, based on either abrogating or limiting employment at will, creating compulsory arbitration in cases of termination of long-term employees, or other administrative mechanisms (Issacharoff and Harris, 1997, pp. 800–1).

VI. CONCLUSIONS

The United States has a history of legislation prohibiting age discrimination that covers more than 30 years. In that period, age discrimination legislation has grown into a nearly equal partner with legislation barring discrimination based on race and gender, although it has attracted less political debate. The following points emerge from the existing literature and evidence:

- Prior to the enactment of the ADEA, there was ample evidence consistent with hiring discrimination against older workers. Evidence of other types of discrimination is difficult to ascertain, but some research points to suggestive evidence of discrimination in promotions, training, and so on.

- Differential treatment based on age is probably not based on animus and as such differs from discrimination based on race and possibly gender. Negative stereotypes of older workers may partly explain differential treatment, as may economic motives for employers to classify and treat workers differently based on age. In all cases some rationale can be offered for government intervention to prohibit or reduce this differential treatment. On the other hand, the valid economic motives employers may have for classifying and treating workers based on their age raise some concerns about possible efficiency costs of age discrimination legislation.

- Age discrimination legislation at both the state and federal level boosts employment and reduces retirement of older protected individuals.

- In the post-ADEA period there is still evidence consistent with age discrimination impacting the occupations into which older workers get hired and their opportunities for wage growth.

- Age discrimination legislation can be interpreted as rent-seeking behavior by older workers. However, the empirical evidence suggests that the predominant effect of age discrimination legislation has been to reduce the likelihood that firms renege on long-term commitments to older, higher-paid workers, and consequently to strengthen long-term relationships between workers and firms.

Based on these conclusions, a relatively positive assessment of age discrimination legislation in the United States is more warranted than a negative assessment. However, there is

not a sufficiently overwhelming amount of evidence and variety of tests for the existing body of research to be decisive. In many cases, there are only one or two studies that address a particular question. This contrasts sharply with the vast quantity of research on many other public policy issues in the United States, and should give the reader pause in drawing overly strong conclusions based on our current knowledge. Coupled with the rapid aging of the U.S. population in the near future, it should also provide researchers with the motivation to engage in further study of age discrimination legislation.

REFERENCES

- Adams, S. J. "Age Discrimination Legislation and the Employment of Older Workers." Mimeo, University of Michigan, 2001.
- . "Passed Over for Promotion Because of Age: An Empirical Analysis of the Consequences." *Journal of Labor Research*, 23(3), 2002, 447–61.
- Age Discrimination in Employment Act. 1967. *U. S. Code*. Secs. 621, 623, 633, 1625. Available online at www.access.gpo.gov/uscode/.
- Albert, R. J., and N. S. Schelberg. "Benefit Plans Redefined under ADEA." *Pension World*, October, 1989, 45–48.
- Ashenfelter, O., and D. Card. "How Did the Elimination of Mandatory Retirement Affect Faculty Retirement?" Working Paper No. 448, Princeton University, Industrial Relations Section, Princeton, NJ, 2000.
- Becker, G. S. *The Economics of Discrimination*, 2nd ed. Chicago: University of Chicago Press, 1971.
- Bendick, M. Jr., C. W. Johnson, and J. H. Romero. "Employment Discrimination Against Older Workers: An Experimental Study of Hiring Practices." *Journal of Aging and Social Policy*, 8(4), 1996, 25–46.
- Burkhauser, R. V., and J. F. Quinn. "Is Mandatory Retirement Overrated? Evidence from the 1970s." *Journal of Human Resources*, 18(3), 1983, 337–58.
- Carmichael, L. H. "Firm-Specific Human Capital and Promotion Ladders." *Bell Journal of Economics*, 14, 1983, 251–58.
- Chan, S., and A. H. Stevens. "Job Loss and Employment Patterns of Older Workers." *Journal of Labor Economics*, 19(2), 2001, 484–522.
- Coate, S., and G. C. Loury. "Will Affirmative-Action Policies Eliminate Negative Stereotypes?" *American Economic Review*, 83(5), 1993, 1220–40.
- Crawshaw-Lewis, S. "'Overpaid' Older Workers and the Age Discrimination in Employment Act." *Washington Law Review*, 71(3), 1996, 769–96.
- Fields, G. S., and O. S. Mitchell. "Economic Determinants of the Optimal Retirement Age: An Empirical Investigation." *Journal of Human Resources*, 19(2), 1994, 245–62.
- Fix, M., and R. J. Struyk, eds. *Clear and Convincing Evidence: Measurement of Discrimination in America*. Washington, DC: Urban Institute Press, 1993.
- Fleischer, D., and B. H. Kaplan. *Work and Retirement: Policy Issues*. Los Angeles: University of Southern California Press, 1980.

- Frank, R. H., and R. M. Hutchens. "Wages, Seniority, and the Demand for Rising Consumption Profiles." *Economic Journal*, 21(3), 1993, 251–76.
- Friedman, L. M. *Your Time Will Come: The Law of Age Discrimination and Mandatory Retirement*. New York: Russell Sage Foundation, 1984.
- Garen, J., M. Berger, and F. Scott. "Pensions, Non-Discrimination Policies, and the Employment of Older Workers." *Quarterly Review of Economics and Finance*, 36(4), 1996, 417–30.
- Gokhale, J., E. L. Groshen, and D. Neumark. "Do Hostile Takeovers Reduce Extramarginal Wage Payments?" *Review of Economics and Statistics*, 77(3), 1995, 470–85.
- Goldin, C., and C. Rouse. "Orchestrating Impartiality: The Impact of 'Blind' Auditions on Female Musicians." *American Economic Review*, 90(4), 2000, 715–41.
- Griggs v. Duke Power Co.* 401 US 424 (1971).
- Hazen v. Paper Co. v. Biggins.* 507 US 604 (1993).
- Hirsch, B. T., D. A. Macpherson, and M. A. Hardy. "Occupational Age Structure and Access for Older Workers." *Industrial and Labor Relations Review*, 53(3), 2000, 401–18.
- Holt v. Gamewell.* 797F2d 36, 37–38 (1st Cir 1986).
- Holzer, H., and D. Neumark. "Assessing Affirmative Action." *Journal of Economic Literature*, 38(3), 2000, 483–568.
- Hurd, M. D. "The Effect of Labor Market Rigidities on the Labor Force Behavior of Older Workers," in *Advances in the Economics of Aging*, edited by D. A. Wise. Chicago: University of Chicago Press, 1996, 11–58.
- Hutchens, R. M. "Delayed Payment Contracts and a Firm's Propensity to Hire Older Workers." *Journal of Labor Economics*, 4(4), 1986, 439–57.
- . "Do Job Opportunities Decline with Age?" *Industrial and Labor Relations Review*, 42(1), 1988, 89–99.
- International Brotherhood of Teamsters v. United States.* 431 US 324 (1977).
- Issacharoff, S., and E. W. Harris. "Is Age Discrimination Really Age Discrimination?: The ADEA's Unnatural Solution." *New York University Law Review*, 72(4), 1997, 780–840.
- Jablonski, M., K. Kunze, and L. Rosenblum. "Productivity, Age, and Labor Composition Changes in the U.S. Work Force," in *The Aging of the American Work Force*, edited by I. Bluestone, R. Montgomery, and J. D. Owen. Detroit, MI: Wayne State University Press, 1990.
- Johnson, R. W., and D. Neumark. "Wage Declines among Older Men." *Review of Economics and Statistics*, 78(4), 1996, 740–48.
- . "Age Discrimination, Job Separations, and Employment Status of Older Workers." *Journal of Human Resources*, 32(4), 1997, 779–811.
- Jolls, C. "Hands-Tying and the Age Discrimination in Employment Act." *Texas Law Review*, 74, 1996, 1813–46.
- Kenney, G., and D. A. Wissoker. "An Analysis of the Correlates of Discrimination Facing Young Hispanic Job-Seekers." *American Economic Review*, 84(3), 1994, 674–83.
- Kephart v. Institute of Gas Technology.* 450 US 959 (1981).
- Kimel v. Florida Board of Regents.* 528 US 62 (2000).
- Kite, M. E., and B. T. Johnson. "Attitudes towards Older and Younger Adults: A Meta-Analysis." *Psychology and Aging*, 3(3), 1988, 233–44.
- Lazear, E. P. "Why Is There Mandatory Retirement?" *Journal of Political Economy*, 87(6), 1979, 1261–84.
- . "Severance Pay, Pensions, and Efficient Mobility." NBER Working Paper No. 854, Cambridge, MA, 1982.
- . *Personnel Economics*. Cambridge, MA: MIT Press, 1995.
- Lazear, E. P., and R. L. Moore. "Incentives, Productivity, and Labor Contracts." *Quarterly Journal of Economics*, 99(2), 1984, 275–96.
- Lindemann Schlei, B., and P. Grossman. *Employment Discrimination Law*. Washington, DC: Bureau of National Affairs, 1983.
- Lockard, D. *Toward Equal Opportunity: A Study of State and Local Anti-Discrimination Laws*. New York: Macmillan, 1968.
- Loewenstein, G., and N. Sicherman. "Do Workers Prefer Increasing Wage Profiles?" *Journal of Labor Economics*, 9(1), 1991, 67–84.
- Lumsdaine, R. L., and O. S. Mitchell. "New Developments in the Economic Analysis of Retirement," in *Handbook of Labor Economics*, vol. 3C, edited by O. Ashenfelter and D. Card. Amsterdam: Elsevier, 1999, 3261–307.
- Mastie v. Great Lakes Steel Corp.* 424Fsupp 1299 (ED Mich 1976).
- McDonnell Douglas v. Green.* 411 US 792 (1973).
- McNaught, W., and M. C. Barth. "Are Older Workers 'Good Buys'? A Case Study of Days Inn of America." *Sloan Management Review*, 33(3), 1992, 53–63.
- Meier, E. L., and E. A. Kerr. "Capabilities of Middle-Aged and Older Workers: A Survey of the Literature." *Industrial Gerontology*, 3(3), 1976, 147–56.
- Metz v. Transit Mix, Inc.* 828F2d 1202 (7th Cir 1987).
- Miller, D. "Age Discrimination in Employment: The Problem of the Older Worker." *New York University Law Review*, 41, 1966, 383–424.
- Neumark, D. "Employers' Discriminatory Behavior and the Estimation of Wage Discrimination." *Journal of Human Resources*, 23(3), 1988, 279–95.
- . "Are Rising Earnings Profiles a Forced-Saving Mechanism?" *Economic Journal*, 105(428), 1995, 95–106.
- . "Sex Discrimination in Restaurant Hiring: An Audit Study." *Quarterly Journal of Economics*, 111(3), 1996, 915–41.
- Neumark, D., and W. A. Stock. "Age Discrimination Laws and Labor Market Efficiency." *Journal of Political Economy*, 107(5), 1999, 1081–125.
- . "The Effects of Race and Sex Discrimination Laws." Unpublished paper, Public Policy Institute of California, 2000.
- Neumark, D., and P. Taubman. "Why Do Wage Profiles Slope Upward? Tests of the General Human Capital Model." *Journal of Labor Economics*, 13(4), 1995, 736–61.
- Phelps, E. S. "The Statistical Theory of Racism and Sexism." *American Economic Review*, 62(4), 1972, 659–61.
- Piette, Michael J. "Economic and Statistical Considerations in Analyzing Allegations of Age Discrimination." *Journal of Forensic Economics*, 8(2), 1995, 139–57.

- Posner, R. A. *Aging and Old Age*. Chicago: University of Chicago Press, 1995.
- Rosen, B., and T. H. Jerdee. "The Nature of Job-Related Age Stereotypes." *Journal of Applied Psychology*, 61(2), 1976, 180–83.
- . "Too Old or Not Too Old?" *Harvard Business Review*, 55(6), 1977, 97–106.
- Schelling, T. C. "Ethics, Law, and the Exercise of Self-Command," in *The Tanner Lectures on Human Values*, vol. 4, edited by S. M. McMurrin. Salt Lake City: University of Utah Press, 1983.
- Schuster, M., and C. S. Miller. "An Empirical Assessment of the Age Discrimination in Employment Act." *Industrial and Labor Relations Review*, 38(1), 1984, 64–74.
- Shapiro, D., and S. H. Sandell. "Age Discrimination in Wages and Displaced Older Men." *Southern Economic Journal*, 52(1), 1985, 90–102.
- Starkman, P. E. "Alleging a 'Pattern or Practice' under ADEA: An Analysis of the Impact and Problems of Proof." *Labor Lawyer*, 8(1), 1992, 91–123.
- Stone, J. E. "Age Discrimination in Employment Act: A Review of Recent Changes." *Monthly Labor Review*, 103(3), 1980, 32–36.
- Texas Department of Community Affairs v. Burdine*. 450 US 248 (1981).
- U.S. Census Bureau. "National Population Projections." Available online at www.census.gov/population/projections/nation/summary. Accessed April 29, 2003.
- U.S. Department of Labor. *The Older American Worker*. Washington, DC: Government Printing Office, 1965.
- U.S. Equal Employment Opportunity Commission. "Priority Charge Handling Task Force Litigation Task Force Project." 1998. Available online at www.eeoc.gov/task/pch-lit.html.
- Valletta, R. G. "Job Tenure and Joblessness of Displaced Workers." *Journal of Human Resources*, 26(4), 1991, 726–41.