Is the Company Man an Anachronism? Trends in Long Term Employment in the U.S., 1973-2005

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May 2006

Forthcoming in ***The Price of Independence: The Economics of Early Adulthood***, **edited by Network members Sheldon Danziger and Cecilia Rouse (New York: Russell Sage Foundation, 2007).**

Network on Transitions to Adulthood Research Network
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Is the Company Man an Anachronism? Trends in Long Term Employment in the U.S., 1973-2005[1]

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May 16, 2006

Abstract

I examine changes in the incidence of long-term employment in the United States using data from mobility supplements, pension and benefit supplements, and Contingent and Alternative Employment Arrangement Supplements to the Current Population Survey (CPS) from 1973 through 2005. I examine age-specific changes in the length of employment relationships for different birth cohorts from 1914-1980. After controlling for demographic characteristics, including education, race, sex, and Hispanic ethnicity, mean tenure and the fraction of workers reporting at least ten and at least twenty years of tenure have fallen substantially. This decline was concentrated among men, while long-term employment relationships became slightly more common among women. Mirroring this decline in tenure and long-term employment relationships, this has been an increase in "churning," defined as the proportion of workers in jobs with less than one year of tenure, for males as they enter their thirties and later. This pattern suggests that more recent cohorts are less likely than their parents to have a career characterized by a "life-time" job with a single employer.

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1 Introduction and Background

The typical characterization of the dynamics of an individual's employment history over the course of a working life (a "career") is that a worker enters the labor market at some point after concluding schooling and holds a succession of jobs in the ensuing decades. Commonly, it is understood that, after some turnover early in careers, most workers find a job (relationship with an employer) that lasts for a long period of time (a "life-time" job). This conception of a career culminating in a life-time job has been challenged in the last fifteen to twenty years, both in academic research and in the media, as large corporations have engaged in highly publicized layoffs and the industrial structure of the U.S. economy has shifted in the face of global competitive pressures. To the extent that there has been a substantial change in career employment dynamics, young workers entering the labor force in recent years and in the future will face a very different type of career than did earlier cohorts.

In this study, I examine evidence on job durations from 1973-2005 in order to determine the extent to which, in fact, the structure of careers, indicating by the likelihood of long-term employment, is changing. I use data from eleven Mobility Supplements, four Pension and Benefit Supplements, and four Contingent and Alternative Employment Arrangement Supplements to the Current Population Survey (CPS) over this period. All of these supplements contain information on how long workers have been employed by their current firm, and these data allow me to investigate the career dynamics of successive cohorts of workers. Specifically, I examine various age-specific measures of the the length of employment relationships for different birth cohorts from 1914-1980 in order to determine whether more recent cohorts are experiencing a different level of job stability than their elders.

The evolution of the structure of careers in the U.S. has played out in the context of dramatic growth in employment over the last 40 years. Civilian employment was 85.1 million in 1973 and rose to 141.7 million in 2005.[1] Thus, more than forty million jobs have been created on net in the past 32 years, for an average rate of employment growth of 1.6 percent per year over this period. Despite this record of sustained growth in employment in the United States, there is longstanding concern that the quality of the stock of jobs in the economy more generally is deteriorating. The concern about job quality is based in part on the fact that the share of employment that is in manufacturing has been declining over a long period of time.[2] This has led to the view that, as high-quality manufacturing

[1] These statistics are taken from U.S. Bureau of Labor Statistics Series ID LNU02000000. This is the civilian employment level derived from the Current Population Survey for workers aged 16 and older.

[2] The manufacturing share of employment has been falling for over fifty years. Manufacturing's share was 33.8 percent in 1950 and fell to 10.9 percent in 2004, 31.0 percent in 1960, 23.4 percent in 1970, and 15.8 percent in 1980. (President's Council of Economic Advisers, 1996, Table B-42; President's Council of

jobs are lost, perhaps to import competition, they are being replaced by low-quality service sector jobs (so-called hamburger-flipping jobs). The high-quality jobs are characterized by relatively high wages, full-time employment, substantial fringe benefits, and, perhaps most importantly, substantial job security (low rates of turnover). The low-quality jobs are characterized disproportionately by relatively low wages, part-time employment, an absence of fringe benefits, and low job security (high rates of turnover).

The perceived low quality of many newly-created jobs fuels the concern that the basic nature of the employment relationship in the United States is changing from one based on long-term full-time employment to one based on more short-term and casual employment is. There has been concern that employers are moving toward greater reliance on temporary workers, on subcontractors, and on part-time workers. Potential motivation for employers to implement such changes range from a need for added flexibility in the face of greater uncertainty regarding product demand to avoidance of increasingly expensive fringe benefits and long-term obligations to workers. The public's concern arises from of the belief that these changes result in lower quality (lower paying and less secure) jobs for the average worker.

The results are clear cut. By virtually any measure, more recent cohorts of workers have been with their current employers for less time at specific ages. Age-specific overall median and mean tenure have fallen substantially, particularly for workers over forty years of age. Interestingly, there is an important contrast by sex. Age specific median tenure has fallen sharply for men while there has been no corresponding change for women. This finding is mirrored in the fractions of older workers reporting at least ten and at least twenty years of tenure, where the fraction of men in such long-term employment relationships fell substantially between the 1910 birth cohort and cohorts born in the middle of the last century. In contrast, the fraction of women in long-term employment relationships increased somewhat between the early- and mid-twentieth century birth cohorts.

Here is a brief outline of the study. In the next section I present a brief review of the literature on job stability. In section 3, I describe the data I use in the analysis and discuss measurement and data issues relevant to the analysis. Section 4 contains analyses of the evolution of job tenure over time, include analyses of median and mean tenure and analyses of the incidence of long-term employment relationships. Section 5 focuses on an analysis of "churning," defined here as the incidence of job tenure less than one year. twenty years. Section 6 contains concluding remarks.

Economic Ad-visors, 2005, Table B-45.

2 Review of Recent Literature on Job Stability

There have been a series of analyses of job stability that have relied on mobility supplement to various January Current Population Surveys.[3] An influential early analysis was carried out by Hall(1982). He used published tabulations from some of the January mobility supplements to compute contemporaneous job retention rates. Hall found that, while any particular new job is unlikely to last a long time, a job that has already lasted five years has a substantial probability of lasting twenty years. He also finds that a substantial fraction of workers will be on a "lifetime" job (defined as lasting at least twenty years) at some point in their life. Ureta (1992) used the January 1978, 1981, and 1983 mobility supplements to recompute retention rates using artificial cohorts rather than contemporaneous retention rates.

Several more recent papers have used CPS data on job tenure to examine changes in employment stability.[4] Swinnerton and Wial (1995), using data from 1979 through 1991, analyze job retention rates computed from artificial cohorts and conclude that there has been a secular decline in job stability in the 1980's. In contrast, Diebold, Neumark, and Polsky (1994), using CPS data on tenure from 1973 through 1991 to compute retention rates for artificial cohorts, find that aggregate retention rates were fairly stable over the 1980's but that retention rates declined for high school dropouts and for high school graduates relative to college graduates over this period. I interpret a direct exchange between Diebold, Polsky, and Neumark (1996) and Swinnerton and Wial (1996) as supporting the view that the period from 1979-91 is not a period of generally decreasing job stability. Farber (1998), using CPS data on job tenure from 1973 through 1993, finds that the prevalence of long-term employment has not declined over time but that the distribution of long jobs has shifted. He finds that less-educated men are less likely to hold long jobs than they were previously but that this is offset by a substantial increase in the rate at which women hold long jobs. Farber (2000) examines CPS data on job tenure from 1973 through 1996, and he finds that the prevalence of long- term employment relationships among men declined by 1996 to its lowest level since 1979. In contrast, long-term employment relationships became somewhat more common among women.

Rose (1995) uses data from the Panel Study of Income Dynamics (PSID) to measure job stability by examining the fraction of male workers who do not report any job changes in a given time period, typically ten years. Rose finds that the fraction of workers who reported

[3] These mobility supplements were conducted in January of 1951, 1963, 1966, 1968, 1973, 1978, 1981, 1983, 1987, and 1991, and in February 1996, 1998, 2000, 2002, and 2004. Only the data since 1973 are available in machine-readable form.

[4] In addition to the January mobility supplements noted in the previous footnote, information on job tenure was collected in pension and benefit supplements to the CPS in May 1979, May 1983, May 1988, and April 1993.

no job changes in given length of time was higher in the 1970's than in the 1980's. He argues that this is evidence of increasing instability of employment.

The Russell Sage Foundation sponsored a conference organized by David Neumark on "Changes in Job Stability and Job Security" in 1998.[5]. The evidence presented here is mixed regarding whether job tenure was declining. Jaeger and Stevens (1999) use data from the PSID and the CPS mobility and benefit supplements on (roughly) annual rates of job change to try to reconcile evidence from the CPS and PSID on job stability. They find no change in the share of males in short jobs and some decline between the late 1980s and mid-1990s in the share of males with at least ten years of tenure.[6] Neumark, Polsky, and Hansen (1999) find a similar decline in long-term employment but conclude that this does not reflect a secular trend. Gottschalk and Moffitt (1999) use monthly data from the Survey of Income and Program Participation (SIPP) along with annual data from the SIPP and the PSID, and they find no evidence of an upward trend in job insecurity in the 1980s and 1990s. Valletta (1999) uses data from the PSID from 1976-1993 and finds some decline in long-term employment relationships.

In more recent work, Stewart (2002) uses data from the March CPS to investigate two aspects of job security. The first, the likelihood of leaving a job, shows no particular trend from 1975 through 2000 based on these data. The second, the likelihood of making an employment-to-employment transition, increased over this period while the likelihood of making an employment-to-unemployment transition decreased. Stewart concludes that the cost of changing jobs has decreased.

Stevens (2005) examines data from several longitudinal histories of older workers (late 50s and early 60s) with regard to changes over time in the length of longest job held during careers. She finds that there has been no change between the late 1960s and late early 2000s and concludes that there has not been a decline in the in the incidence of "lifetime jobs". However, the most recent cohort she examines was born in the 1940s, and it may be that more recent cohorts will have a different experience.

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[5] The Proceedings of this conference are published in Neumark (2000), and a number of these papers are published in *The Journal of Labor Economics* Volume 17, Number 4, Part 2, October 1999

[6] Unfortunately, due to the design of the PSID, neither of these studies examine the mobility experience of women.

3 Measurement and Data Issues

3.1 The CPS Data on Employer Tenure

At irregular intervals, the Census Bureau has appended mobility supplements to the January or February Current Population Surveys. The years in which they did so include 1951, 1963, 1966, 1968, 1973, 1978, 1981, 1983, 1987, 1991, and in even years from 1996-2004. These supplements contain information on how long workers have been continuously employed by their current employer, and they are asked of all eight CPS rotation groups. However, only the supplements since 1973 are available in machine-readable form. Information on job durations is also available in pension and benefit supplements to the CPS in May of 1979, 1981, 1983, and 1988, and in April 1993. These supplements contain information on how long workers have been working for their current employer, and they are asked of four of the eight CPS rotation groups. Finally, information on job durations is available in the continuous and alternative employment arrangement supplements (CAEAS) to the CPS in February of 1995, 1997, 1999, 2001, and 2005. In total there are twenty CPS supplements with information on employer tenure available in machine readable form over the period from 1973 to 2005, and my analysis relies on these data.

A question of comparability of the data over time that must be kept in mind when interpreting the results arises because of a significant change in the wording of the central question about job duration. The early mobility supplements (1951-1981) asked workers what year they started working for their current employer. In later mobility supplements (1983-2004), in all of the pension and benefit supplements (1979-1993), and in all of the CAEAS supplements (1995-2005) workers were asked how many years they worked for their current employer. If the respondents were perfectly literal and accurate in their responses (a strong and unreasonable assumption), then these two questions would yield identical information (up to the error due to the fact that calendar years may not be perfectly aligned with the count of years since the worker started with his/her current employer). But responses are not completely accurate, and this is best illustrated by the heaping of responses at round numbers. The empirical distribution function has spikes at five-year intervals, and there are even larger spikes at ten-year intervals. In the early question, the spikes occur at round calendar years (1960, 1965, etc.). Later, the spikes occur at round counts of years (5, 10, 15, etc.).

There are also subtle but potentially important changes in wording of the key questions even within these surveys. All of the mobility supplements since 1983 ask individuals how long they have worked *continuously* (italics added) for their current employer. However, neither the pension and benefit supplements nor the CAEAS include the word “continuously”. The May 1979 and 1983 pension and benefit supplements ask individuals how long they have worked for their current employer and specify that if there was an interruption greater than one year to count only the time since the interruption. The May 1988 and April 1993 supplements and the CAEAS ask individuals how long they have worked for their current employer without any reference to interruptions or continuity. Thus, it might be the case that the mobility supplements would yield shorter tenures than the pension and benefit supplements and the CAEAS due to the requirement of continuity in the former. And it might be the case that the early two pension and benefit supplements would yield shorter durations than the later two pension and benefit supplements due to the consideration of long interruptions given in the early supplements. I make no explicit allowance for these differences in my analysis, but they should be kept in mind when interpreting the results.

With the exception of jobs of less than one year, all of the supplements before the February 1996 mobility supplement collect data on job duration in integer form reporting the number of years employed. For jobs of less than one year, the mobility supplements report the number of months employed while the pension and benefit supplements report only the fact that the job was less than one year old. The February 1996 and later mobility supplement ask workers how long they have worked continuously for their current employer and accepts a numerical response where the worker specifies the time units. The 1995-2005 CAEAS ask workers how long they have worked for their current employer and accepts a numerical response where the worker specifies the time units. Virtually all workers in jobs even five years old and all workers in jobs 10 years old or longer, report job durations in years.

One reasonable interpretation of the integer report of the number of years is that workers round to the nearest integer when they report jobs of duration of at least one year.[7] For example, a response of T years would imply tenure greater than or equal to $T - 0.5$ years and less than $T + 0.5$ years. In order to create a smooth tenure variable, I assume that the distribution of job tenure is uniform in these one-year intervals. I then replace T by $T - 0.5 + u$ where u is a random variable distributed uniformly on the unit interval.[8]

My sample consists of 826,842 not self employed workers aged 20-64 from the 20 CPS supplements covering the period from 1973 to 2005. The self-employed are not included because the concept of employer tenure is less clear for the self-employed, and, in any case, the CPS supplements do not contain consistent information on tenure for the self-employed.

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[7] This ignores the heaping of the tenure distribution at multiples of five and ten years.

[8] Where reported tenure is zero years, I assume that tenure is uniformly distributed between zero and one and define tenure as u. Given that jobs are more likely to end earlier in the first year than later in the first year, this is not completely accurate (Farber, 1994). However, the measures used in my analysis will not be affected by this representation. Where reported tenure is exactly one year, I assume that true tenure is uniformly distributed between 1 and 1.5 and define tenure as $1 + u/2$.

Table 1: Distribution of Age by Birth Cohort

Birth Decade	N	Mean	SD	MIN	MAX
1914-19	12016	59.32	3.18	54	64
1920-29	50797	54.74	4.90	44	64
1930-39	85342	50.51	7.85	34	64
1940-49	172705	45.77	9.60	24	64
1950-59	234349	38.37	8.82	20	55
1960-69	167798	32.68	5.98	20	45
1970-80	91915	25.90	3.71	20	35
All	814922	38.97	11.33	20	64

Note: Based on data for not self employed workers 20-64 years of age from 20 CPSs covering the period from 1973 to 2005. Weighted by CPS final sample weights.

3.2 Measuring the Change in Tenure Over Time

I organize my analysis of changes over time in the distribution of job durations by examining age-specific values of of various distributional measures for different birth cohorts. I restrict my sample to workers aged 20-64, and my samples cover the period from 1973 to 2005. I classify workers by year of birth, and I limit my analysis to birth cohorts that are sampled at least five calendar years apart. As a result, my sample includes workers born between 1914 and 1980.[9] In order to summarize these data, I classify workers by decade of birth, classifying workers born in 1980 (aged 25 in 2005, the last sampled year) as belonging to the 1970s birth cohort. My analysis sample includes workers born in the seven decades from the 1910s through the 1970s. Table 1 contains summary statistics on age by decade of birth. The earliest birth cohorts have predominantly older workers and the more recent birth cohorts have predominantly younger workers. No single birth cohort covers the entire age spectrum.

No one statistic can completely characterize a distribution, and I focus on several measures here:

- Median and mean job tenure (years with the current employer). Note that this is not

[9] Workers born in the 1909-1913 period were sampled in 1973 but in no other years. Workers born between 1981 and 1985 were sampled in different CPSs between 2000 and 2005, but none five years apart. Elimination of workers in these birth cohorts results in the elimination of 2894 individuals born between 1909 and 1913 (0.35 percent of the overall sample) and 9026 individuals born between 1981 and 1985 (1.09 percent of the overall sample). Individuals from the early cohorts who were eliminated are ages 60-64 at the time of sampling. Individuals from the late cohorts who were eliminated are ages 20-24 at the time of sampling.

median or mean job duration since since the jobs sampled are still in progress.[10]

- The age-specific probability that a worker reports being on their job at least ten years. Because younger workers cannot have accumulated substantial job tenure, I restrict this analysis to workers at least 35 years of age, and I examine how these probabilities have evolved from early to more recent birth cohorts. Based on the statistics in table 1, there are workers aged 35 and older in my sample born in the six decades from the 1910s to the 1960s. This allows me to investigate the changes in the transition from the early "job shopping" phase of a career to more stable longer-term employment relationships in mid-career.

- The age-specific probability that a worker reports being in their job at least twenty years. Because younger workers cannot have accumulated substantial job tenure, I restrict this analysis to workers 45 years of age and older, and I examine how these probabilities have evolved from early- to mid-twentieth century birth cohorts. Based on the statistics in table 1, there are workers aged 45 and older in my sample born in the five decades from the 1910s to the 1950s. This allows me to investigate changes in the incidence of longer term employment relationship later in careers.

- The age-specific probability that a worker reports being their job for less than one year. This provides another approach to investigating changes in the transition from the early job-shopping phase of a career to more stable longer-term employment relationships. Based on the statistics in table 1, there are workers aged 24 and older in my sample born in the five decades from the 1940s to the 1980s.

An important measurement issue is related to cyclical changes in the composition of the sample. It is clear that workers with little seniority are more likely than high-tenure workers to lose their jobs in downturns (Abraham and Medoff, 1984). Thus, we would expect that the incidence of long-term important employment, as measured by the fraction of workers with tenure exceeding some threshold, to be counter-cyclical. Tight labor markets will lead the distribution of job durations to lie to the left of the distribution in slack labor markets. Since secular rather than cyclical changes are of interest here, an alternative measure of the distribution that is relatively free of cyclical movements would be useful.

A potential alternative would be to use the entire population in the relevant category (e.g., individuals in a given age range) regardless of employment status assuming that those not

[10] Akerlof and Main (19XX) argue that the expected completed duration of a job sampled at a random point is twice the observed job tenure. While this approximation may hold for a random sample of all jobs, it is not appropriate for a given job. For example, a very old worker who has been on a job for many years is very unlikely to double observed tenure on that job.

employed have zero tenure (Farber, 1995). One could compute median tenure and population fractions in different tenure categories using these population-based data . While these population-based measures do not suffer to the same degree from the cyclical fluctuations that affect the employment-based measures, they are not without problems of interpretation. Secular changes in labor supply directly affect the population-based measures. If a group has increased its labor supply over time (e.g., as women have done), the population-based measures of the incidence of long-term employment for that group are likely to be affected in hard-to-predict ways. For example, if women are less likely to leave the labor force after some initial period working, then there is likely to be an increase in the fraction of women in long-term employment relationships. Similarly, if a group has decreased its labor supply over time (e.g., as older men have done), the population-based measures for that group are likely to show a decrease in the incidence of long-term employment. Changes in population-based measures due to shifts in labor supply do not reflect changes in the underlying structure of jobs.

I choose to present employment-based measures in this study in order to avoid confusing secular changes in labor supply behavior with changes in the structure of jobs. But cyclical influences need to be kept in mind when interpreting the results.

4 The Evolution of Job Tenure

4.1 Median and Mean Tenure

Figure 1 contains separate plots by sex of median tenure by age for the five decade-of-birth cohorts from the 1920s through the 1960s.[11] These figures show clearly that 1) median tenure is rising with age and 2) women have lower median tenure than men after about age 30. With regard to shifts over time in the tenure distribution, age-specific median tenure for males has declined substantially, particularly for older workers. For example median tenure for males at age 50 declined from 11.9 years for the 1930s birth cohort to 9.7 years for the 1950s birth cohort. There appears to be little systematic change for women.

It is not necessarily the case that classifying individuals by birth decade is appropriate. There may be important differences within decade, particularly with regard to age distribution. Another approach to summarizing the data that allows each birth year to be independent is to estimate a linear model of the natural logarithm of tenure of the form

$$ln(T_{ijk}) = C_j + A_k + \epsilon_{ijk}, \tag{1}$$

[11] Medians are calculated weighted by CPS final sample weights. The 1914-1919 and the 1970s birth cohorts are omitted for clarity of presentation and because of the narrow range of ages covered by these cohorts. See 1.

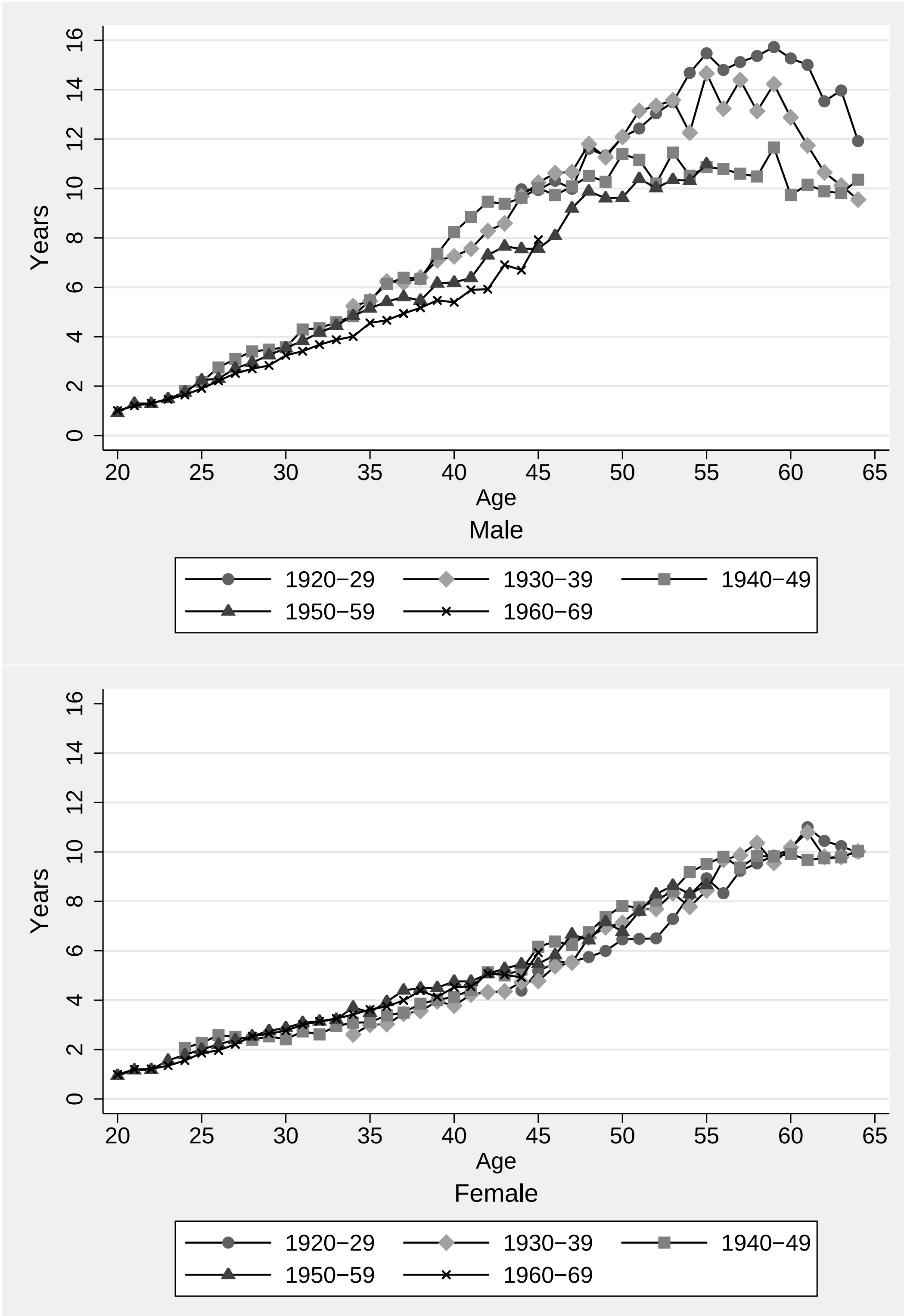

Figure 1: Median Tenure, by Sex, Age, and Birth Cohort

where T_{ijk} is tenure in years for individual i in birth cohort j aged k, C_j is a birth year indicator, and A_k is a years-of-age indicator. This logarithmic specification embodies the plausible implicit assumption that proportional cohort effects on mean tenure are constant across ages and, equivalently, that the proportional age effects on mean tenure are constant across birth cohorts.[12] A more detailed investigation would allow for cohort effects that vary by age since changes in job security could express themselves differentially at various ages. However, this model fits the data quite well, and it serves as a good summary of the data.[13]

I estimate the model in equation 1 separately for men and women using ordinary least squares (OLS), weighted by the CPS final sample weights. The estimated cohort effects, normalized at zero for the 1914 birth cohort are converted to proportional effects relative to the 1914 birth cohort as $exp(\hat{C}_j - \hat{C}_{1914}) - 1$. These proportional effects are plotted in the top panel of figure 2, and they show a sharp decline of almost 50 percent in the age-specific cohort effect on tenure for male workers between the 1914 and 1980 birth cohorts.

The time-series pattern is quite different for female workers. Age-specific mean tenure for female workers did not change between the 1914 and 1940 birth cohorts, but it increased by about 15 percent between the 1940 and 1960 birth cohorts before declining to its original level by the 1970 birth cohort. The increase in mean tenure for women between the 1940 and 1960 birth cohorts reflects the increased commitment of women to the labor force for women born in this period tempered by 1) high rates of withdrawal from the labor force, even if only for a short time, in the child-bearing years and 2) the general decline in long-term employment opportunities apparent in the data for males. The subsequent decline in tenure for females may reflect a general decline in long-term employment opportunities that is not offset by a further increase in female commitment to the labor force.

I repeat this analysis for median tenure by calculating weighted median log tenure $ln(M_{jk})$ for each birth year j by age k cell.[14] I then estimate by OLS

$$ln(M_{jk}) = C_j + A_k + \mu_{jk} \tag{2}$$

in order to derive cohort effects for median age-specific tenure assuming that age effects on

[12] I do not estimate this model using absolute tenure because the implicit assumption in that case would be that absolute cohort effects on mean tenure are constant across ages and, equivalently, that absolute age effects on mean tenure are constant across birth cohorts. This is clearly not plausible on inspection of fig01, given the fact that younger workers have very low levels of tenure.

[13] I computed (separately for men and women) weighted mean and median tenure for each age/birth-year combination and regressed these measures on a complete set of age and birth year fixed effects. This is essentially the main-effects model in equation 1 aggregated to the cell level. The R-squared from the median regression is 0.94 for men and 0.95 for women. The R-squared from the mean regression is 0.98 for both men and for women.

[14] Note that median log tenure and log median tenure are identical given the monotonicity of the logarithmic transformation.

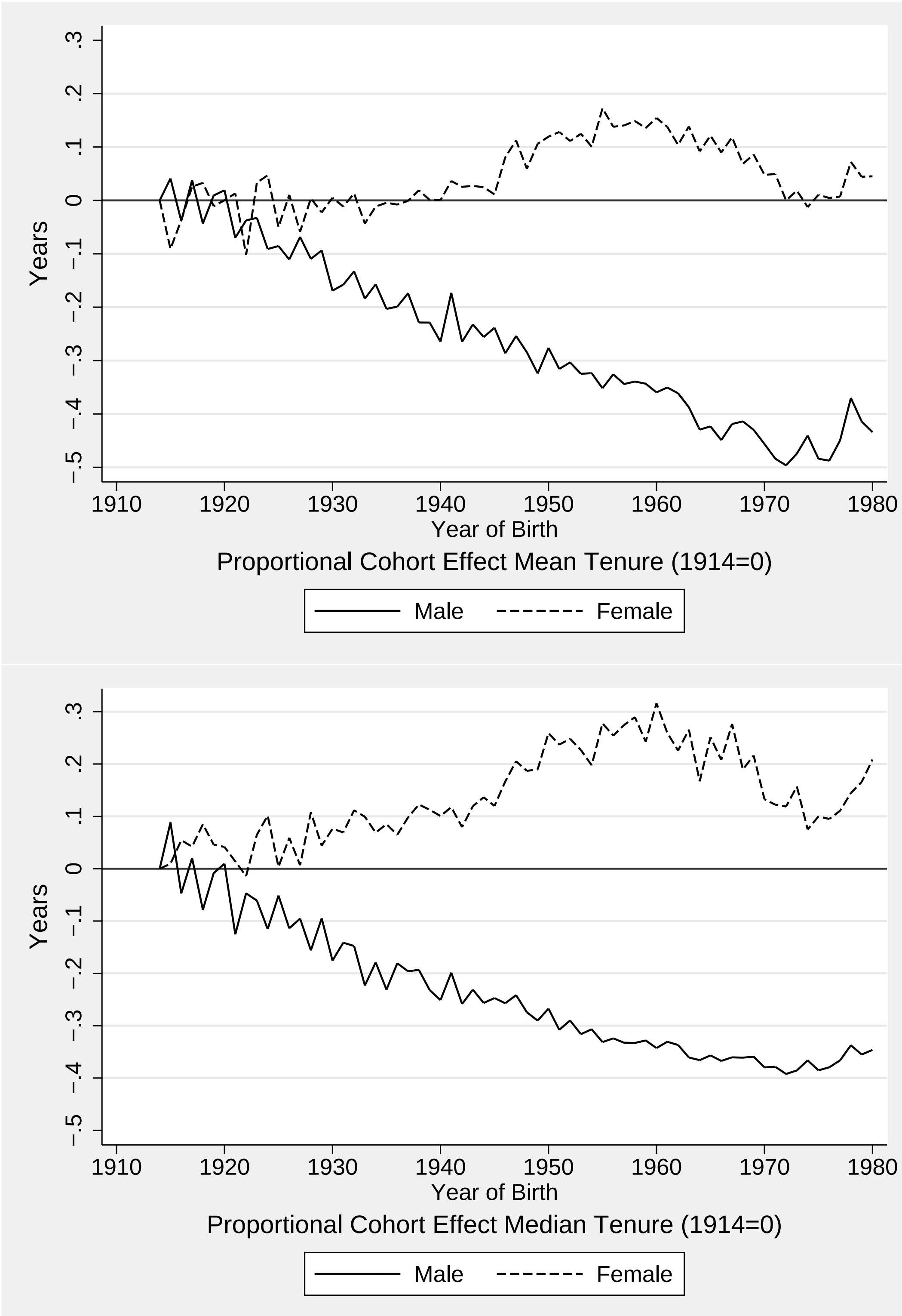

Figure 2: Proportional Cohort Effects on Mean and Median Tenure by Birth Year Controlling for Age

median log tenure are constant across birth cohorts and cohort effects on median log tenure are constant across ages.

The bottom panel of figure 2 contains the plot of the implied proportional birth cohort effects ($exp(\hat{C}_j - \hat{C}_{1914}) - 1$) on median tenure. The general pattern of median cohort effects for the median is very similar to the pattern of the cohort effects for the mean in the top panel. Both show a sharp decline in tenure for men and a smaller increase for women followed by some decline. Indeed, the simple correlation between the mean and median cohort effects is 0.98 for males and 0.93 for females. Interestingly, the decline in median tenure for males is smaller at about 40 percent than the decline in mean tenure and the increase in median tenure for women at about 25 percent is larger than the increase in mean tenure.

Given the similarity between the movements in mean and median tenure and the fact that it is more convenient analytically to work with means, I continue using mean tenure to investigate whether changing labor force composition can account for the decline in these measures of tenure.

4.1.1 Education and the Decline in Tenure

In addition to the increased presence of women in the labor force, there are other important changes that could be related to the decline in tenure. First is the well-known large increase in average educational attainment during the 20th century summarized in table 2. While there is not a clear relationship between educational attainment and tenure, I investigate

Table 2: Distribution of Education by Birth Cohort
(Row Percentage in Education Category)

Birth Decade	ED $<$ 12	ED $=$ 12	ED 13-15	ED $\geq$ 16
1914-19	39.53	37.54	10.92	12.02
1920-29	31.18	39.30	12.83	16.69
1930-39	21.28	40.57	16.57	21.58
1940-49	11.91	35.77	22.95	29.37
1950-59	8.46	33.96	27.33	30.26
1960-69	8.80	33.46	27.73	30.02
1970-80	8.64	28.60	29.68	33.08
All	12.28	34.76	24.56	28.40

Note: Based on data for not self employed workers 20-64 years of age from 20 CPSs covering the period from 1973 to 2005. Weighted by CPS final sample weights.

how the decline in job tenure is related to the general increase in educational attainment.[15] I begin by estimating separate versions of equation 2 for each of four educational categories ($ED < 12$, $ED = 12$, ED $13-15$, an $ED \geq 16$). This allows me to determine whether the changes in the tenure distribution over time are common across educational categories.

The top panel of figure 3 contains plots for each of four education categories of the age-specific birth cohort effects for males. Mean tenure has fallen for all education categories, with the largest decline since 1914 for college graduates. The bottom panel contains the same plots for females, and it shows a small increase in mean tenure for all education categories from the 1925 birth cohort through the 1960 birth cohort.

Next, I estimate an augmented version of the regression model for mean tenure in equation 1 as

$$ln(T_{ijk}) = ED_i\gamma + C_j + A_k + \epsilon_{ijk}, \tag{3}$$

where ED_i is a vector of dummy variables indicating educational attainment and γ is a vector of associated coefficients. This provides a summary across educational categories of the proportional birth cohort effects on mean tenure ($exp(\hat{C}_j - \hat{C}_{1914}) - 1$) controlling for changes in the educational distribution over time. These estimates are plotted in figure 4, and, while they are very similar in shape to those derived without controlling for education (figure 2), there are some differences. Accounting for changes in the distribution of education, the estimated decline in mean tenure for males was approximately 40 percent between the 1914 and 1975 cohorts compared to a 50 percent decline when education is not controlled for. I conclude that about 20 percent of the decline in tenure for males between the 1914 and 1975 cohorts is due to a change in the distribution of education. When education is accounted for, women show no increase in mean tenure between the 1914 and 1960 cohorts followed by a decline of about 10 percent between the 1960 and 1975 cohorts.

4.1.2 Increased Immigration and the Decline in Tenure

A second and potentially more important factor that could account for the decline in tenure is the increased presence of immigrants in the U.S. labor force. By definition, newly arrived immigrants cannot have substantial tenure. Data on immigration is not available in any CPS with tenure data prior to 1995, and I begin my investigation using data from the 10 CPSs with tenure and immigration data between 1995 and 2005. In order to have data for each birth cohort over a five calendar year period, I further restrict my analysis to the 1935-1980 birth cohorts. The weighted immigrant fraction of the labor force in my sample increased steadily from 9.45 percent in 1995 to 14.1 percent in 2005. In every year, immigrants had

[15] Mean tenure in my analysis sample for each of the four educational categories are ED<12: 7.3 years, ED=12: 7.4 years, ED 13-15: 6.5 years, and ED $\geq$ 16: 7.3 years.

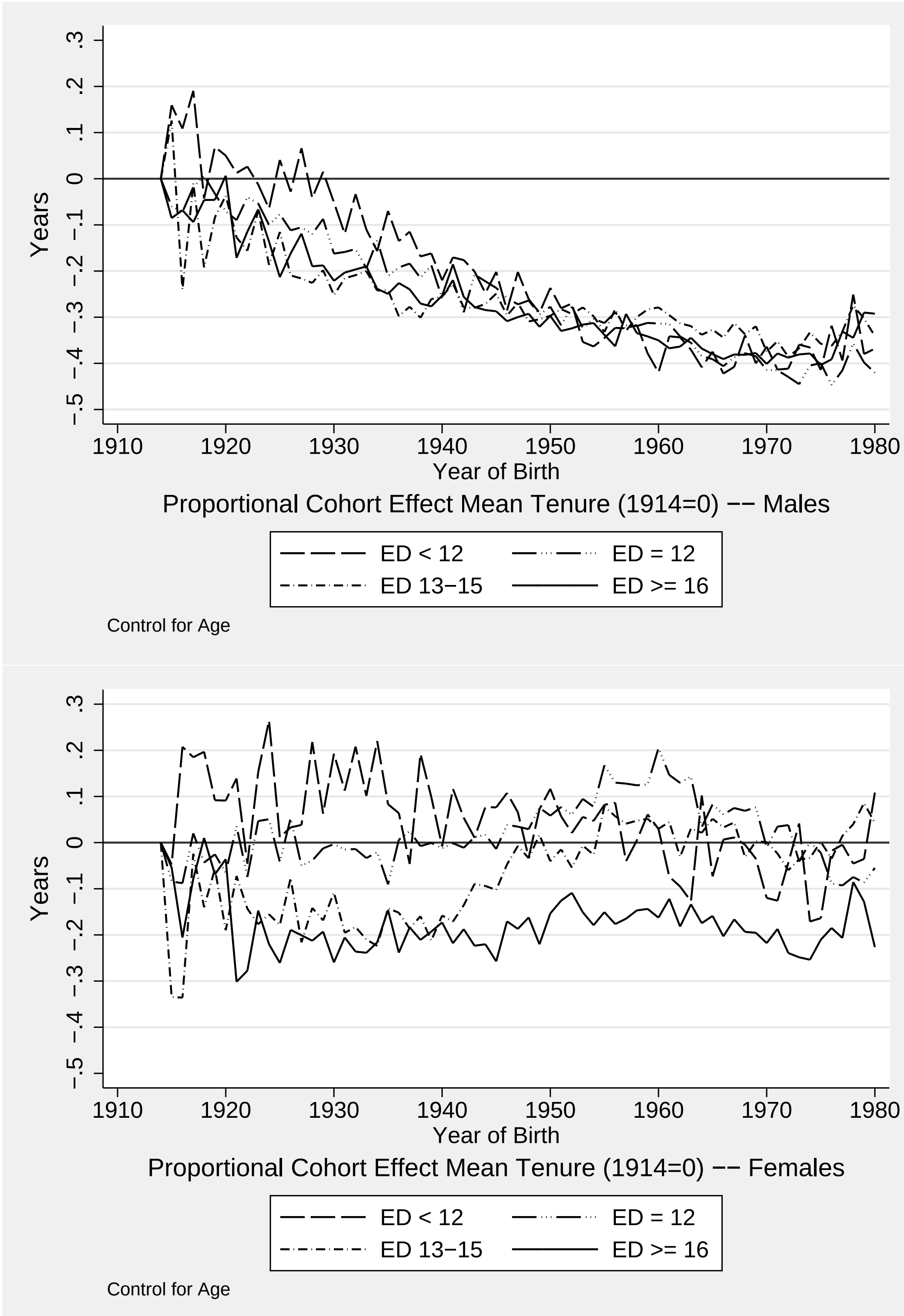

Figure 3: Proportional Cohort Effects on Mean Tenure by Birth Year Controlling for Age: by Education

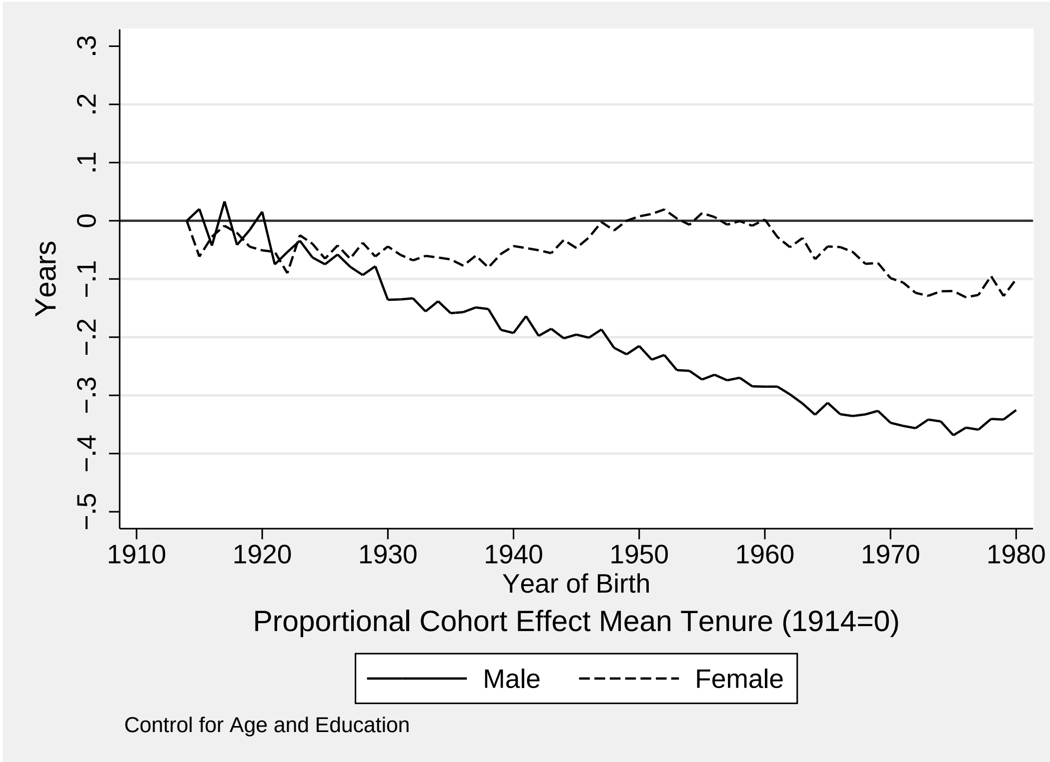

Figure 4: Proportional Cohort Effects on Mean Tenure by Birth Year Controlling for Age and Education

about 2.1 years lower tenure than natives on average (overall average difference = 2.14 years (s.e. = 0.036)). Immigrants are only slightly younger than natives (overall average difference = 0.94 years (s.e. = 0.053)).

The key question is how much of the decline in observed tenure is due to the increased immigrant presence in the labor force. Figure 5 contains separate plots of cohort effects (1935=0) for natives and immigrants using the 1995-2005 data. The plot for natives in the top panel shows a substantial decline in age-specific average tenure for both native men and native women between the 1940 and 1975 birth cohorts. The decline for native males is of the same magnitude of the decline for males between the 1940 and 1975 cohorts in the overall sample as shown in figure 4. The decline for native females is somewhat larger than decline for females overall.

The bottom panel of figure 5 contains the cohort effects for immigrants. These are somewhat noisy but show some decline for immigrant males between the 1945 and 1950 birth cohorts before leveling off. The cohort effects for immigrant females shows a slow and relatively small decline between the 1950 and 1975 birth cohorts.

In order to summarize the effect of increased immigration on changes over time in job

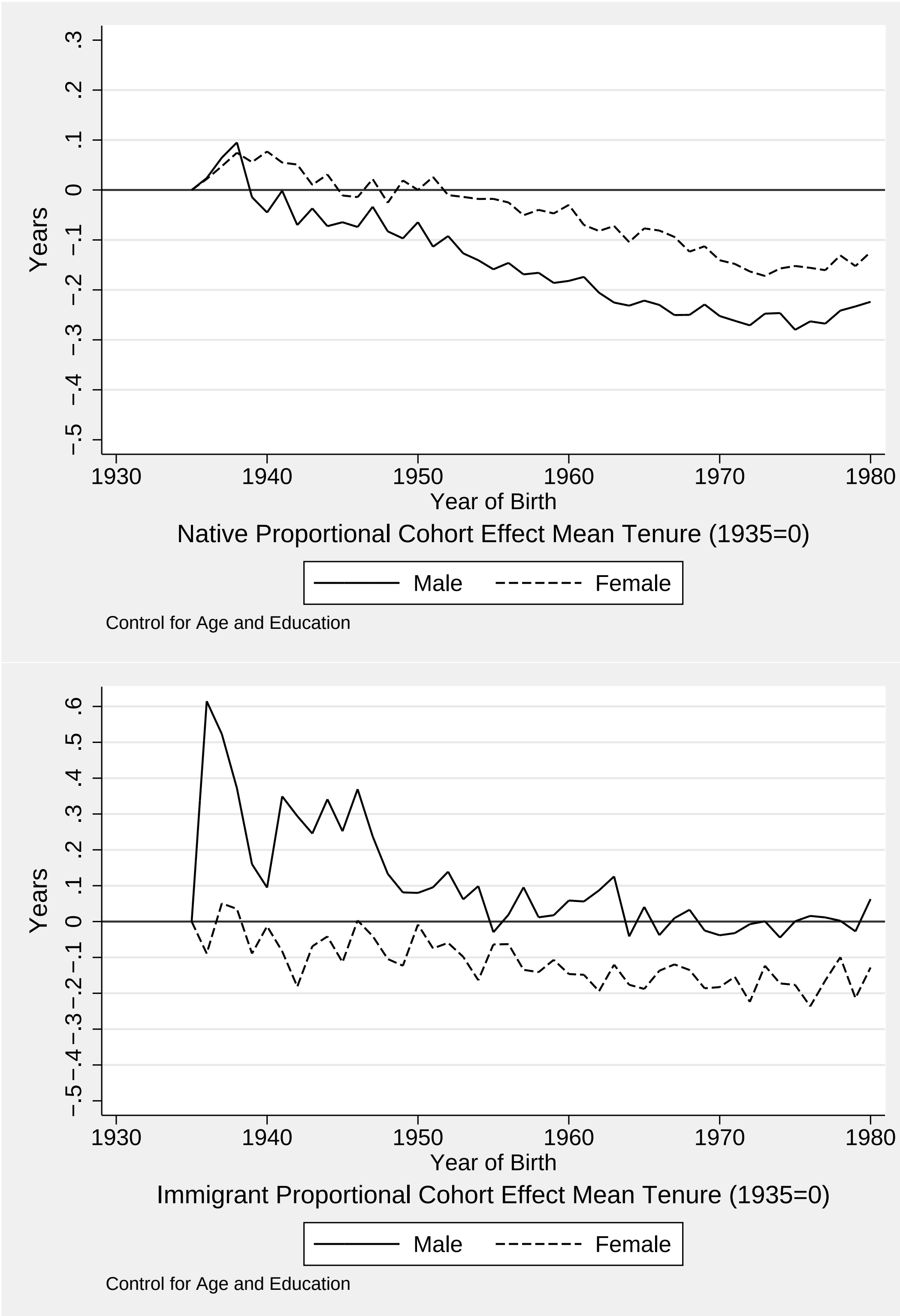

Figure 5: Proportional Cohort Effects on Mean Tenure by Birth Year Controlling for Age and Education: Native Born and Immigrants

tenure, I reestimated the basic model including an indicator for immigrant status (=1 if immigrant). This model is

$$ln(T_{ijk}) = \alpha IMM_i + ED_i\gamma + C_j + A_k + \epsilon_{ijk}, \tag{4}$$

where IMM_i is an indicator variable if worker i is an immigrant. The estimates of the immigrant effect on log tenure (α) is -0.247 (s.e. = 0.006) for males and -0.218 (s.e. = 0.007) for females. The birth cohort effects from a base model without the immigrant variable (equation 3) are plotted in the top panel of figure 6. The bottom panel of this table contains the birth cohort effects from the model with the immigrant variable (equation 4).

The base model shows a 30 percent decline in age-specific tenure for male workers between the 1935 and 1975 birth cohorts. When immigrant status is controlled for, the decline in tenure for males between these birth cohorts is 25 percent. A similar pattern emerges for females, with a decline of 18 percent without a control for immigrant status and a decline of 15 percent with a control for immigrant status. Overall, it appears that about one-sixth of the decline in age-specific tenure between the 1935 and 1975 birth cohorts is due to an increase in immigration.

A remaining problem is that immigration status is not observable prior to 1995 so that this analysis does not use information on the 21 birth cohorts between 1914 and 1934. However, immigrant status is strongly correlated with race and Hispanic ethnicity, which is observed in all years. Table 3 contains the immigrant proportion by race and Hispanic ethnicity for the 1995-2005 CPS data. The overall immigrant proportion of workers rose

Table 3: Proportion Immigrants by Race and Hispanic Ethnicity, 1995-2005

Year	All	White NonHisp	Nonwhite NonHisp	All Hisp	White Hisp	Nonwhite Hisp
1995	0.095	0.030	0.187	0.506	0.509	0.492
1996	0.100	0.032	0.226	0.494	0.493	0.510
1997	0.109	0.032	0.232	0.516	0.518	0.484
1998	0.117	0.035	0.240	0.517	0.516	0.526
1999	0.111	0.033	0.222	0.495	0.498	0.448
2000	0.121	0.038	0.239	0.517	0.514	0.585
2001	0.129	0.039	0.261	0.522	0.520	0.557
2002	0.130	0.040	0.270	0.528	0.527	0.543
2004	0.142	0.042	0.280	0.531	0.538	0.439
2005	0.141	0.037	0.275	0.538	0.545	0.439
All	0.119	0.036	0.244	0.517	0.519	0.495

Note: Based on data for not self employed workers 20-64 years of age from 10 CPSs covering the period from 1995 to 2005. Weighted by CPS final sample weights. N=418,178.

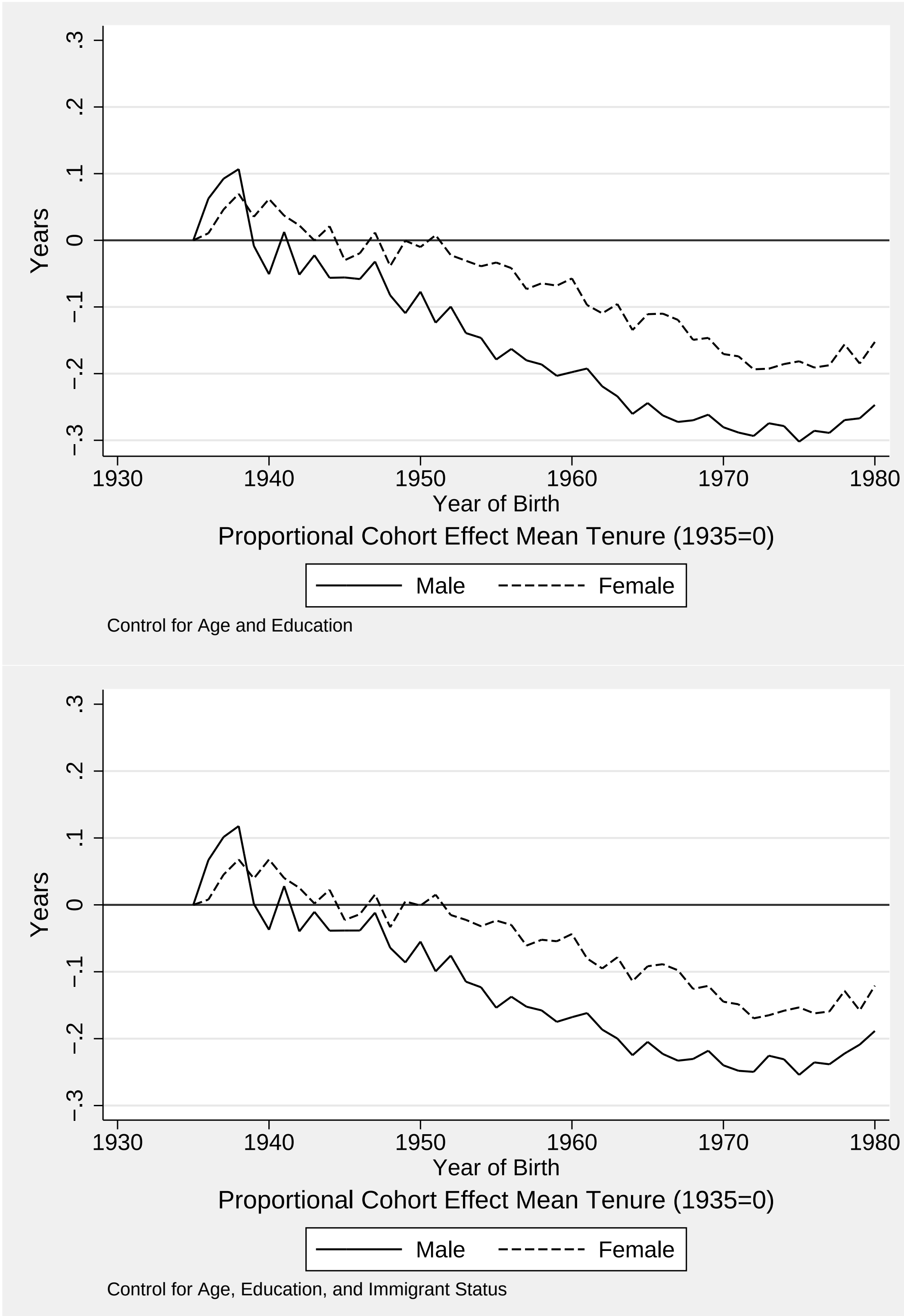

Figure 6: Proportional Cohort Effects on Mean Tenure by Birth Year Controlling for Age, and Education (Immigrant Status Controlled in Bottom Panel)

from 9.5 percent in 1995 to 14.1 percent in 2005. These immigrants are highly concentrated among nonwhites and Hispanics. Only 3.6 percent of white non-Hispanics are immigrants, while about fifty percent of Hispanics (white and nonwhite) are immigrants.[16] Additionally, a growing fraction of nonwhite non-Hispanics are immigrants, rising from 18.7 percent in 1995 to about 28 percent by 2004. The rising overall immigrant share over this period is reflected in the growing share of Hispanics and nonwhites in the labor force. The Hispanic share of employment in my sample increased from 9.0 percent in 1995 to 13.0 percent in 2005 and the nonwhite share of employment increased from 15.2 percent to 17.2 percent over the same period.

On this basis, I estimate age-specific birth cohort effects on tenure using the 1973-2005 sample for the 1914-1980 birth cohorts controlling for race and ethnicity as well as age and education. This allows me to at least partly account for the role of increased immigration in the decline in tenure. I derive the birth cohort effects by estimating

$$ln(T_{ijk}) = \alpha_1 NW_i + \alpha_2 H_i + ED_i\gamma + C_j + A_k + \epsilon_{ijk}, \quad (5)$$

where NW_i is an indicator for nonwhite and H_i is an indicator for Hispanic ethnicity.

Figure 7 contains separate plots for males and females of the birth cohort effects based on equation 5. The cohort effects for males show a decline in age-specific tenure of about 32 percent between the 1914 and 1975 birth cohorts. This contrasts with an estimated decline over the same period of about 36 percent when there are no controls for race and Hispanic ethnicity (figure 4). Thus, only about 10 percent of the decline in tenure is related to changes in racial and ethnic composition. This is likely a lower bound on the effect of increased immigration.[17] The pattern for females in figure 7 is very similar to that obtained when race and Hispanic ethnicity are not accounted for (figure 4). Age specific tenure for females peaks for cohorts born in the mid-1950s and declines about by 12 percent subsequently.

4.2 Long-Term Employment

Long-term employment is common in the U.S. Labor Market. During the 1973-2005 period, 49.4 percent of employed males and 37.2 percent of employed females aged 40-64 report having been with their current employer for at least ten years. Over the same period, 33.3 percent of employed males and 18.1 percent of employed females aged 50-64 report having

[16] The rather sharp drop in the immigrant proportion among nonwhite Hispanics is due to the change in the race identification coding in the CPS in 2004.

[17] Over the 1995-2205 period, where I have data on immigrant status, I estimated that increased immigration accounted for about 15 percent of the decline in mean tenure.

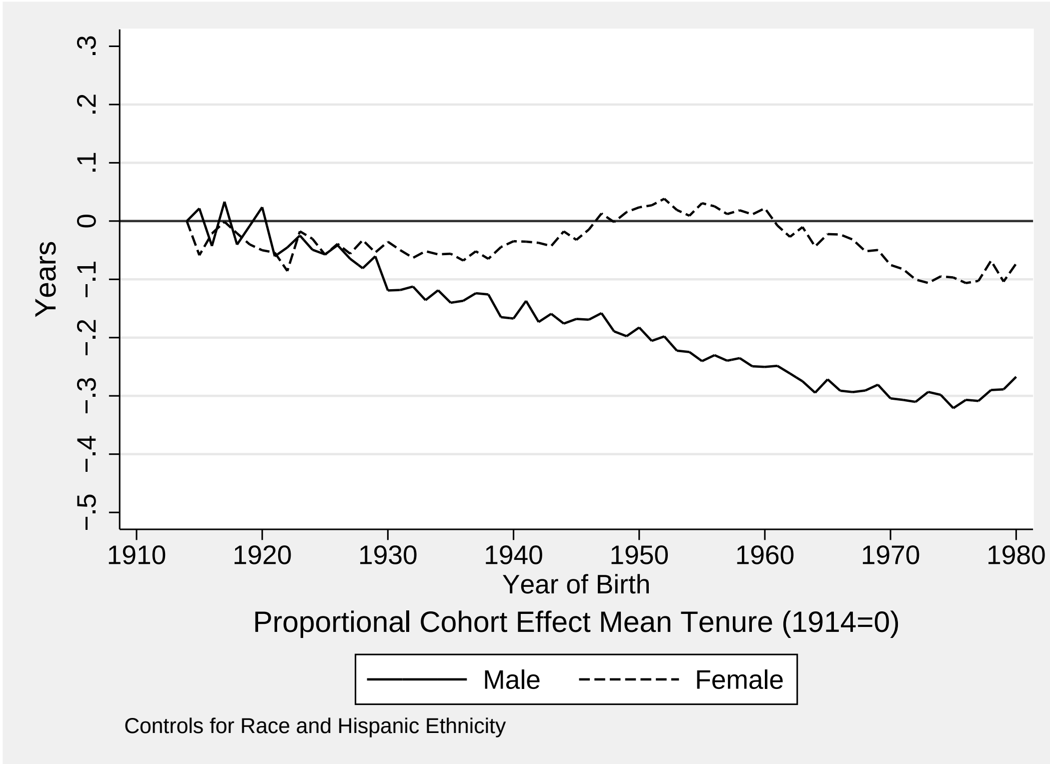

Figure 7: Proportional Cohort Effects on Mean Tenure by Birth Year Controlling for Age, Education, Race, and Hispanic Ethnicity

been with their current employer for at least twenty years. However, the declines in age-specific mean tenure are also apparent in measures of the age-specific incidence of long-term employment.

In order to investigate this, I consider two measures of long-term employment:

- the fraction of workers aged 35-64 who have been with their employer at least ten years, and
- the fraction of workers aged 45-64 who have been with their employer at least twenty years.

I estimate age-specific birth-cohort effects using the same approach I used for means. I estimate linear probability models using the same specification of explanatory variables (birth cohort, age, education, race, Hispanic ethnicity) in equation 5.

The top panel of figure 8 contains separate plots for males and females of the birth cohort effects (1914=0) from a linear probability model for the probability that a worker has been with the same employer for ten or more years. Control variables include a set of age fixed effects, education, race, and Hispanic ethnicity. The age-specific probability that a

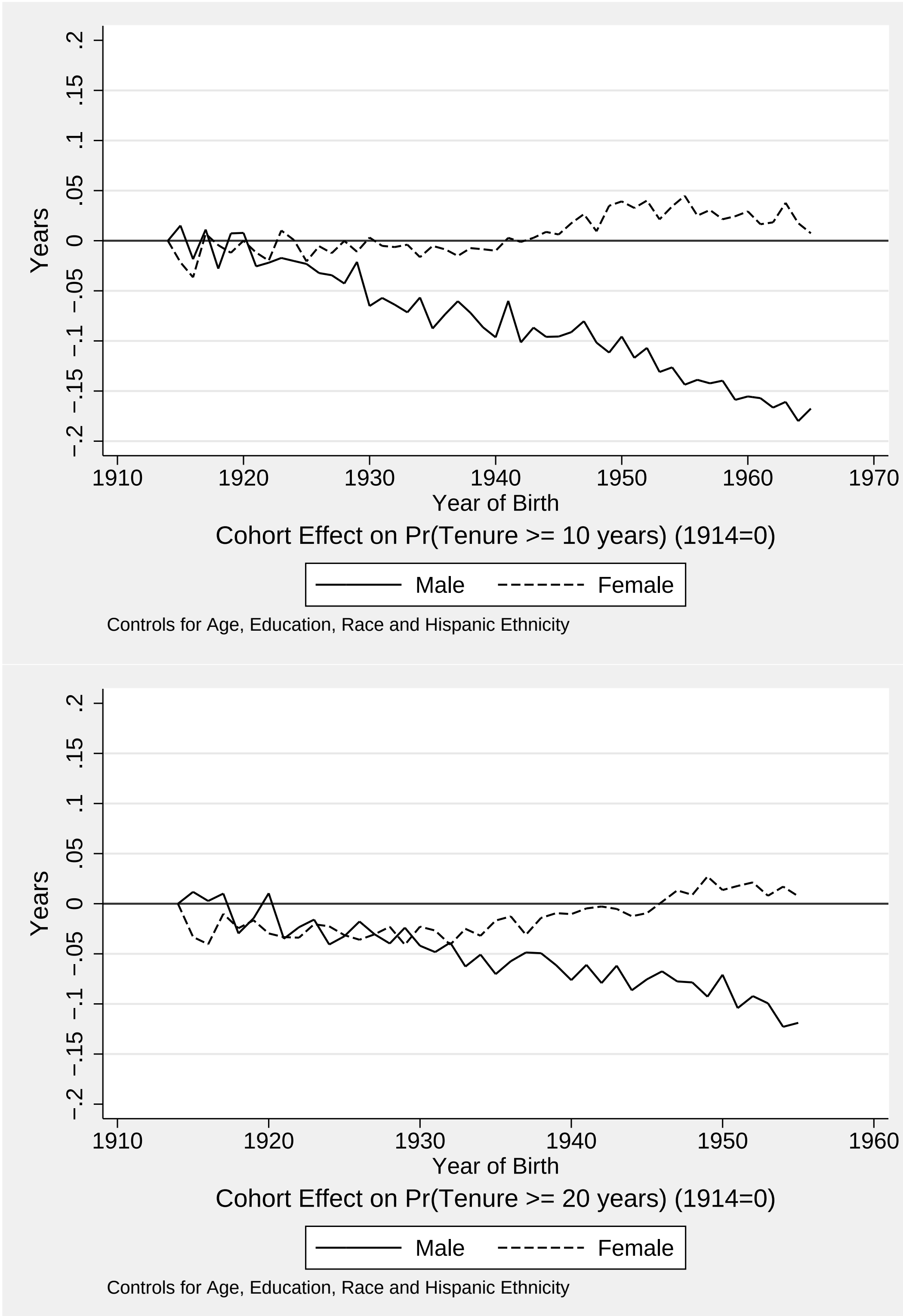

Figure 8: Cohort Effects on $Pr(T \geq 10)$ and $Pr(T \geq 10)$ by Birth Year

male worker has been with his employer for at least ten years fell dramatically by almost 20 percentage points between the 1914 and 1965 birth cohorts.[18] The age-specific probability that a female worker has been with her employer for at least ten years was constant between the 1914 and 1940 birth cohorts and then increased slightly between the early 1940s and late 1950s cohorts before declining to its original level.

I repeat this analysis for the probability that workers aged 45-64 have been with their employer at least twenty years. The bottom panel of figure 8 contains separate plots for males and females of the birth cohort effects (1914=0) from a linear probability model for the probability that a worker has been with the same employer for twenty or more years. As before, control variables include a set of age fixed effects, education, race, and Hispanic ethnicity. The age-specific probability that a male worker has been with his employer for at least twenty years fell sharply by almost 12 percentage points between the 1914 and 1955 birth cohorts.[19] The age-specific probability that a female worker has been with her employer for at least ten years was fairly steady between the late 1910s and the mid-1930s birth cohorts before rising through 1950.

Taken together, the analysis of the change in mean tenure across cohorts and the analysis of the change in the likelihood of long-term employment across cohorts shows clearly that long-term employment has become much less common for males and has not changed substantially for females despite the dramatically increased commitment of females to the labor force over the past half century. It appears that younger workers will be less likely than their parents to have a "life-time" job.

5 Churning: Are There More Very Short Jobs?

The opposite but related pole of the job tenure distribution is short-term jobs. Farber (1994, 1999) presents evidence that half of all new jobs (worker-employer matches) end within the first year. As I show below, a substantial fraction (around 20 percent) of all jobs have current tenure less than one year ("new jobs"). Not surprisingly, young workers are more likely to be in new jobs, defined here as a job on which the worker reports tenure less than one year. High rates of job change among young workers are a natural result of search for a good job or a good match.[20] Older workers are less likely than younger workers to be in new jobs.

[18] I do not include any birth cohorts after 1965 because they have not been observed in my sample over a five year period.

[19] I do not include any birth cohorts after 1955 because they have not been observed in my sample over a five year period.

[20] Burdett (19??) presents a model of job search with this implication. Jovanovic (19??) presents model of matching in the labor market with the same implication.

This contrast by age raises two interesting questions regarding the decline in mean tenure and long term employment and how this decline is related to the rate of "churning" in the labor market:

1. Are young workers taking longer to find good (long-lasting) matches or jobs? This would imply an increase in the new-job rate among younger workers.

2. Are older workers having more difficulty finding good matches when they lose jobs that may formerly have been "lifetime" jobs? This would imply and increase in the new-job rate among older workers.

Table 4 contains the new job rate by ten-year age group for males and females. This illustrates the sharp decline in the new-job rate as workers age through their twenties especially and into their thirties. The new-job rate is slightly higher for females in all age groups, but the general pattern is the same as that for males.

In order to investigate how the new-job rate has changed over time, I estimate age-specific birth-cohort effects using the same approach I used for means and for the probability of long-term employment. I estimate linear probability models of the probability of being in a new job using the same specification of explanatory variables (birth cohort, age, education, race, Hispanic ethnicity) in equation 5.

Figure 9 contains separate plots for males and females of the birth cohort effects (1914=0) from a linear probability model for the probability that a worker is on a job less than one year. Control variables include a set of age fixed effects, education, race, and Hispanic ethnicity. The age-specific probability that a male worker has been with his employer for less than one year has increased by about 6 percentage points between the 1914 and 1970 birth cohorts. The age-specific probability that a female worker has been with her employer for at least ten years was constant between the 1914 and 1940 birth cohorts and then fell by

Table 4: New Job Rate, by Sex, 1973-2005

Age	All	Male	Female
Age 20-29	0.349	0.335	0.365
Age 30-39	0.181	0.161	0.206
Age 40-49	0.124	0.110	0.139
Age 50-59	0.090	0.084	0.097
Age 60-64	0.076	0.075	0.078
All	0.191	0.176	0.207

Note: Based on data for not self employed workers 20-64 years of age from 19 CPSs covering the period from 1973 to 2005. Weighted by CPS final sample weights. N=826,842.

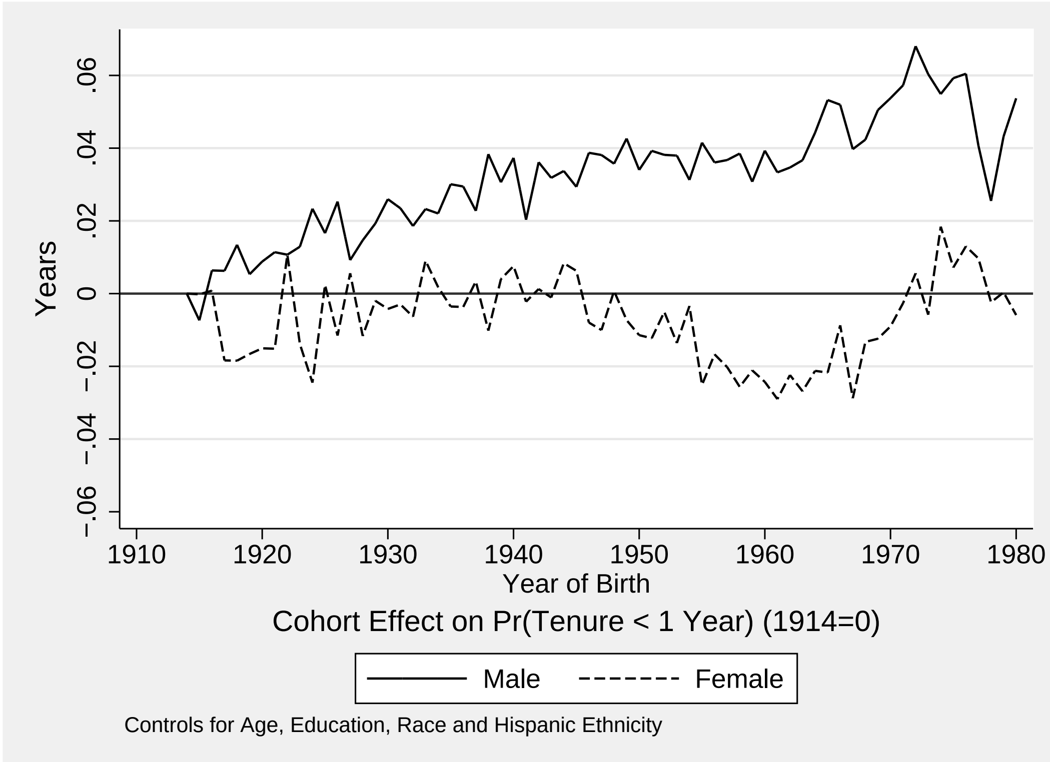

Figure 9: Cohort Effects on $Pr(T < 1)$ by Birth Year

about 2.5 percentage points by the 1960 birth cohort before increasing to its original level. These patterns mirror those found for mean tenure and for long-term employment.

An implicit constraint in my model is that cohort effects are constant across age groups. Given the role that job change plays in matching and job search early in careers, I estimate separate birth cohort effects for different age groups. The top panel of figure 10 contains birth cohort effects (1949=0) estimated using a sample of workers aged 20-29.[21]. These estimates, which are very similar for males and females, show a sharp *decline* between the 1949 and 1960 cohorts followed by an increase through the early 1970s cohorts again followed by a decline. There is no consistent pattern evident.

The bottom panel of figure 10 contains birth cohort effects (1949=0) estimated using a sample of workers aged 30-39.[22] These estimated cohort effects differ substantially from those for workers in their twenties. There is a substantial increase of about 3 percent in the new job rate for males, and decrease of over 4 percent for females between the 1939 and 1955 cohorts. The pattern for males is consistent with the hypothesis that men are job shopping

[21] The sample includes birth cohorts between 1949 and 1980

[22] This sample includes birth cohorts between 1939 and 1970.

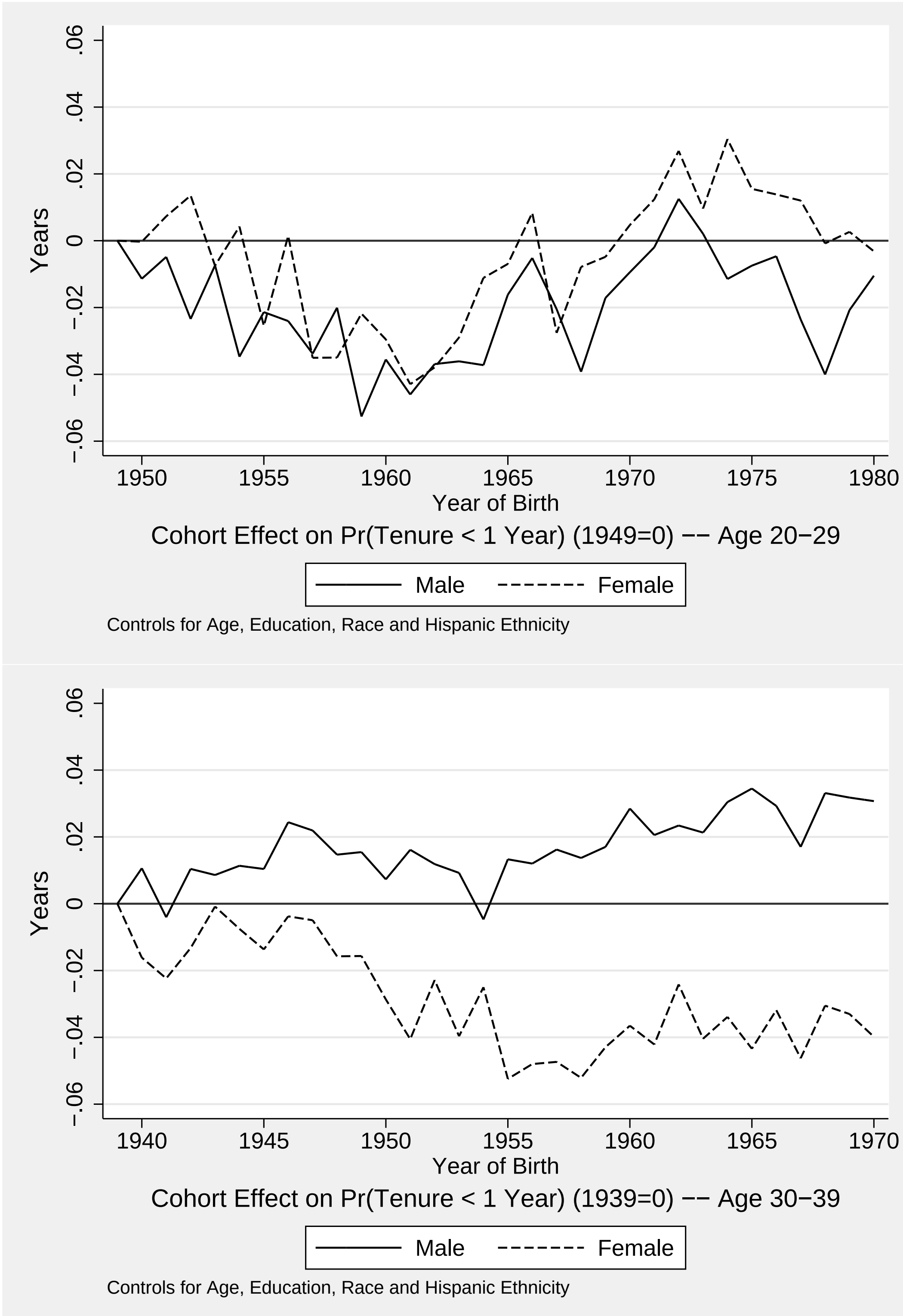

Figure 10: Cohort Effects on $Pr(T < 1)$ by Birth Year (Age 20-29 and 30-39)

in their twenties but have become less likely to settle into longer-term jobs in their thirties. The pattern for females may reflect an increase in commitment to the labor force by women as they enter their thirties.

Given that older workers are less likely to be in long-term jobs, I next investigate how the new-job rate has changed for workers aged 40 and older. The top panel of figure 11 contains birth cohort effects (1929=0) estimated using a sample of workers aged 40-49.[23]. The bottom table of this figure contains birth cohort effects (1914=0) estimated using a sample of workers aged 50-64.[24]. Both plots show an increase in the probability of being on a new job for males. The magnitude of the increase (about 2 percentage points) is substantial when compared to the overall mean new job rates for older men in table 4. The new job rate for women in their forties shows no consistent pattern. There is a small decrease for the oldest women.

The overall pattern of change over time with regard to the age-specific new-job rate shows a general increase over time for men aged 30 and older. There is not much change over time in the age-specific new-job rate for women aside from a fairly substantial decline for women in their thirties, likely reflecting a reduced likelihood of withdrawing from the labor force at that point.

6 Concluding Remarks

Long-term employment relationships in the United States, while not a thing of the past, are not as dominant as they once were. Males 35-64 in recent birth cohorts (circa 1965) are almost 20 percentage points less likely to be in ten-year jobs as males in the same age range born circa 1920. Similarly, males 45-64 in recent birth cohorts (circa 1955) are about 12 percentage points less likely to be in twenty-year jobs as males in the same age range born circa 1920.

Further analysis of churning in the labor market as reflected in the new-job rate (the fraction of jobs with tenure less than one year) indicates that there has consistently been a high level of turnover for young workers (less than 30 years of age), both male and female. However, as these workers age into their thirties, it appears that males have become less likely to settle into longer-term jobs as reflected by an increase in the new-job rate for males in their thirties since the 1955 birth cohort. In contrast females in their thirties have become more likely to stay in their jobs.

The reasons for the changes in the structure of jobs that has yielded these changes are unclear. They may reflect less desire by employers for a stable committed labor force, perhaps

[23] This sample includes birth cohorts between 1929 and 1960

[24] This sample includes birth cohorts between 1914 and 1950

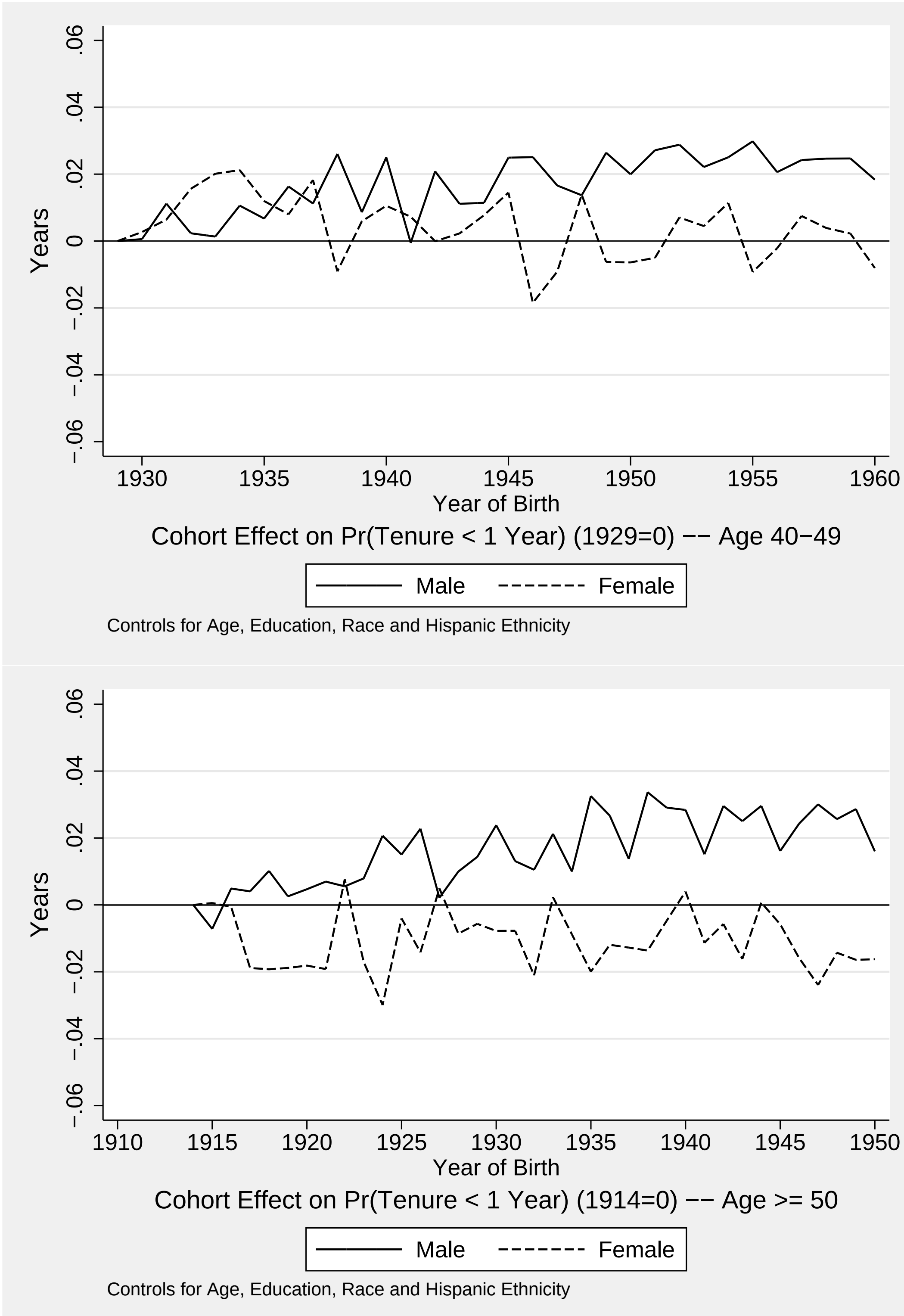

Figure 11: Cohort Effects on $Pr(T < 1)$ by Birth Year (Age 40-49 and 50-64)

due to increased competitive pressure. What is clear is that young workers today should not look forward to the same type of career as was experienced by their parents. They are more likely to change jobs and less likely to remain with the same employer for a long period of time.

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