NBER WORKING PAPER SERIES

LABOR MARKET STATUS OF OLDER MALES IN THE UNITED STATES, 1880-1940

Chulhee Lee

Working Paper 9550
http://www.nber.org/papers/w9550

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
March 2003

I would like to thank Dora Costa, Robert Fogel, David Weir, and three anonymous referees for their helpful comments and suggestions. This study was supported by NIH (PO1 AG 10120) and the SNU Research Fund. Any remaining errors are my own. The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

Labor Market Status of Older Males in the United States, 1880-1940
Chulhee Lee
NBER Working Paper No. 9550
March 2003
JEL No. J21, N3

ABSTRACT

This paper examines the labor market status of older males in the era of industrialization, focusing on the question of how the extent of pressure toward retirement varied across different occupations, and how it changed over time. A comparison of hazard of retirement across occupations shows that men who had better occupations in terms of economic status and work conditions were less likely to retire than were those with poorer jobs. This result tends to reject the recent view that retirement was more voluntary than forced as early as a century ago. The difficulty faced by older workers in the labor market, as measured by the relative incidence of long-term unemployment, was relatively severe among craftsmen, operatives, and salesmen. In constrast, aged farmers, professionals, managers, and proprietors appear to have fared well in the labor market. The pattern of shifts in the occupational structure that occurred between 1880 and 1940 suggests that industrialization had brought a growth of the sectors in which the pressure toward departure from employment at old ages was relatively strong.

Chulhee Lee
School of Economics
Seoul National University
San 56-1, Silim-dong, Kwanak-ku
Seoul, Korea
clee@prome.snu.ac.kr

1. Introduction

Conventional depictions of aged workers in the early twentieth century display them being forced out of the workforce, victimized by the consequences of industrialization. Contemporaries often condemned increased intensity of production, the greater need for formal education, new managerial practices, and the rise of age discrimination for making older men less useful compared to younger workers (Squier 1912; Epstein 1928). A Progressive Era reformer, for instance, noted:

> It is notorious that the insatiable factory wears out its workers with great rapidity. As it scraps machinery, so it scraps human beings. The young, the vigorous, the adaptable, the supple of limb, the alert of mind, are in demand. In business and in the professions maturity of judgement and ripened experience offset, to some extent, the disadvantages of old age; but in the factory and on the railway, with spade and pick, at the spindle, at the steel converts, there are no offsets.[1]

The "modernization thesis," a popular theory on the transition in the socioeconomic status of the elderly, suggests that the population aging induced competition between the generations in the labor force, and that the introduction of modern technology created many new occupations and transformed most of old ones as well, making aged workers obsolete. As a result, "both obsolescence and youthful competition eventually create pressure for retirement."[2] The miserable economic conditions of the elderly population was an important basis for the demand for more comprehensive government welfare programs in the early twentieth century (Armstrong 1932; Epstein 1938; Lubove 1968).

Consistent with this view, according to conventional estimates, the labor force participation

---

[1]Edward Devine, *Misery and Its Causes*. Recited from Squier (1912, p. 35).

[2]Cowgill (1974, p. 13). In addition to the pressure toward retirement, it is suggested that urbanization broke down the extended family, depriving the elderly of important roles and positions of power they used to have in the family. Also, progressively higher levels of education for the young eliminated a source of high status of the aged, their superior knowledge from experience.

rate (LFPR) of older men remained relatively high until the end of the nineteenth century and began to decline thereafter, which implies that industrialization presumably brought a dramatic change in working lives of older men (Durand 1948, Long 1958, Moen 1987a). Also, it had been widely accepted until recently that farmers tended to stay in the labor force longer in comparison with those employed in non-agricultural occupations thanks to the flexibility of farming (Durand 1948, Long 1958, Bancroft 1958). This means that the decline in the relative size of the agricultural labor force would have produced a decrease in the labor market involvement of older men.

This conventional view of the labor market status of the elderly and reasons for retirement has been challenged by recent studies that suggest a more optimistic portrait of old-age life in the early twentieth century. According to this *revisionist view*, the labor market status of the elderly was not degraded by the impact of industrialization, as previously believed.[3] This new interpretation of the state of economic activity of the elderly is based on evidence that tends to reject the key theses of the traditional view. First, Ransom and Sutch (1986) reported that the LFPR of older males was stable at a relatively low level until the enactment of Social Security in 1935. Therefore, the idea that aged workers were being forced out of the work force is questionable. A number of recent studies suggested that farmers were no less likely to retire than were non-farmers in the early twentieth

[3]Here, I only consider the economic aspect of the debate, although the modernization theory and the criticisms on it cover a much wider range of lives of the elderly. To give some other examples of the evidence against the modernization theory: A number of studies demonstrated that the negative characterization of the old grew from some independent cultural, religious, and intellectual sources, not from industrialization *per se* (Fischer 1977; Achenbaum 1978; Haber 1983; Cole 1992). Historical studies on the family rejected the notion that industrialization and urbanization had brought a discontinuous transformation in the family structure and household relationship (Chudacoff and Hareven 1978, 1979; Hareven 1979; Smith 1979). It is also suggested that the establishment of public welfare programs in the United States came later as compared to other industrialized countries in Europe because the elderly in America were better-off and more independent thanks to high level of savings and other private devices of old-age security such as life-insurance and industrial pensions (Weaver 1983; Ransom and Sutch 1987, 1993; Carter and Sutch 1996a).

century (Moen 1994; Costa 1995a; Carter and Sutch 1996a). This implies that the decline in agriculture cannot explain the fall in the labor market activity of older men.

These new results, in turn, led to a more favorable view of retirement occurring around the turn of the century. The relatively low labor force participation rates among aged men, Gratton (1986) maintains, could be explained at least partly as "voluntary action by workers who chose more leisure and some income over little leisure and more income (p. 96)." In support of this view, Gratton (1996) reported that real incomes of older workers rose during the late nineteenth and early twentieth centuries and that family economic strategies promised the elderly considerable security. Carter and Sutch (1996a) asserted that the retirement pattern in the early twentieth century was modern in the sense that many men planned their retirement by savings.[4]

The purpose of this paper is to provide new empirical evidence regarding the labor market status of older males in the era of industrialization. Although the literature on the economic activity of the elderly in the past has grown considerably over the last several decades, there is still inadequate quantitative evidence regarding this issue. In the balance of this paper, I examine how the pressure toward leaving the labor force at older ages differed across occupations, and how it changed over time based mainly on two major indicators of labor market status, namely, labor force participation and long-term unemployment.[5]

---

[4]The explanations for the secular decline in the LFPR of older males from the late nineteenth century provided by the two opposing views may also be recast in terms of supply and demand for labor of elderly men over this time. The traditional "forced retirement story" claims that, given a stable labor supply curve of elderly males, the demand for their labor shifts inward, due to the consequences of industrialization. On the other hand, the revisionist "supply-side story" says that, for a stable demand curve, the labor supply of elderly males shifts inward.

[5]Wage is certainly another major labor market outcome that should be useful in addressing this issue. Unfortunately, micro-level data on wages are limited to only a small number of occupations such as manufacturing and farm workers for the periods under study. For this reason, I do not consider wage in the

This paper is organized as follows: I begin with an analysis of the occupational difference in the hazard of retirement that the previous studies largely relied on in assessing the nature of retirement. In order to overcome the limitations of the existing literature, I consider a longer time horizon, and employ a finer classification of occupations. In section 3, I develop an index of the degree of difficulties faced by aged workers in the labor market, namely, the ratio of the incidence of long-term unemployment among older workers to that among prime-age workers. This index is compared across occupations in order to examine the sectoral differences in the labor market conditions for aged workers. I also examine whether the older workers were more likely to leave their jobs if employed in occupations where the disadvantages of aging were greater. Section 4 discusses the implications of the result for the impact of industrialization on the labor market status of the aged. The final section summarizes the paper.

2. Occupational Difference in the Probability of Retirement

As noted above, one of the key issues regarding the labor-force participation and labor-market status of older males in the early twentieth century is the pattern of occupational difference in the probability of retirement.[6] The most important empirical basis for the revisionist view that

present study.

[6]Another key revisionist thesis that the LFPR of older males was stable between 1870 and 1937 has been disputed elsewhere (Lee 1998). The main source of the disagreement on the LFPR of older men is how to determine whether an old man participated in the labor force by looking at his gainful occupation (Moen 1987b; Ransom and Sutch 1986; 1989; Margo 1993; Carter and Sutch 1996b). The conventional way of selecting nonparticipants is to exclude from the counting of the labor force persons who were not gainfully employed and those whose occupation was recorded as "retired" or a nonoccupational title. Ransom and Sutch (1986) suspected that some of those who had a gainful occupation, such as men who were unemployed for a prolonged period during the census year, may have been practically out of the labor force. Moen (1987b) and Margo (1993), on the other hand, suggested that the long-term unemployed should be regarded as participants based on the guidelines for census enumerators and the differences in the characteristics between the long-term unemployed and nonparticipants. For a more decisive test, Lee (1998) examined the pattern

labor-market conditions for aged workers are more favorable than traditionally believed is the result that farmers were more likely to retire than were nonfarmers between 1900 and 1910.[7] However, the finding that farmers were no less likely to retire than nonfarmers appears to be true only for the first decade of the twentieth century. Recently, Lee (2002) examined the difference in the probability of retirement between farmers and nonfarmers for a longer period, the six decades between 1880 and 1940. This study found that farmers were indeed less likely to retire than were nonfarmers, as the conventional view suggests.[8] Only the first decade of the twentieth century, the decade from which previous studies drew their evidence, exhibits the opposite pattern. This peculiarity of the years between 1900 to 1910 probably resulted from an unusually high appreciation of the value of farm

---

of labor market transition of older workers between 1900 and 1910, using a longitudinal sample of aged Union army veterans. The result indicates that the long-term unemployed were behaviorally closer to the employed than to nonparticipants. Even if we exclude from the work force the maximal number of the long-term unemployed who could have been actually retired, the LFPR of older men exhibits a clear downward tendency between 1880 and 1940, indicating that a dramatic change in the working lives of old men was underway in the late nineteenth century.

[7]It was noted that "the transition out of employment was most common among the self-employed, who presumably had some control over their pace of work and the timing of their departure from employment" (Carter and Sutch 1996a, p. 6). Since the self-employed who were able to choose the timing of retirement and who were wealthier on average tended to leave the labor force earlier than did other workers, the reasoning goes, retirement should have been more voluntary rather than forced. According to the result of Carter and Sutch, within the nonfarm sector, wage and salary workers and the self-employed were not greatly different in terms of the hazard of retirement. Their calculation shows that the fraction of men employed at age 55 who left employment before they died was 25.2 percent for self-employed farmers, 21.4 percent for nonfarm self-employed, and 19.8 percent for wage and salary workers. Moreover, the separate hazard rates of retirement for wage and salary workers and self-employed they estimated could be inaccurate because the employment status as of 1900 was indirectly determined based on occupation. Therefore, Carter and Sutch's conclusion is largely relied on the result that farmers were more likely to retire than were nonfarmers between 1900 and 1910.

[8]Lee (2002) also estimated a counterfactual labor force participation rate of older males that would have resulted had there been no decline in the relative size of agriculture since 1820. The result indicates that the decrease in the labor force employed in farming accounts for more than 20 percent of the fall in the labor force participation rate of men 60 and older between 1880 and 1940

property during those years which would have stimulated retirement among farmers.[9]

Owing to a greater degree of flexibility associated with farming and superior economic status, farmers should have had greater control over the timing of retirement compared to nonfarmers.[10] Therefore, the fact that farmers retired at a later age than did nonfarmers suggests that older male workers at the turn of the century, if allowed to freely choose the timing of retirement, would have preferred to stay longer in the work force than they actually did, choosing greater income over more leisure.[11]

The above comparison of the retirement patterns between farmers and nonfarmers provides only a partial insight into the nature of retirement, however. Even among nonfarmers who accounted for nearly 60 percent of the male population 50 and older at the turn of the century, the economic status, job characteristics, and employment conditions greatly differed across aged workers

---

[9]The purchase value per acre of U.S. farmland in fixed dollars had doubled between 1900 and 1910 (Lindert 1988). Therefore, farmers' retirement may have been enhanced by the huge appreciation of the value of their assets. Lee (1999) found that the average farm value of a county had a strong positive effect on the odds of retirement of farm owners who lived in that county during the first decade of the twentieth century. Also, farm owners living in counties which experienced a rapid growth in the farm value between 1900 and 1910 were more likely to retire by 1910. On the other hand, retirements of non-farmers were not influenced at all by the farmland value.

[10]If the flexible nature of farming enabled farm owners to retire only when they would enjoy a comfortable retirement life, the retired farm owners should have been better off compared to non-farmers. Though the absence of wealth information makes a direct comparison difficult, farm owners appear to have been better off than non-owners after retirement. The rates of home ownership and the household headship were higher among retired farm owners than among non-owners. Letting rooms to boarders, a possible symptom of economic difficulties (Modell and Hareven, 1973), was less frequent among retired farm owners than non-owners within rural areas. Numerous studies have reported the economic difficulties of the elderly in the industrial era, especially in urban areas. Reduced family size and diminished wealth, generated by urbanization over the nineteenth century, are often cited as the source of weakened power of the elderly compared to the colonial period (Haber 1983; Haber and Gratton 1994). A few elderly people in urban areas with no means of supporting themselves had to be taken to almshouses (Squier 1912). Economic difficulties of older parents in the working class often forced children to work from earlier ages (Goldin 1981).

[11]For the effect of labor market rigidities on the labor force behavior of older workers today, see Hurd (1996). The sources of such rigidities include fixed employment costs, the roles of team production, growing importance of job-specific skills, and conditions for eligibility for defined pension plans and social security.

employed in different occupations. In order to examine how people determine the timing of retirement, therefore, it is necessary to use more narrowly defined occupational categories. For this purpose, I compare the probability of retirement between 1900 and 1910 across eight occupational categories, namely, (1) farmers, (2) high-level professionals and proprietors, such as lawyers, physicians, and merchants, (3) low-level professionals and proprietors such as clerks, salesmen, and bookkeepers, (4) artisans, (5) operatives and semiskilled workers, (6) manual laborers, (7) farm laborers, and (8) those whose occupations were unclassified.[12]

This analysis is based on the longitudinal sample of 3100 aged Union army veterans who were successfully linked to the 1900 and 1910 censuses and who were gainfully employed in 1900.[13] Since retirement decisions would be affected by various factors other than occupation, I conduct a

---

[12]In this analysis, a man is classified retired if his occupation is recorded in the 1910 manuscript census as "retired," black, a nonoccupational title such as "invalid," " live on pension," or "insane," "capitalist" or "landlord," or inmates of institutions.

[13]The longitudinal samples of aged males have been collected and linked as part of the project titled *Early Indicators of Later Work Level, Disease, and Death*. The primary sample for this project consisted of 35,747 white males mustered into the Union Army during the Civil War, and it has collected military, socioeconomic, and medical information from several sources on these men throughout their lifetimes. These sources include military records, carded medical records, pension records, manuscript schedules of the federal censuses of 1850, 1860, 1900, and 1910, and surgeons' records on medical examinations of veterans. See Fogel (1993) for details of this project. The linkage process has been completed so far for 28,526 recruits (about 80 percent of the entire sample) who initially enlisted in companies from the states of Connecticut, Delaware, District of Columbia, Illinois, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, Ohio, Pennsylvania, Vermont, and West Virginia. The sample used in this study is composed of these men. Since the information on occupation in older ages, which is crucial to this study, is collected from the manuscript censuses, the sample is limited to the veterans who were successfully linked to the 1900 census. Of 10,456 veterans known to be alive in April 1900, when the 1900 census was enumerated, 8891 persons were found in the 1900 census with 8817 of them aged 50 or older. Among those people 3010 men (34 percent) died by 1910, and 1180 men (13 percent) failed to be linked to the 1910 census, leaving 4624 men who were alive until 1910 and were linked to both the 1900 and 1910 censuses. If the linkage failures occurred in a nonrandom manner, in the sense that recruits with some particular characteristics were more likely to be linked to other data sources, it could cause sample selection bias. For testing the potential selection bias, the effects of various behavioral variables on the probability of being linked to particular data sources were estimated, employing logistic and linear probability specifications. The regression results indicate that linkage failures were caused mostly by ransom factors. See Viechnicki (2002).

logistic regression, controlling for other variables on earnings, unearned income, property holdings, and family structure.[14] As a proxy of productivity in the labor market and economic condition, I include age, nativity, home ownership, presence of servant or boarder, marital status, literacy, region of residence, and Union army pension benefits. The dummy variable denoted "pension" has a value of one if a veteran received pensions in 1900.[15] Interaction terms between household headship and dummy variables of the number of dependents are added to take into account the need for supporting dependents. Dummy variables of Body Mass Index (BMI) are used as an indicator of health.[16] Finally, dummy variable of residing in urban areas is added.[17] The result of the regression is reported in Table 1.

[Place Table 1 Here]

For non-farmers, economic status indicated by occupation is negatively associated with the relative probability of retirement. In comparison with farmers, the control group, the probability of retirement was significantly higher for manual laborers, farm laborers and those with an unclassified occupation, and significantly lower for high-level professionals and proprietors (white-collar I) and

[14] Similar regression analyses have been conducted in previous studies using various samples of Union army veterans including Costa (1995a and 1995b) and Lee (1998 and 1999). However, this study is based on a much larger sample than those used previously. This large sample size enables me to use a finer classification of occupations, which is crucial for the purpose of the present analysis.

[15] For the histories of the Union army pension, process of pension applications, and decision of the amount of pensions, see Costa (1998) and Glasson (1918).

[16] BMI is weight in kilograms divided by height in meters squared. It has been found that the excessively obese and the excessively lean face a greater mortality risk (Costa 1993a; Waaler 1984). More specifically, the mortality risk remains relatively stable for the medium values of BMI between 20 and 28, and then sharply rises as BMI goes outside that range. According to this pattern, I include in the regressions dummy variables of BMI below 20 and above 28.

[17] Urban areas include the counties that were classified as Metropolitan areas as of 1900 in the Integrated Public Use Microdata Series (IPUMS). See Ruggles and Sobek (1998) for the definition of Metropolitan areas and the counties included.

artisans. Low-level professionals and proprietors (white-collar II), and operatives and semiskilled workers (operatives) were not significantly different from farmers in terms of the odds of retirement.[18] Since retirement of farmers were greatly stimulated by the appreciation of farm property during the decade under investigation, as suggested above, farmers may have been more similar to white-collar I and artisans rather than to white-collar II and operatives if a longer period is considered. Therefore, the above occupations could be classified into three groups according to the probability of retirement: (1) farmers, white-collar I, and artisans with lower probabilities, (2) white-collar II, and operatives in the middle, and (3) manual and farm laborers with higher probabilities. The above pattern of occupational differences in the probability of retirement suggests that men who had better occupations in terms of economic status and work conditions were less likely to retire than were those with poorer jobs, contradicting the previous argument that the wealthy self-employed were more likely to leave employment than were wage and salary workers.

Those who were employed in a high-income occupation should have been able to save more and therefore were presumably better able to finance retirement. On the other hand, job amenities such as environment, intensity and flexibility of work should have been more favorable for higher-rank occupations than for lower ones. These advantages may have allowed an older worker in a better job to stay longer in the labor force than one engaged in a poorer job. The result of this section

[18]Similar regressions are performed separately for each of four regions to examine the variation in occupational difference in retirement by region. South and West are excluded from the analysis because of the small sample size for the two regions (147 and 95, respectively). Notable regional differences are found from the result, as presented in Appendix Table 1. In New England and Mid Atlantic, white-collar I and artisans were not statistically different from farmers in the odds of retirement. In East and West North Central, on the other hand, the probability of retirement among manual and farm laborers was not different from that among farmers. These rather different patterns for the four regions are mixed in the result for the entire sample: a low probability of retirement for white-collar I and artisans (as found in the Midwest) and a high probability of retirement for manual and farm laborers (as found in the East) .

implies that, in making retirement decisions, it is likely that the effects of employment opportunities and job characteristics dominated the influence of retirement income in the early twentieth century.[19]

3. Sectoral Difference in the Relative Incidence of Long-Term Unemployment

Long duration of unemployment resulting from difficulties in locating a new job when unemployed has often been cited as indicative of a fragile labor market status and a major reason for retirement of the elderly in the early twentieth century.[20] Keyssar (1986, p. 90-96) noted that though older workers were less likely to be unemployed than younger workers, they had greater difficulty locating new jobs once laid off. Margo (1993) has suggested that the increased incidence of long-term unemployment among elderly males was primarily due to the decrease with age in the probability of exit out of unemployment. Such a disadvantage of older workers was also noted by contemporaries. Slichter (1917, p. 155) remarked:

> Old age is one of the most serious obstacles to finding employment. The loss of his job by a semi-skilled worker over 40 or 50 is likely to mean a permanent reduction in his earning capacity, for he will have great difficulty in obtaining a job as good as his previous one.

The causes of lost days reported in various surveys of industrial workers at the turn of the century show that unemployment in that period was predominantly involuntary for both young and old

[19]The opportunity cost of retirement was probably greater for aged workers employed in a superior occupations than for those employed in a lower-paying job. This difference may be another factor explaining why people who had better jobs were less likely to retire than those with poorer jobs.

[20]Throughout this study, long-term unemployment is defined as unemployment for six months or more during the year prior to the census enumeration.

workers.[21] Deteriorated physical strength and health, obsolete skills and knowledge, and lack of education compared with younger cohorts are some of the potential factors that may have limited employment opportunities for aged workers.[22] Also, formal or informal discrimination against aged workers in hiring could also have made it difficult for them to find a new job. In the early twentieth century, many firms, especially large corporations, adopted a policy of not hiring anyone over some stated maximum age, the limit being 45 years or sometimes even lower (Durand 1948, pp. 114-16; Long 1958, pp. 116-71).

[Place Table 2 Here]

Table 2 presents the incidence of long-term unemployment by age and occupation in the early twentieth century. This table reports the percentage of male workers who were unemployed six months or more during the 1900 and 1910 census years for three age groups (15-24, 25-44, and 55 or older) and 27 occupational categories.[23] It shows that long-term unemployment was a significant labor market experience at the turn of the century for wage-earners in general. Among

[21]According to the surveys conducted by the Bureau of Labor Statistics in the late nineteenth century, the primary cause of lost times was lay-offs. For instance, nearly 70 percent of industrial workers ages 55 and over who experienced loss of working time in 1889 reported lay-off as the cause. Sickness and accidents were other major causes of lost days (Carter, Ransom, Sutch, and Zhao 1993a). A similar pattern is found for the cause of lost days among aged farm laborers in Michigan in 1894 (Carter, Ransom, Sutch, and Zhao 1993b).

[22]The Cost of Living investigation by the Federal Bureau of Labor reported that sickness of worker accounted for about 23 percent of the causes of loss of working time by over 12,000 of wage-earners families (Lauck and Sydenstricker 1917, p. 113). According to Ransom and Sutch (1995) the days lost due to illness sharply increased with age after fifty-five among both farm and industrial workers. Gratton (1986, 79) has suggested, for example, clerks in turn-of-the-century Boston were predominantly young men because younger cohorts had more education and were more likely to be native born and to speak English well without accents.

[23]This classification is based on the occupation codes reported in IPUMS. The 10 basic categories are further divided into subgroups according to the more detailed occupation codes or geographical region. In doing so, I select as separate categories only the occupations in which relatively large number of older workers were employed and combine other occupations into a group, "all other." This is to reduce potential measurement errors resulting from a small sample size.

male workers aged 15 and older, one-fifth had been unemployed for some length in the 1900 census year and the average length of unemployment for these workers was more than four months. The proportion of those who were unemployed for six months or longer was 4.5 percent. Although the incidence of unemployment for one to five months, not reported here, was lower among men aged 55 and over than younger men, the probability of long-term unemployment was much greater for the older group.[24] In 1900, the incidence of unemployment for six months or more (denoted LU55) was 2.5 times greater than the same measure for those 25 to 44 (LU25). Though the ratio of LU55 to LU25 fell substantially in the course of the following decade, it was still as great as 1.75 in 1910.[25] The difference in occupational composition between age groups does not explain the disadvantage of the old because older workers were more likely than young workers to be in occupational categories in which the incidence of long-term unemployment was relatively low. If the representation of each occupation among men aged 55 and over were the same as that for males aged 25 to 44, the ratio of LU55 to LU25 would have been even greater: 3.84 for 1900 and 2.81 for 1910.[26]

---

[24]Margo (1993) and Ransom and Sutch (1986) also report that the odds of being unemployed for 6 months or longer in 1900 increased with age holding other individual characteristics constant.

[25] The observed decrease in the ratio of LU55 to LU25 between 1900 and 1910 may have been produced by the change in the definition of unemployment. Instructions for the 1880 through 1900 censuses directed enumerators to record the number of months of unemployment for all persons; they did not specify particular reasons for not being at work that would be considered as unemployment. In the 1910 census, on the other hand, enumerators were instructed to record the number of weeks a person was out of work and wanted work only for employees, not the self-employed or employers (Moen 1994b). Therefore, unemployment measures of 1900 may contain some period of voluntary unemployment, while those of 1910 would reflect only the extent of enforced loss of a job.

[26]The hypothetical LU55 that would have resulted if the occupational composition of men aged 55 and over were the same as that of males aged 25 to 44 ($LU55^*$) is calculated from the following formula:

$$LU55^* = \sum_j T_j^{25} LU55_j$$

where T_j^{25} and $LU55_j$ denote, respectively, the proportion of men aged 25 to 44 who were in occupational category *j* and LU55 for *j*.

For the purpose of the present analysis, we need a measure of the difficulty of finding a new job when unemployed, which was faced by older workers in a particular occupation. The absolute incidence of long-term unemployment for aged workers is not completely suitable for such an index, however, to be compared across occupations. It is well documented that fluctuations in demand for labor, especially those resulting from seasonality, were important causes of long-term unemployment for both young and old workers in the late nineteenth and early twentieth centuries.[27] Therefore, a higher incidence of long-term unemployment among older workers in a particular occupation does not necessarily indicate a greater disadvantage of aging in that sector because it could have resulted from a generally poorer labor market condition that affected the young and the old in the same manner. In fact, variations across occupations in LU55 and LU25 generally exhibit a similar pattern. The Pearson correlation coefficient of LU25 and LU55 is 0.75 (p-value = 0.000) for 1900 and 0.87 (p-value = 0.000) for 1910. Both LU25 and LU55 are especially high in seasonal occupations. Such occupations for 1900 include craftsmen in construction, operatives in textile and in metal and mining industries, farm laborers in the Northeast, and general laborers. The variations in LU25 and LU55 for the 1910 census year display a similar pattern.[28] In this respect, it would be more sensible to look at a relative measure of long-term unemployment of aged workers in comparison with prime-age workers in the same occupation. Accordingly, I use the ratio of the

[27]Some examples of industries in which production activities are heavily affected by weather, supply of water power, or other seasonal cycles are farming, ocean transportation, construction, and iron manufacturing. In some cases, such as food, textile or shoe manufacturing industries, seasonality in demand for labor was generated by seasonal variations in the supply of raw materials or demand for the finished products. For the industrial pattern of seasonality in demand for labor, see Lauck and Sydenstricker (1917, pp. 137-52), Kuznets (1933), Lebergott (1964, pp. 168-72), and Engerman and Goldin (1994, pp. 111-16).

[28]Pearson correlation coefficients for LU25 in 1900 and 1910 and for LU55 in 1900 and 1910 are, respectively, 0.76 (p-value = 0.000) and 0.60 (p-value = 0.001).

incidence of long-term unemployment among male workers aged 55 and older to that among men 25 to 44 as an index of disadvantages of older workers in the labor market.

The magnitude of disadvantages of older workers, indicated by LU55 / LU25, was relatively great among craftsmen and operatives in 1900. It was particularly high for craftsmen in shoe making (10.86) and metal industries (6.5), and mechanics (4.59), and for operatives in transportation (6.47). The same is true for 1910 except for craftsmen in shoe making industry. Aged salesmen, as indicated by the high LU55/LU25 (4.33), were also much more likely to be unemployed for a prolonged period compared to the young. On the other hand, LU55/LU25 is generally low for farmers, professionals, and managers and proprietors.[29]

This result generally matched well with the list of occupations, suggested by various qualitative sources, in which the labor market disadvantages associated with aging should have been severe. For instance, the employment handicap of older salesmen is noted by Graebner (1980) as follows: "Between 1900 and 1930, salesmen, particularly those over forty, were victimized by changing definitions and requirement of their occupation. The critique focused on the inability of older salesmen to adopt the method of modern corporation or to adapt to a changing economic and technological environment." (pp. 45-46). His study also shows the fate of aged mechanics employed in printing industry who lost their jobs after the newly invented printing machines were employed. Aged operatives in transportation industries, especially in the railroad, were often described by

[29]There are some notable exceptions. LU55/LU25 is extremely high for farmers in the Northeast in 1900, and relatively high for farmers in the Midwest in 1900 and for managers and proprietors in 1910. Even these exceptional cases exhibit relatively low values of LU55, however. The disadvantages of older workers look severe for these occupations because LU25 is extremely low. Therefore, it is likely that this result indicates an unusually favorable labor market for young workers rather than a poor job market for aged workers employed in these occupations.

contemporaries as being worn out by the enormous intensity of work.[30]

I conduct the following regression analysis to see if older workers were more likely to depart their jobs if they were employed in an occupation in which the disadvantages of aging in employment were more severe, as indicated by a higher ratio of LU55 to LU25 in 1900 (denoted LU55/LU25). I use two different measures of the rate of losing old workers as the dependent variable: (1) the rate of change in the proportion of males workers 55 and older employed in a particular occupation (denoted CPROP55), and (2) the rate of change in the ratio of the number of workers 55 and older to those 25 to 44 (denoted CREL55). These two measures depend upon the general growth rate of each occupation as well as the labor market prospects for the elderly we are interested in. CPROP55 would be higher in a fast-growing occupation if both young and old workers are newly hired in the course of expansion. CREL55 would be lower in a more rapidly growing occupation because the newly hired should include more young workers than the old. For controlling for the difference in the relative growth of each occupation, I add the growth rate of the share of workers 25 to 44 employed in a particular occupation (CPROP25). In addition, I include the an imputed index of average income of men employed in each occupation as of 1900 (INCOME) to take into account the potential income effect on retirement. The values of the variables used in the regression analysis are reported in Appendix Table 2.

[Place Table 3 Here]

The regression results for six different specifications are presented in Table 3. The results provide weak evidence that the extent of job severance was greater among older workers employed

[30]For example, a contemporary noted: "There is no part of the great national labor machine that wears out men more rapidly or subjects them to great hazard than that which we call transportation. Especially is this true of those engaged in the operation of trains and vessels on time schedules, which require by day and night the strictest attention to duty and rule" (Squier 1912, p. 109).

in occupations for which the relative incidence of long-term unemployment of aged men was higher. Controlling for CPROP25 and INCOME, a unit increase in LU55/LU25 lowered CPROP55 and CREL55 by 5 percent. The effect of LU55/LU25 on CPROP55 is statistically significant at 10 percent level for all three specifications. Where CREL55 is used as the dependent variable, however, the coefficient for LU55/LU25 becomes significant only if CPROP25 is included. If both CPROP25 and INCOME are controlled for, it misses significance by a small margin (p-value is 0.113). As expected, CPROP25 had a positive effect on CPROP55, though statistically insignificant, indicating that the share of aged workers employed in a particular occupation tended to increase if that occupation in general rapidly expanded. Also, consistent with the expectation, an increase in CPROP25 significantly lowered CREL55, implying that the relative share of older workers in an occupation tended to fall if the occupation grew rapidly. Both CPROP55 and CREL55 were lower on average in higher-income occupations. This may indicate an income effect on retirement. The three independent variables employed in the regression explain about 37 percent of variations across occupations of the two measures of the job severance of older male workers.

To sum up, the magnitude of disadvantages of older workers, as measured by the relative incidence of long-term unemployment, was relatively great among craftsmen, operatives, and salesmen in the early twentieth century. In contrast, aged farmers, professionals, managers and proprietors appear to have fared well in the labor market in comparison with other workers. The result of a regression analysis suggests that older workers were more likely to leave their jobs between 1900 and 1910 if initially employed in occupations where the disadvantages of aging were more severe.

4. Industrialization and Labor Market Status of Old Workers

The results suggested above explain how the pressure toward departure from the work force changed over the period of industrialization. The occupational difference in labor market prospects for aged workers, as measured by the relative incidence of long-term unemployment, suggests that the disadvantages in employment of older workers should have been relatively great for salesmen, craftsmen, and operatives. These occupations will be referred to *bad occupations* below. On the other hand, it appears that professionals, farmers, managers and proprietors fared well in the labor market at older ages, in comparison with other workers (*good occupations*, hereafter).[31]

[Place Table 4 Here]

The first question to ask is how the proportion of the labor force employed in each of the above two types of occupation changed over time. As an answer, the occupational composition of the male workers ages 50 to 59 is presented for the period from 1880 to 1940 in Table 4. I focus on the male workers in their fifties, excluding those 60 and older, to eliminate the effect of differential probability of retirement on the occupational composition. Older workers employed in an occupation in which the disadvantages associated with aging were greater may have been more likely to leave the labor force. In this case, the relative size of this occupation would be understated when very old workers are considered. This problem should not be serious for ages 50 to 59 because relatively few men left the labor force permanently prior to age 60 until the early twentieth century.

Table 4 shows that the share of the good occupations declined dramatically between 1880 and 1940. Those occupations accounted for 56 percent of male workers ages 50 to 59 in 1880. In

[31]Epstein (1928) reached a similar conclusion based on the published census of 1920. He noted: "An examination of the census data by specified occupations shows that while the aged are still holding their places among the gainfully employed in agriculture, the professions, independent small businesses and even public service, they are practically eliminated from all the major industrial occupations" (p. 21).

1940, only 35 percent of the male labor force in that age group were employed in those jobs. This is entirely due to the decline in the relative size of farmers. The percentage of male workers 50 to 59 who were farmers fell from 45 percent in 1880 to mere 18 percent in 1940. Although the relative share of professionals, and managers and proprietors increased considerably during the same period, the growth of the workforce employed in these occupations was too small to offset the impact of the agricultural decline. Meanwhile, the percentage of older workers who were employed in the bad occupations increased from 25 percent in 1880 to 37 percent by 1940. The share of each category classified as a bad occupation rose substantially during that period.

The above result suggests that the relative size of the elderly labor force who were employed in relatively favorable occupations probably decreased over time during the era of industrialization. Moreover, the labor market status of older workers may have deteriorated over the period under study even within each category of occupation. Above all, the proportion of the self-employed, who presumably had a greater control over the timing of retirement, decreased within each occupation in the course of industrialization. Table 4 presents in parentheses the fraction of the self-employed among male workers 50 to 59 employed in each occupation for 1910, 1920, and 1940.[32] The percentage of aged workers who were self-employed fell between 1910 and 1940 for every occupational category. The decline in the relative size of the self-employed was particularly pronounced for professionals, managers and proprietors, and laborers. For instance, 77 percent of managers and proprietors and nearly half of laborers were self-employed in 1910. In 1940, 59 percent and 19 percent, respectively, were self-employed.

Furthermore, though speculative at this stage, the pressure for retirement could have

[32]The 1910 census was the first census to report this information.

increased even within wage and salary workers employed in each occupation. It has been suggested that the relationship between employers and workers became increasingly impersonal as more firms employed modern corporate organization and new managerial practices (Chandler 1977; Greabner 1980; Jacoby 1985). Such changes should have "removed the opportunity for intimate relationship between man and master" (Lauck and Sydenstricker 1917, p. 163) and thus eliminated an advantage of a long tenure. The influence of ageism or a negative view on aging appears to have become stronger over time in the late nineteenth and early twentieth centuries (Haber 1983). Rapid technological changes and growth of secondary education should have made it more difficult for the old to compete with younger cohorts in the labor market.

All in all, it appears that industrialization had brought, at the extensive margin, a growth of the sectors in which the pressure toward departure from employment at old ages was relatively severe, and, at the intensive margin, a deterioration in the labor market status of the elderly employed in each of the nonfarm occupations.

5. Conclusions

This study has explored the labor market status of older males in the era of industrialization. In particular, I focused on the questions of how the pressure toward leaving the labor force at older ages differed across occupations and how it changed over time. First, I examined the occupational difference in the probability of retirement. Recent studies have suggested that farmers were no less likely to retire than were nonfarmers between 1900 and 1910 (Carter and Sutch 1996a, Costa 1995a). A look at a longer period, however, indicates that the probability of retirement was greater for nonfarmers than for farmers in most decades between 1880 and 1940, as the conventional view

suggested. Only the first decade of the twentieth century, from which the revisionist view drew evidence, exhibits the opposite pattern. Such a peculiarity of the decade between 1900 and 1910 is likely to have resulted from the unusually great appreciation of farm property during the same period that would have stimulated the retirement of farmers. Further, a comparison of the probability of retirement across finer occupational categories shows that men who had better occupations in terms of economic status and work conditions were less likely to retire than were those with poorer jobs. These results imply that, in making retirement decisions, the effects of employment opportunities and job characteristics were probably stronger than the influence of retirement income in the early twentieth century.

Secondly, I compare across different occupations an index of the degree of difficulty faced by aged workers in the labor market, namely, the ratio of the incidence of long-term unemployment among older workers to that among prime-age workers. The result indicates that the magnitude of disadvantages of older workers, as measured by the relative incidence of long-term unemployment, was relatively great among craftsmen, operatives, and salesmen in the early twentieth century. In contrast, aged farmers, professionals, managers and proprietors appear to have fared well in the labor market in comparison with other workers. The result of a regression analysis suggests that older workers were more likely to leave their jobs between 1900 and 1910 if initially employed in occupations where the disadvantages of aging were more severe.

Industrialization should have brought a growth of the sectors in which the pressure for departure from employment at old ages was relatively severe. For example, the share of the male labor force ages 50 to 59 who were either craftsmen, operatives, or salesmen rose from 25 percent in 1880 to 37 percent in 1940. On the other hand, the relative size of the occupations that were

relatively favorable to older male workers, including farmers, professionals, managers and proprietors, decreased from 56 percent to 35 percent during the same period, mainly due to the decline of agriculture. Moreover, the labor market status of older workers could have deteriorated over the period even within each category of occupation, considering the changes in managerial practices, production technology, and views on aging.

REFERENCES

Achenbaum, A. W. 1978. *Old Age in the New Land. Baltimore*: Johns Hopkins University Press.

Armstrong, B. 1932. *Insuring the Essentials: Minimum Wage Plus Social Insurance-A Living Wage Program*. New York: Macmillan.

Bancroft, G. 1958. The American Labor Force: Its Growth and Changing Composition. New York: John Wiley and Sons.

Boskin, M. J. 1977. Social Security and Retirement Decisions. Economic Inquiry 15: 1-25.

Carter, S. B., R. L. Ransom, R. Sutch, and H. Zhao. 1993a. *A Survey of 5,419 Workers in the Furniture Industry of Michigan, 1889; Reported in the Seventh Annual Report of the Michigan Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research.

Carter, S. B., R. L. Ransom, R. Sutch, and H. Zhao. 1993b. *A Survey of 5,600 Farm Laborers in Michigan, 1894; Reported in the Twelfth Annual Report of the Michigan Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research.

Carter, S. B., and R. Sutch. 1996a. Myth of the Industrial Scrap Heap: A Revisionist View of Turn-of-the-Century American Retirement. *Journal of Economic History* 56: 5-38.

Carter, S. B., and R. Sutch. 1996b. Fixing the Facts. *Historical Methods* 29: 5-24.

Chandler, A. D. 1977. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: The Belknap Press of the Harvard Univ. Press.

Chudacoff, H. P., and T. K. Hareven. 1978. Family Transition into Old Age. In Hareven, T. K. ed., *Transition: The Family and the Life Course in Historical Perspectives*. New York: Academic Press. 217-43.

Chudacoff, H. P., and T. K. Hareven. 1979. From Empty Nest to Family Dissolution: Life Course Transition into Old Age. *Journal of Family History* 4: 69-83.

Cole, T. R. 1992. *The Journey of Life*. New York: Cambridge Univ. Press.

Condran, G. A., and Crimmins, E. 1980. Mortality Differentials between Rural and Urban Areas of States in the Northeastern United States, 1890-1900. *Journal of Historical Geography* 6: 179-202.

Costa, D. L. 1993. Health, Weight, Wartime Stress, and Older Age Mortality: Evidence from Union Army Records. *Explorations in Economic History* 30, no. 4: 424-49.

Costa, D. L. 1995a. Agricultural Decline and the Secular Rise in Male Retirement Rates. *Explorations in Economic History* 32: 540-552.

Costa, D. L. 1995b. Pensions and Retirement: Evidence from Union Army Veterans. *Quarterly Journal of Economics* 109: 367-97.

Costa, D. L. 1998. *The Evolution of Retirement*. Chicago; University of Chicago Press.

Cowgill, D. O. 1974. The Aging of Population and Societies. *Annals of the American Academy of Political and Social Science* 415: 1-18.

Durand, J. D. 1948. *The Labor Force in the United States, 1890-1960*. New York: Social Science Research Council.

Engerman, S., and C. Goldin. 1994. Seasonality in Nineteenth Century Labor Markets. In T. Weiss and D. Schaefer. eds., *American Economic Development in Historical Perspective*. Stanford: Stanford Univ. Press.

Epstein, A. 1928. *The Challenge of the Aged*. New York: The Vanguard Press.

Epstein, A. 1938. *Insecurity: A Challenge to America*. New York: Random House.

Fischer, D. H. 1977. *Growing Old in America*. New York: Oxford University Press.

Fogel, R. W. 1993. New Sources and New Techniques for the Study of Secular Trends in Nutritional Status, Health, Mortality, and Process of Aging. *Historical Methods, 26*: 5-43.

Glasson, W. H. 1918. *Federal Military Pensions in the United States*. New York: Oxford University Press.

Goldin, C. 1981. Family Strategies and the Family Economy in the Late Nineteenth Century: The Role of Secondary Workers. In Hershberg, T. Ed., *Philadelphia: Work, Space, Family, and Group Experience in the Nineteenth Century*. New York: Oxford Univ. Press.

Graebner, W. 1980. *A History of Retirement: The Meaning and Function of an American Institution*. New Haven: Yale University Press.

Gratton, B. 1986. *Urban Elders*. Philadelphia: Temple University Press.

Gratton, B. 1996. The Poverty of Impoverishment Theory: The Economic Well-Being of the Elderly, 1890-1950. *Journal of Economic History* 56: 39-61.

Haber, C. 1983. *Beyond Sixty-Five: The Dilemma of Old Age in America's Past*. New York: Cambridge University Press.

Haber, C., and B. Gratton. 1994. *Older Age and the Search for Security: An American Social History*. Bloomington: Indiana University Press.

Haines, M. R. 1977. Mortality in Nineteenth Century America: Estimates from New York and Pennsylvania Census Data, 1865 and 1900. *Demography* 14: 311-331.

Hurd, M. D. 1996. The Effect of Labor Market Rigidities on the Labor Force Behavior of Older Workers. In Wise, D., ed., Advances in the Economics of Aging. Chicago: University of Chicago Press,

Jacoby, S. 1985. *Employing Bureaucracy*. New York: Columbia Univ. Press.

Keyssar, A. 1986. *Out of Work: The First Century of Unemployment in Massachusetts*. New York: Cambridge Univ. Press.

Kuznets, S. 1933. *Seasonal Variations in Industry and Trade*. New York: National Bureau of Economic Research.

Lauck, W. J., and R. Sydenstricker. 1917. *Conditions of Labor in American Industries: A Summarization of the Results of Recent Investigations*. New York: Funk & Wagnalls Company.

Lebergott, S. 1964. *Manpower in Economic Growth: The American Record Since 1800.* New York: McGraw-Hill Book Company.

Lee, C. 1998. Long-Term Unemployment and Retirement in Early-Twentieth-Century America. *Journal of Economic History* 58: 844-856.

Lee, C. 1999. Farm Value and Retirement of Farm Owners in Early-Twentieth-Century America. *Explorations in Economic History* 36: 387-408.

Lee, C. 2002. Sectoral Shift and Labor Force Participation of Older Males in the United States, 1880-1940. *Journal of Economic History* 62, 512-523.

Lindert, P. H. 1988. Long-Run Trends in American Farmland Values. *Agricultural History* 62: 45-85.

Long, C. 1958. *The Labor Force Under Changing Income and Employment*. Princeton: Princeton Univ. Press.

Lubove, R. 1968. *The Struggle for Social Security: 1900-1935.* Cambridge, MA: Harvard Univ. Press.

Margo, R. A. 1993. The Labor Force Participation of Older Americans in 1900: Further Results. *Explorations in Economic History*. 30: 409-423.

Modell, J., and T. K. Hareven. 1973. Urbanization and the Malleable Household: Boarding and Lodging in American Families. *Journal of Marriage and Family* 1: 7-32.

Moen, J. R. 1987a. *Essays on the Labor Force and Labor Force Participation Rates: The United States From 1860 Through 1950.* Unpublished Ph.D. Dissertation. The University of Chicago.

Moen, J. R. 1987b. The Labor of Older Americans: Comment. *Journal of Economic History*. 47: 761-767.

Moen, J. R. 1994a. Rural Nonfarm Households: Leaving the Farm and the Retirement of Older Men, 1860-1980. *Social Science History*. 18: 55-75.

Moen, J. R. 1994b. The Unemployment and Retirement of Older Men. *Historical Methods* 27: 40-46.

Ransom, R. L. and R. Sutch. 1986. The Labor of Older Americans: Retirement of Men On and Off the Job, 1870-1937. *Journal of Economic History*. 46: 1-30.

Ransom, R. L., and R. Sutch. 1987. Tontine Insurance and the Armstrong Commission: A Case of Stifled Innovation in the American Life Insurance Industry. *Journal of Economic History* 47: 379-390.

Ransom, R. L. and R. Sutch. 1989. The Trend in the Rate of Labor Force Participation of Older Men, 1870-1930: A Reply to Moen. *Journal of Economic History*. 59: 170-183.

Ransom, R. L. and R. Sutch. 1995. The Impact of Aging on the Employment of Men in American Working-Class Communities at the End of the Nineteenth Century. In Kertzer, D., and P. Laslett, eds., *Aging in the Past*. Berkeley: Univ. of California Press.

Ransom, R. L., R. Sutch, and S. Williamson. 1993. Inventing Pensions: The Origins of the Company-Provided Pensions in the United States, 1900-1940. In Schaie, K. W., and W. A. Achenbaum, eds., Societal Impact of Aging: Historical Perspective. New York: Springer Publishing: 1-38.

Ruggles, S., and M. Sobek. 1998. *Integrated Public Use Microdata Series*. Social History Research Laboratory, Department of Economics, University of Minnesota.

Slichter, S. H. 1919. *The Turnover of Factory Labor*. New York: D. Appleton and Company.

Smith, D. S. 1979. Life Course, Norms, and the Family System of Older Americans in 1900. *Journal of Family History* 4: 285-98.

Squier, L. W. 1912. *Old Age Dependency in the United States*. New York: Macmillan.

Viechnicki, P. 2002. Regression Analysis of Linkage Biases in the Union Army Life-Cycle Datasets. Center for Population Economics Working Paper 2002-2.

Waaler, H. T. 1984. Height, Weight, and Mortality: The Norwegian Experience. *Acta Medica Scandinavia [Suppl.]* 679: 1-56.

Weaver, C. L. 1983. On the Lack of a Political Market for Compulsory Old-Age Insurance Prior to the Great Depression. *Explorations in Economic History* 20: 294-328.

TABLE 1

Logit Regression Analysis: Correlates of Probability of Retirement between 1900 and 1910

Dependent Variable = 1 if retired in 1910, = 0 otherwise. Mean = 0.389

Independent Variables	Mean	Std. Dev.	Parameter	P-value	Odds Ratio
Intercept			-0.632	0.008 ***	
Farmer	0.396	0.489	NI	NI	NI
White collar I	0.066	0.249	-0.426	0.017 **	0.653
White collar II	0.145	0.352	0.176	0.157	1.193
Artisan	0.145	0.352	-0.302	0.021 **	0.740
Operative	0.058	0.235	0.136	0.454	1.145
Manual	0.129	0.335	0.235	0.078 *	1.265
Farm laborer	0.031	0.175	0.440	0.062 *	1.552
Unidentified	0.026	0.160	0.668	0.007 ***	1.951
Age 50-54	0.196	0.397	NI	NI	NI
Age 55-59	0.430	0.495	0.469	0.000 ***	1.599
Age 60-64	0.238	0.425	1.003	0.000 ***	2.726
Age 65+	0.134	0.341	1.550	0.000 ***	4.710
Native	0.875	0.330	-0.171	0.158	0.843
Free house	0.450	0.497	0.004	0.965	1.004
Mortgaged house	0.204	0.403	-0.056	0.635	0.945
Servants	0.060	0.238	-0.212	0.224	0.809
Boarders	0.108	0.310	0.222	0.090 *	1.248
Dependents 1-3	0.678	0.467	-0.485	0.006 ***	0.616
Dependents 4+	0.230	0.420	-0.776	0.000 ***	0.460
Married	0.875	0.329	-0.085	0.566	0.919
Illiterate	0.034	0.181	0.060	0.782	1.061
New England	0.107	0.309	-0.386	0.006 ***	0.680
Mid Atlantic	0.250	0.433	-0.281	0.006 ***	0.755
E. N. Central	0.416	0.492	NI	NI	NI
W. N. Central	0.145	0.352	0.085	0.473	1.089
South	0.047	0.212	0.177	0.346	1.194
West	0.030	0.172	0.007	0.976	1.007
Urban areas	0.189	0.392	0.103	0.362	0.903
Unemp 6	0.096	0.294	0.484	0.000 ***	1.622
Pension	0.791	0.405	-0.617	0.013 **	0.539
Log pension	1.782	1.000	0.428	0.000 ***	1.535
Low BMI	0.081	0.273	0.225	0.114	1.252
Mid BMI	0.645	0.479	NI	NI	NI
High BMI	0.036	0.186	0.296	0.160	1.344
No BMI	0.239	0.426	-0.237	0.022 **	0.789

Number of observations: 3100
-2 Log L without covariates: 4142.6
-2 Log L with covariates: 3784.9
Chi-square for covariates: 357.8 (P=0.0001)

Note: The source is an longitudinal sample of 3100 Union army veterans aged 50 and older in 1900 who were successfully linked to the 1900 and 1910 censuses. Significance level: * (10%), ** (5%). *** (10%).

TABLE 2

Incidence of Long-Term Unemployment by Occupation and Age in the 1900 and 1910 Census Years, Percent

Occupational category	1900 15-24	1900 25-44	1900 55 and older	1910 15-24	1910 25-44	1910 55 and older
All	5.0 (1.56)	3.2 (1.00)	8.1 (2.53)	2.3 (1.44)	1.6 (1.00)	2.8 (1.75)
Professional	10.6 (3.31)	3.2 (1.00)	3.3 (1.03)	2.5 (3.57)	0.7 (1.00)	1.4 (2.00)
Farmer						
Northeast	0.0 (0.00)	0.3 (1.00)	4.1(13.67)	0.0 (0.00)	0.1 (1.00)	0.0 (0.00)
Midwest	0.0 (0.00)	0.7 (1.00)	2.8 (4.00)	0.0 (0.00)	0.1 (1.00)	0.0 (0.00)
South	1.1 (0.92)	1.2 (1.00)	1.9 (1.58)	0.0 (0.00)	0.1 (1.00)	0.1 (1.00)
West	0.0 (0.00)	1.1 (1.00)	1.5 (1.36)	0.0 (0.00)	0.1 (1.00)	0.0 (0.00)
Manager / Proprietor	0.8 (1.00)	0.8 (1.00)	1.5 (1.88)	1.1 (2.75)	0.4 (1.00)	0.9 (2.25)
Clerical	2.6 (1.18)	2.2 (1.00)	6.1 (2.77)	2.8 (2.33)	1.2 (1.00)	1.7 (1.42)
Sales	4.2 (0.88)	4.8 (1.00)	20.8 (4.33)	2.8 (1.22)	2.3 (1.00)	6.5 (2.83)
Craft						
Building	6.7 (0.88)	7.6 (1.00)	27.5 (3.62)	3.9 (1.50)	2.6 (1.00)	7.9 (3.04)
Metal	3.3 (1.18)	2.8 (1.00)	18.2 (6.50)	3.8 (1.41)	2.7 (1.00)	7.2 (2.67)
Mechanic	3.4 (1.17)	2.9 (1.00)	13.3 (4.59)	2.4 (1.09)	2.2 (1.00)	4.9 (2.23)
Shoe maker and tailor	4.8 (3.43)	1.4 (1.00)	15.2(10.86)	2.2 (1.47)	1.5 (1.00)	1.4 (0.93)
All other	3.2 (0.76)	4.2 (1.00)	14.1 (3.36)	1.8 (0.90)	2.0 (1.00)	6.0 (3.00)
Operative						
Textile	2.5 (0.28)	9.0 (1.00)	33.3 (3.70)	3.6 (1.20)	3.0 (1.00)	6.5 (2.17)
Transportation	3.7 (1.95)	1.9 (1.00)	12.3 (6.47)	2.8 (2.00)	1.4 (1.00)	5.6 (4.00)
Metal and mining	10.0 (1.30)	7.7 (1.00)	14.5 (1.88)	4.3 (1.10)	3.9 (1.00)	10.0 (2.56)
All other	4.3 (1.79)	2.4 (1.00)	9.8 (4.08)	3.3 (1.27)	2.6 (1.00)	4.0 (1.54)
Service						
Household	8.1 (2.45)	3.3 (1.00)	0.0 (0.00)	1.7 (0.85)	2.0 (1.00)	6.7 (3.35)
Non-household	2.9 (1.26)	2.3 (1.00)	3.4 (1.48)	2.0 (1.05)	1.9 (1.00)	4.0 (2.11)
Farm Laborer						
Northeast	3.3 (0.79)	4.2 (1.00)	14.3 (3.40)	1.8 (0.95)	1.9 (1.00)	5.1 (2.68)
Midwest	4.5 (1.10)	4.1 (1.00)	4.8 (1.17)	0.9 (0.75)	1.2 (1.00)	5.5 (4.58)
South	4.2 (1.20)	3.5 (1.00)	8.8 (2.51)	0.7 (0.88)	0.8 (1.00)	1.1 (1.38)
West	5.2 (0.91)	5.7 (1.00)	5.3 (0.93)	2.4 (1.26)	1.9 (1.00)	7.0 (3.68)
Laborer						
Northeast	9.2 (1.53)	6.0 (1.00)	16.0 (2.67)	6.6 (1.27)	5.2 (1.00)	9.5 (1.83)
Midwest	12.4 (1.46)	8.5 (1.00)	25.8 (3.04)	4.1 (1.28)	3.2 (1.00)	6.7 (2.09)
South	7.1 (1.78)	4.0 (1.00)	16.5 (4.13)	2.3 (1.44)	1.6 (1.00)	4.5 (2.81)
West	11.5 (1.77)	6.5 (1.00)	14.8 (2.28)	5.8 (1.32)	4.4 (1.00)	7.0 (1.59)

Note: Calculated from IPUMS of the 1900 and 1910 censuses. In parentheses are the ratio of the incidence of unemployment among men in each age group to that among those aged 25 to 44.

TABLE 3

Result of OLS Regressions: Effect of the Relative Incidence of Long-Term Unemployment on Job Severance

Variables	Dependent Variable = CPROP55 (1)		(2)		(3)	
	Parameter	P-value	Parameter	P-value	Parameter	P-value
Intercept	9.330	0.005	0.269	0.044	0.046	0.013
U55/U25	-0.070	0.013	-0.058	0.067	-0.051	0.095
CPROP25			0.250	0.390	0.188	0.499
INCOME					-0.010	0.119
	R-square: 0.259 F-value: 7.354 (p=0.013)		R-square: 0.287 F-value: 4.023 (p=0.040)		R-square: 0.375 F-value: 3.793 (p=0.028)	
Variables	Dependent Variable = CREL55 (4)		(5)		(6)	
	Parameter	P-value	Parameter	P-value	Parameter	P-value
Intercept	0.147	0.272	0.321	0.035	0.592	0.004
U55/U25	-0.025	0.440	-0.062	0.081	-0.052	0.113
CPROP25			-0.714	0.036	-0.797	0.014
INCOME					-0.014	0.047
	R-square: 0.029 F-value: 0.621 (p=0.440)		R-square: 0.224 F-value: 2.888 (p=0.079)		R-square: 0.373 F-value: 3.769 (p=0.081)	

Note: Variables used in the regressions are reported in the Appendix Table 1. See Text for the definition of variables.

TABLE 4

Occupational Composition of the Male Labor Force Ages 50 to 59, 1880-1940 (Percent)

Occupation	1880	1890	1900	1910	1920	1930	1940
Professionals	3.7	3.9	4.1	3.5 (53.2)	3.7 (42.2)	4.2	4.6 (36.0)
Farmers	45.0	41.9	38.7	32.2 (100.0)	28.7 (97.8)	23.5	18.3 (99.1)
Man / Prop	7.1	7.9	8.7	11.9 (77.3)	10.3 (67.5)	11.2	12.1 (58.7)
Clericals	0.9	1.7	2.5	2.6 (3.4)	2.0 (15.4)	3.5	4.9 (2.8)
Sales	1.6	2.3	3.0	3.9 (23.3)	3.8 (27.7)	4.4	5.0 (18.0)
Craftsmen	14.5	14.7	14.8	14.4 (19.7)	16.1 (15.4)	17.4	18.6 (17.5)
Operatives	8.9	8.5	8.0	10.0 (6.7)	12.7 (7.2)	13.1	13.4 (6.5)
Service	1.8	2.3	2.8	3.8 (11.3)	4.6 (12.9)	5.7	6.7 (11.1)
Farm Laborers	5.1	5.1	5.1	7.3 (2.9)	6.2 (9.0)	5.1	3.9 (1.0)
Laborers	11.4	11.8	12.2	10.4 (49.2)	12.0 (22.2)	12.3	12.5 (19.0)

Note. Calculated from the IPUMS of the 1880, 1900, 1910, 1920, and 1940 censuses. The figures for 1890 and 1930 are calculated using interpolations because the occupational classifications in the published censuses differ from those in the IPUMS. In parenthesis is the percentage of the self-employed.

APPENDIX TABLE 1

Logit Regression Analysis by Region: Correlates of Probability of Retirement between 1900 and 1910 (Odds Ratios)

Dependent Variable = 1 if retired in 1910, = 0 otherwise.				
Independent Variables	New England	Mid Atlantic	East North Central	West North Central
Farmer	NI	NI	NI	NI
White collar I	1.429	1.704	0.399 ***	0.463 **
White collar II	2.212 *	1.487	1.038	1.356
Artisan	1.060	1.223	0.532 ***	0.492 *
Operative	1.879	1.642	1.031	2.023
Manual	1.307	1.705 **	1.270	0.962
Farm laborer	4.054 **	1.972	1.343	1.007
Unidentified	1.131	5.108 ***	1.256	3.905 *
Age 50-54	NI	NI	NI	NI
Age 55-59	1.677	1.662 **	1.522 **	2.083 **
Age 60-64	3.272 ***	2.929 ***	3.554 ***	2.673 ***
Age 65+	8.765 ***	4.779 ***	6.013 ***	4.927 ***
Native	0.664	1.022	0.768	1.263
Free house	0.466 **	1.438 *	0.986	1.160
Mortgaged house	0.607	1.182	0.882	1.326
Servants	0.786	0.793	0.860	0.560
Boarders	1.187	1.063	1.679 **	1.413
Dependents 1-3	1.058	0.784	0.475 **	0.499
Dependents 4+	1.137	0.779	0.333 ***	0.339 **
Married	1.152	0.513 **	0.960	1.427
Illiterate	7.499 **	0.979	1.075	0.181 **
Urban areas	0.676	1.086	0.838	1.127
Unemp 6	1.124	2.084 ***	1.168	1.420
Pension	0.089 ***	0.508	0.513 *	0.613
Log pension	2.690 ***	1.673 **	1.667 ***	1.233
Low BMI	0.590	1.269	1.410	2.261 **
Mid BMI	NI	NI	NI	NI
High BMI	3.885 **	1.454	0.731	1.607
No BMI	0.755	0.955	0.710 **	0.532 **
Number of observations:	332	776	1290	450
-2 Log L without covariates:	432.1	1014.8	1735.6	612.3
-2 Log L with covariates:	370.9	918.0	1511.4	549.5
Chi-square for covariates:	45.9 (p=0.009)	81.6 (p=0.000)	178.0 (p=0.000)	51.0 (p=0.002)

Note: The source is an longitudinal sample of 3100 Union army veterans aged 50 and older in 1900 who were successfully linked to the 1900 and 1910 censuses. Significance level: * (10%), ** (5%). *** (10%).

APPENDIX TABLE 2

Relative Size and Average Income of Each Occupation for the Male Labor Force 55 and Older

Occupational category	1900		1910		CPROP55	CREL55	INCOME
	PROP55	REL55	PROP55	REL55			
Professional	0.032	0.271	0.024	0.246	-0.281	-0.092	43.9
Farmer							
Northeast	0.077	0.793	0.062	0.972	-0.228	0.227	14.0
Midwest	0.154	0.466	0.115	0.459	-0.297	-0.016	14.0
South	0.155	0.404	0.141	0.413	-0.094	0.023	14.0
West	0.016	0.452	0.020	0.465	0.222	0.030	14.0
Manager / Proprietor	0.058	0.293	0.085	0.297	0.373	0.012	41.0
Clerical	0.021	0.165	0.023	0.148	0.078	-0.100	25.5
Sales	0.115	0.234	0.110	0.215	-0.047	-0.081	27.9
Craft							
Building	0.053	0.308	0.056	0.320	0.069	0.039	24.9
Metal	0.015	0.235	0.011	0.200	-0.267	-0.147	27.1
Mechanic	0.013	0.161	0.012	0.112	-0.082	-0.301	33.7
Shoe maker and tailor	0.016	0.458	0.009	0.314	-0.590	-0.314	23.5
All other	0.020	0.138	0.026	0.173	0.259	0.252	29.5
Operative							
Textile	0.003	0.153	0.003	0.138	0.089	-0.098	20.8
Transportation	0.011	0.110	0.015	0.162	0.295	0.478	26.8
Metal and mining	0.013	0.136	0.012	0.103	-0.103	-0.242	24.6
All other	0.028	0.132	0.039	0.137	0.309	0.045	23.6
Service							
Household	0.006	0.432	0.007	0.211	0.106	-0.511	5.9
Non-household	0.020	0.185	0.027	0.250	0.313	0.355	19.1
Farm Laborer							
Northeast	0.013	0.222	0.023	0.366	0.565	0.645	7.5
Midwest	0.017	0.106	0.036	0.213	0.686	1.010	6.8
South	0.040	0.186	0.050	0.239	0.209	0.283	6.7
West	0.006	0.180	0.010	0.213	0.618	0.181	7.8
Laborer							
Northeast	0.034	0.193	0.030	0.197	-0.141	0.020	19.8
Midwest	0.030	0.175	0.036	0.237	0.165	0.358	19.7
South	0.026	0.205	0.018	0.169	-0.395	-0.177	19.5
West	0.007	0.176	0.007	0.142	-0.036	-0.192	19.4

Note: Calculated from IPUMS of the 1900 and 1910 censuses.