



## **Trends in Elective Deferrals of Earnings from 1990–2001 in Social Security Administrative Data**

### ***Summary***

This note examines trends in elective deferrals from 1990 through 2001. Elective deferrals of earnings—401(k)-type plans and similar arrangements for deferring income taxation of earnings placed in retirement accounts—first became common in the early 1980s and have grown in popularity since then. Trends in elective deferrals are potentially important in analyzing historical earnings data and in projecting future Social Security earnings. The deferrals, however, were not explicitly identified in the Social Security Administration’s data on individual earnings until 1990, even though implicit and incomplete information exists since 1984. In this study, accordingly, only the data since 1990 is tabulated.

The tabulations indicate that the percentage of workers with deferrals has been rising at all earnings levels. In 1990, earners in the top half of the earnings distribution were more likely to have deferrals than earners lower in the distribution, and since then this difference has grown. A strong age pattern in percentage of workers with deferrals seems to be mostly explained by this higher propensity to take deferrals among high earners. The peak earnings ages of workers also have the higher percentage of deferrals, and earners of the same sex and earnings level have very little difference by age in the percentage with deferrals. Low-earner participation in deferrals was close to zero in 1990 and the low-earner share of deferrals has risen since then, although the percentage of low earners with deferrals has risen less than the percentage of high earners with deferrals.

Overall, elective deferrals have been growing as a percentage of total aggregate earnings. The portion of total earnings that is received as elective deferrals has risen at least slightly over time at all earnings deciles for men and throughout the upper 70 percent of the earnings distribution for women.

### ***Introduction***

Elective deferrals, of which 401(k) contributions are the most common type, have been a growing component of employee pay (compensation) since the early 1980s. Since 1984, elective deferrals have been included in Old-Age, Survivors, and Disability Insurance (OASDI) taxable wages but not in wages reportable as taxable for the federal personal income tax. However, the Social Security Administration (SSA) has only received reports of elective deferrals as a separate earnings item since 1990. From 1984 through 1989, therefore, Social Security administrative data only include elective deferred amounts for

---

\*David Pattison and Hilary Waldron are both with the Division of Economic Research, Office of Research, Evaluation, and Statistics, Office of Retirement and Disability Policy, Social Security Administration.

*Acknowledgments:* The authors thank Bill Kearns for assistance obtaining and interpreting the data and Sharmila Choudhury, Fred Galeas, Joyce Manchester, and Susan Grad for comments.

Social Security–covered workers whose earnings are under the OASDI taxable maximum (tax max). After 1990, the OASDI taxable earnings field in the Master Earnings File (MEF) *still* only includes deferred amounts for Social Security–covered workers who are under the OASDI tax max. This is because the OASDI taxable earnings field only records earnings up to the OASDI tax max. However, Social Security administrative data also contain elective deferral amounts for all groups recorded as a separate field. Thus, complete deferred information can be obtained for all groups as shown in Table 1.

This study, accordingly, limits itself to the explicitly reported elective deferrals available for the whole workforce at all earnings levels from 1990 through 2001. Trends in deferrals are of interest for several reasons. Wages, including elective deferrals, are only a part of overall employee compensation, which can also include employer payments for health insurance and retirement plans. Projection of the linkage between future compensation and future wages will depend on how much elective deferrals grow, how much of the growth is a shift from already-deferred compensation (from, for example, employer contributions to defined benefit plans), and how much of the growth is a shift from nondeferred wages to deferred wages.

Similarly, comparisons of wage aggregates from different sources can be more accurately made if the trends in deferrals are known. The different sources of wage aggregates include wages taxable as federal taxable personal income (which do not include elective deferrals), wage disbursements in personal income (which do not include deferrals until they are received), wages taxable under Social Security (which include deferrals but not other employer fringe benefits), wage accruals in the National Income and Product Accounts (which include deferrals in wages rather than in supplements to wages), and wages in Census surveys.

In addition, we cannot tell from our data whether there are other changes in either employee compensation or retirement saving associated with observed changes in elective deferrals. With regard to employee compensation, at one extreme an increase in elective deferrals could simply be a shift from nondeferred wages to deferred wages, with no change in either employer-paid (fringe) benefits or total compensation to employees. In this case, the wage including deferrals would be the most accurate measure of trends in compensation. At another extreme, the increase in deferrals could be associated with a reduction in fringe benefits (employer compensation for health benefits or retirement plans) with no change in total compensation to employees. This is a case where the wage without deferrals would be a more accurate measure of trends in employee compensation. At a third extreme, an increase in deferrals could be associated with an increase in total compensation with no change in fringe benefits. In this case, the change in wages including deferrals would be the most accurate measure of trends in employee compensation. Trends in employee compensation associated with changes in deferrals are unlikely to lie at any of these extremes, and this study does not attempt to make that judgment. There are no Social Security administrative data on employer-paid (fringe) benefits, and the changes in employer-paid (elective) deferrals have been small enough and gradual enough that any attempt to correlate them with changes in nondeferred wages would have to be made by separating out the many other factors that affect wages.

Finally, it should be noted that because this analysis is primarily exploratory and because so many ages and years are examined, no attempt has been made to calculate standard errors for the estimates. However, because the data are presented in single-year trends and single-year-of-age profiles, the fluctuations from year to year or age to age give some indication of the sampling variability of the data. Readers should not assign more precision to the plotted results than is warranted given the fluctuations displayed in the surrounding years or ages.

### ***History of Elective Deferrals***

Deferred compensation arrangements, which allow a postponement of both the receipt and the income taxation of some types of employee compensation, existed well before 1984, but were not used for the wages and salaries of most workers (EBRI 2005). A 1978 law introduced new arrangements in section 401(k) of the tax code, which soon led to the development of “elective deferrals” of wage earnings among the main body of the workforce. Many large firms were offering the “401(k)” plans by 1982 and 1983, and those plans, along with a number of similar tax arrangements (such as 403(b) plans for nonprofit employees and 457 plans for state and local government employees), have grown into a major vehicle for the provision of retirement savings (EBRI 2005).

Although electively deferred earnings are subtracted from earnings subject to the personal income tax, they are still subject to the OASDI and Hospital Insurance (HI) payroll tax. The distinction was made in a 1983 law, effective in 1984. Since 1984, therefore, employer reports of wage earnings on W-2 forms have included boxes for wages before excluding elective deferrals (OASDI wages, HI wages) and after excluding elective deferrals (wages to be reported on the income tax return). (Withdrawals from a deferral account, in contrast, are taxable under the personal income tax but not under the payroll tax.)

Originally the elective deferrals were also excluded from wages counted in the Social Security national average wage index. However, legislation was passed in 1989 specifying that elective deferrals be included in the wages used in the index starting in 1990.<sup>1</sup>

### ***The Construction of the Total Earnings Variable Used for This Study***

This study examines elective deferrals among all workers, including not only OASDI-taxable workers but also Medicare-qualifying government workers, self-employed workers, and workers in noncovered employment. For some purposes, it would be useful to focus on elective deferrals among a narrower group of workers such as OASDI-taxable workers only. This analysis, however, is part of a larger study of earnings among all workers. Earners with self-employment income, for example, represent upwards of 10 percent of earners and cannot be ignored in some applications of Social Security policy analyses. The earnings measure used here, accordingly, is a comprehensive measure that includes all workers with positive earnings.<sup>2</sup>

---

<sup>1</sup> The history of the *exclusion from* and then *inclusion in* the national average wage index is documented in Clingman and Kunkel (1992). Beginning in 1978, the index was based on the average wage calculated from wages reported on W-2s as taxable for the personal income tax. It did not, under this definition, include elective deferrals, even when deferrals began to be included in Social Security creditable wages starting in 1984. The growing gap between the Social Security wages and the income tax wages on which the index is based led (by the end of the 1980s) to a concern that the index, which is used among other things for adjusting benefits to growth in earnings, would grow increasingly out of tune with the Social Security wages themselves. This concern led to 1989 legislation that added deferrals to the wages used in the index.

<sup>2</sup> See Utendorf (1999) for further discussion of Social Security’s administrative data.

The following terminology will be used:

- “1040 wage” is the amount obtained from the employer W-2 form that includes “Wages, tips, and other compensation.”<sup>3</sup> This amount is reported to employees to be included in their taxable income on the 1040 form. It does not include elective deferrals.
- “elective deferral” or “deferred earnings” is the elective deferral amount obtained from the W-2 form.
- “OASDI-taxable wage” is the “Social Security” wage obtained from the W-2 form.
- “HI-taxable wage” is the “Medicare wage” obtained from the W-2 form. Workers covered under OASDI are also covered under HI and will have both an OASDI wage and an HI wage. Before 1991, the OASDI-taxable wage and the HI-taxable wage were the same for workers in OASDI-covered employment. In 1991 and thereafter, the HI-taxable wage could be higher because of the higher HI-taxable maximum.
- “HI-only” employment is Medicare-qualifying government employment.<sup>4</sup> The W-2 reports for HI-only employment have a zero OASDI-taxable wage and a nonzero HI-taxable wage.
- “self-employment earnings” are the taxable self-employment (SE) amounts obtained from the SE form filed with the personal income tax. Similar to wage employment, both OASDI-taxable and HI-taxable amounts are reported. The HI-taxable amount is used when it is larger than the OASDI-taxable amount.<sup>5</sup>
- “covered wages” are those in covered (OASDI or HI) employment, including any wages in excess of the OASDI or HI taxable maximum. In 1994 and thereafter, covered wages are equal to HI-taxable wages because the HI-taxable maximum was eliminated in 1994. Before 1994, covered wages above the HI-taxable maximum are not reported directly in the data, but can be inferred from the 1040 wage plus any elective deferral.
- “covered earnings” are all wages and self-employment earnings in OASDI or HI-only employment, including earnings above the OASDI- or HI-taxable maximum.<sup>6</sup>

---

<sup>3</sup> The labels and box numbers on the W-2 forms vary over the years and between employers. The wage to be reported on the 1040 form has typically been called “Wages, tips, other compensation.” Before 1983 the OASDI wage was often labeled “FICA wage,” for the Federal Insurance Contributions Act. With the advent of Medicare-only wages in 1983, which were also FICA taxable wages, the FICA label disappeared. Some employers started reporting two boxes, one labeled “Social Security wages” or “Social Security (OASDI)” and the other labeled “Medicare wages.” For a time, some employers kept a single “Social Security” box with a notation indicating when the wages were Medicare-only. Two boxes became necessary in 1991 when it became possible for OASDI wages to differ from HI wages even in OASDI-covered employment. The numbering of the boxes has become standard in recent years (1040 wages in Box 1, OASDI wages in Box 3, HI wages in Box 5) but varied considerably in earlier years.

<sup>4</sup> Starting in 1983 (for federal workers hired before 1984 under the Civil Service Retirement System) and 1986 (state and local government workers), some government workers not covered under OASDI were brought into Medicare coverage.

<sup>5</sup> Like OASDI-covered wages, HI-taxable self-employment earnings can be higher than the OASDI-taxable self-employment earnings starting in 1991. In addition, there is now a type of “HI-only” self-employment earnings, not because of Medicare-qualifying employment but because when wages are at or above the OASDI taxable maximum, any additional self-employment income is taxed for HI but not for OASDI.

<sup>6</sup> There is no wholly satisfactory term that covers all employment and earnings covered under Social Security and/or Medicare (that is, OASDI and/or HI). Both are in covered employment under the definition in the Social Security Act. The term “Social Security earnings” will be avoided here, however, because of potential confusion with the use of “Social Security wages” on the W-2 to mean OASDI-taxable wages. “FICA” includes both OASDI and HI-only wages, but does not include self-employment earnings, which are covered under “SECA,” the Self Employment Contributions Act.

The sum of the 1040 wage and any elective deferrals, plus any HI-taxable self-employment earnings, comes close to giving an adequate comprehensive earnings measure:

- For wage earnings in OASDI-covered employment, the 1040 wage plus any elective deferral should in almost all cases equal the covered OASDI wage. Furthermore, before 1994—for covered wages above the HI-taxable maximum—the 1040 wage plus elective deferral is the only estimate available.
- The same situation holds for wage earnings in HI-only employment.
- For wage earnings in noncovered employment, the 1040 wage plus any elective deferral gives a comprehensive wage more comparable to covered OASDI wages than the 1040 wage by itself.
- For self-employment earnings, which are not included in the 1040 wage, the HI-taxable self-employment earnings give the most comprehensive self-employment earnings amount obtainable from the administrative data.

There are at least two situations for which the 1040 wage plus elective deferrals does not give the best measure of wages in covered employment. First, there are rare cases in which the covered wage is legitimately smaller than the 1040 wage plus elective deferral.<sup>7</sup> Second, in some cases the 1040 wage was erroneously reduced or zeroed out in the data (discussed later). In both situations the HI-taxable wage, if larger, is an improvement on the 1040 wage plus elective deferrals.

Total earnings in this study are accordingly the sum of A and B,

where A = the larger of

- o the sum of the 1040 wage and any elective deferral amount; or
- o HI-taxable wages (or, if larger, OASDI-taxable wages<sup>8</sup>); and

where B = any HI-taxable self-employment earnings.

The earnings and elective deferral amounts are derived from a 0.1 percent extract of Social Security's Master Earnings File (MEF).<sup>9</sup> The earnings in the MEF are derived from wage earnings reported by employers on W-2s plus self-employment earnings reported by income tax filers on their 1040s. A given worker in the MEF sample can have employer reports from more than one job in a given year or can have multiple reports (such as initial reports and subsequent corrections) for a single job in one year. (Workers with both wage earnings and self-employment earnings will also have multiple reports.) For each job in a given year, any delayed reports and corrections are incorporated, and then the total earnings measure for the job is calculated. If there are multiple jobs, the total earnings and elective deferrals of the jobs are combined to obtain the annual measure used in this study.

---

<sup>7</sup> Some possibilities include the reports of household and agricultural employees under certain scenarios—a state and local worker who also receives income such as election work that is non-OASDI/HI taxable or cases where a distribution from deferred compensation is taxable in one year for OASDI/HI purposes and taxable in a different year for personal income tax purposes. It is possible that some types of elective deferrals are not explicitly reported as such in the administrative data, even though the deferrals are included in the HI-taxable amount.

<sup>8</sup> Although the HI-taxable wage should always be greater than or equal to the OASDI-taxable wage, there are some anomalous cases in the data with an OASDI wage but no HI wage.

<sup>9</sup> The MEF extract was matched to a 2001 Continuous Work History Sample (CWHS) extract to obtain sex and year of birth of sample members and to double check the processing of the MEF. The 2001 CWHS was used because this note is a byproduct of an ongoing study for which 2001 was originally the most reliable, recent data available. At the time this note was written, 2 more years of data (through 2003) could be obtained but would require significant reprocessing without adding much to the results. A 0.1 extract is used rather than a 1 percent extract because computing limitations make work with the larger file impractical because of both space and speed limitations.

There are several gaps in the earnings definition. First, the administrative data reporting of the 1040 wage, as mentioned, is incomplete. It is important to keep in mind that the 1040 wage is not necessary for Social Security's administrative processing of benefits. For administrative record keeping, the most important earnings variables to maintain accurately are the OASDI-taxable wage and self-employment earnings variables, which underlie the eventual calculation of each worker's benefits. The remaining variables are of short-term interest. The main reason that SSA receives the 1040 wage reports and the elective deferral reports is that the Office of the Chief Actuary (OCACT) is legally mandated to calculate the national average wage index from the average of all workers' (including noncovered workers) W-2 wages and elective deferrals. Once the average wage calculation has been made for a given year, it is no longer imperative for the agency to accurately maintain the 1040 wage and elective deferral variables. The taxable OASDI wage, in contrast, is continually modified as SSA receives late reports from employers or corrections from employers and employees. Although the process is always being improved, it is not surprising that the 1040 wage and elective deferral record keeping has not been highest on the priority list for accurate record maintenance. The most important problem, from the perspective of this study, is that the 1040 wage was sometimes zeroed out in the process of updating the OASDI wage.

For similar reasons, reporting of covered self-employment earnings is incomplete. Self-employment earnings are not included in the computation of the national average wage index, so the self-employment earnings data critical to administering the program are limited to the taxable earnings data that determine payroll tax contributions and that are credited to individual earnings histories for later benefit calculations. There are no employer W-2 reports for self-employment earnings. Instead, the Social Security administrative data rely on the taxable self-employment earnings reported by income tax filers on Schedule SE. Only self-employment earnings up to the HI-taxable maximum are reported to SSA from this form. Before 1994, therefore, some self-employment earnings are not included in the SSA data. For self-employed workers who also have covered wage earnings, the reported self-employment earnings are limited to the difference between the wage earnings and the taxable maximum, which further limits the amounts reported. If a self-employed earner also has covered wages that are at or above the taxable maximum, SSA does not even receive an indication that self-employment earnings are present. Social Security administrative data also do not include information on contributions to retirement accounts associated with self-employment earnings.

It is beyond the scope of this study to investigate the possible effects on trends created by the missing 1040 wage data and self-employment earnings and deferrals. The percentage of records with problematic 1040 wage data appears to be small, particularly in the period under study (1990 through 2001). Because of the removal of the HI-taxable maximum in 1994, the trends from 1994 through 2001 will be free of many of the problems from missing earnings data. Before 1994, however, there is a small but detectable group of workers for whom the 1040 wage plus elective deferrals fail to provide information for covered

wages above the HI-taxable maximum.<sup>10</sup> These data anomalies could conceivably affect some of the trends in elective deferrals if the missing data are not distributed randomly across time or earnings levels or if trends in deferrals among self-employed earners are different from trends among wage earners.

To analyze trends by earnings percentiles, 10 earnings percentiles by year are calculated that divide earners into 10 equally sized groups. Individuals with earnings less than the 10th percentile amount are in the first or bottom decile, those with earnings between the 10th and 20th percentiles are in the second decile, and so on. Individuals with earnings between the 90th and 100th percentiles are in the 10th or top decile. For analyses by sex, the decile groups are calculated for men and women separately from each group's respective earnings distribution.

### ***Elective Deferred Earnings in the Aggregate, 1990–2001***

Overall, elective deferrals have been growing as a percentage of total aggregate earnings from 1990 through 2001 (Table 2). In 1990, elective deferrals made up 1.4 percent of total aggregate earnings; by 2001, they made up 2.9 percent of total aggregate earnings.

This overall trend is composed of a large increase in the percent of positive earners who have deferred earnings, which has doubled from 14 percent in 1990 to 28 percent in 2001, and a small increase in the percent of earnings deferred among those who do elect to defer earnings, which has increased from roughly 5 percent in 1990 to 6 percent in 2001 (Table 2).

### ***Elective Deferrals by Sex***

Men are about 10 percentage points more likely to have positive elective deferrals than are women (Table 3a). Of total aggregate deferred earnings by year, aggregate deferred earnings of men account for more than 60 percent of the total (Table 3b).

### ***Elective Deferrals by Earnings Deciles***

As already noted, the higher earnings deciles are associated with a much higher share of deferrals than are the lower deciles, although the share of the highest decile has declined (Chart 1). In 1990, the top decile had a 55 percent share of aggregate deferred earnings. By 2001, that share had fallen to 48 percent. This section attempts to decompose the decile shares of deferrals into three factors: (1) differences in the share of earnings by year (Chart 2); (2) differences in the deferral as a percent of earnings, among those who have deferrals (Charts 3 and 4); and (3) differences in the percent of workers who have deferrals (Charts 5 and 6).

The share of aggregate deferrals by decile (Chart 1) would match the share of aggregate total earnings by decile (Chart 2) if the other two factors (percent of workers with deferrals and the average deferral as a percentage of earnings) were constant across deciles. In fact, the top decile's share of deferrals is

---

<sup>10</sup> More specifically, even though the data are supposedly uncensored since 1982 (because there is no taxable maximum on the 1040 wage variable), the total earnings variable shows evidence of some censoring at the taxable maximum from 1982 through 1993. Among individuals with earnings greater than or equal to the OASDI tax max who were not self-employed, approximately 2.5 percent to 7 percent of individuals in 1982 through 1990 had total earnings exactly equal to the OASDI tax max. In 1991 through 1993 (when the HI tax max was greater than the OASDI tax max), these percentages dropped to less than 1 percent. In these years, among individuals with total earnings greater than or equal to the HI tax max who were not self-employed, approximately 2 percent of earners had earnings exactly equal to the HI tax max. (This translates to less than 0.5 percent of workers with earnings greater than or equal to the OASDI tax max in the 1991–1993 period.) The percentages just given are for workers at or above the OASDI or HI taxable maximum. As a percentage of positive earnings, no more than 1 percent of workers have total earnings exactly at the OASDI tax max from 1982 through 1990, and a negligible percent have total earnings exactly at the OASDI tax max from 1991 through 2001.

higher than its share of total earnings. This implies that either a higher percentage of top earners have deferrals, or that the deferrals as a percentage of earnings are higher in the top decile, or both.

In addition, the top decile's share of aggregate deferrals has fallen over the study period, from about 55 percent to under 50 percent (Chart 1), while its share of aggregate earnings has risen, from about 35 percent to about 40 percent (Chart 2). These trends imply that either the percentage of top earners taking deferrals must be rising relatively more slowly than in lower deciles, or that the average deferral as a percentage of earnings must be falling relative to the lower deciles, or both.

Deferral amounts among those who elect to defer might be expected to be higher among higher earners, both because high earners are more likely to save greater percentages of their earnings and because the tax advantage of the deferral is worth more to high earners.<sup>11</sup> In the data, nonzero deferrals in the top two deciles are in fact higher than the average nonzero deferral and have risen faster, with deferrals in the top decile rising from 1.8 times the average in 1990 to over 2 times the average in 2001 (Chart 3).

When looking at the ratio of deferrals to earnings *among those who defer* (Chart 4), the upward trend for the top decile disappears. The average deferral as a percentage of earnings, furthermore, is lower for the top decile than for the next decile and is falling relative to the next five deciles over the study period.<sup>12</sup> The top decile's high share of deferrals (observed in Chart 3), in other words, is not attributable to top-decile deferrers electing higher deferrals relative to their earnings than other deciles.

The lower deferral-to-earnings ratio observed in the top decile in Chart 4 relative to the next two deciles may be due in part to the absolute dollar limit on deferrals specified in the law.<sup>13</sup> This limit can be expected to most affect top decile deferrals. While most employees do not defer the maximum allowable amount, high earners are the most likely to contribute the maximum allowable amount (Kawachi, Smith, and Toder 2005). For example, the authors found that the percentage of workers contributing the maximum allowable amount to a tax-deferred retirement account in 2003 was 1 percent to 3 percent for workers with earnings under \$75,000 (in 2004 dollars) and 53 percent for workers with earnings over \$150,000 (in 2004 dollars).

The final factor affecting the levels and trends of the shares of total deferred earnings among the earnings deciles is the percent of earners with deferrals. This, too, is likely to be higher among high earners because of the tax advantages, greater propensity to save, higher likelihood of being offered a 401(k)-type plan, and the greater ability and willingness to save in a liquidity-constrained vehicle. In the 1990–2001 data, top earners are in fact much more likely to defer, with the 40 percent of top decile earners deferring in 1990 rising to almost 70 percent in 2001 (Chart 5). The trend is strong enough that the prevalence before 1990 (when deferred amounts are missing for workers with earnings over the OASDI tax max) was almost certainly not larger than what is observed in 1990, and probably smaller. Although all the deciles show a rise in the percent of earners with deferrals, the 25 to 28 percentage-point rise found in the top three deciles is larger than the rise in the lower deciles.

A rise in the percentage with deferrals will not increase a decile's share of aggregate deferrals unless the percentage rises relatively faster than the average percentage. The ratio of the percentage with defer-

---

<sup>11</sup> Changing tax rates and changing alternative minimum tax (AMT) coverage may also affect trends in deferrals among high earners.

<sup>12</sup> The bottom three deciles, for which both earnings and deferrals are small, have been left out of Chart 4.

<sup>13</sup> The maximum allowable employee contribution limit for a 401(k) plan was \$7,979 in 1990 and gradually rose to \$10,500 in 2001. See Kawachi, Smith, and Toder (2005, Table 1a, p. 2), for maximum allowable dollar limits from 1990 through 2006 and for an extended discussion of contribution limits specified in federal income tax law.

als to the average percentage (Chart 6) shows that the top decile is losing ground relative to the other deciles by this measure. Although earners in the top decile were 3 times more likely than average to defer in 1990, they were less than 2.5 times more likely to defer by 2001 (Chart 6). This, then, is the explanation for the top decile's falling share of deferrals in Chart 1. The top decile's share of earnings increased slightly (Chart 2), which in itself would have tended to increase the top decile's share of deferrals. But the percentage of workers with deferrals (Chart 5) rose relatively more rapidly in many of the deciles below the top (more than doubling) than in the top decile (less than doubling, from 40 percent to less than 70 percent). In addition, the deferral-to-earnings ratio (Chart 4) rose in many of the deciles below the top but held constant or even fell for the top decile. These two factors—the deciles below the top's relatively more rapid increase in the percentage of workers with deferrals and the deciles below the top's increase in the deferral-to-earnings ratio among those who deferred—more than offset the top decile's increasing share of earnings, giving a decrease in the top decile's share of deferrals.

### ***Trends in the Presence of Elective Deferrals by Earnings Decile and Sex***

Among men with positive earnings, the percent who have deferred earnings increases almost monotonically by earnings decile (Chart 7).<sup>14</sup> In general, over the entire study period, few men below the 4th decile have elective deferrals. The percent of men at the 4th–6th deciles who have elective deferrals has been rising over time, although not as steeply as the percent at the 7th–10th deciles.

The trends are very similar for women (Chart 7). The most noticeable difference is that among women, the 10th decile is further above the 9th decile in terms of the percentage of women who have deferred earnings each year.

### ***Trends in the Presence of Elective Deferrals by Age and Sex***

Among men with positive earnings, the percent with positive elective deferrals by age tends to follow the standard age/earner profile pattern (Chart 8). In other words, the number of individuals who have elective deferrals is low when individuals are in their twenties—that is, when wages also tend to be lower. The percent of workers with elective deferrals reaches its peak at around ages 45 through 55, which also tend to be the ages at which an individual's earnings are at their peak. The percent with elective deferrals then drops beginning at ages in the late fifties and early sixties, reflecting a retirement wage drop.

Patterns by age are similar for female positive earners with elective deferred earnings, although they do appear to reach their peak deferral years at slightly later ages (in the early-to-mid fifties).

### ***Trends in the Presence of Elective Deferrals by Earnings Decile, Age, and Sex***

Among men with positive earnings, the percent who have deferrals within a particular earnings decile differs only slightly by age (Chart 9a). Slight differences by age only appear in the top decile, with the age pattern changing over time, so that by 2001 young earners are slightly more likely to have deferrals than are older workers. This suggests that for men, position in the earnings distribution is generally more important than age in determining whether they have elective deferrals.<sup>15</sup>

---

<sup>14</sup> Men are placed into earnings deciles by the position of their total earnings in the total male earnings distribution by year. An identical procedure is used for women.

<sup>15</sup> The 1st through 4th deciles are not analyzed because a small number of people in those deciles have deferrals. We currently have no explanation for the jagged line for men aged 21–25 in the top decile in Chart 9a.

Patterns are somewhat different for women (Chart 9b). In particular, female earners in the 5th–7th deciles demonstrate a difference in participation by age. At those earnings deciles, older female workers are more likely to have deferrals than are younger female workers, and the difference appears to be growing over time. Age appears to have little effect on earnings deciles 8–10, while position in the earnings distribution continues to matter.

### ***Trends in Elective Deferred Amounts as a Portion of Total Earnings Among Those Who Defer, by Sex***

On average, a greater portion of male high earners' total earnings take the form of elective deferrals (Chart 10). For example, in 2001 the median of deferred earnings as a percent of total earnings among those who defer was approximately 6 percent for men in the 9th–10th earnings deciles and about 3.5 percent for those in the 4th decile. Note that the portion of total earnings by decile appears almost U-shaped, with the 1st and 2nd deciles having a greater portion of their total earnings as deferrals than the 3rd through 5th deciles. These low deciles are also more jagged, reflecting smaller sample sizes because of the smaller number of earners in these deciles who defer. It may be that men in these deciles who choose to defer are a more select group. Although the portion of total earnings that is received as elective deferrals has risen slightly from 1994 through 2001 at all earnings deciles, the upper 80 percent of the earnings distribution has had the steepest increase in the same time period.<sup>16</sup> The crossover observed between the 9th and 10th deciles may be related to the highest decile earners reaching the legal limit for deferrals as observed in Chart 4.

In general, the patterns for women are fairly similar to those for men. Among those who defer, women with earnings at the 9th decile receive a slightly lower portion of earnings as elective deferrals than do their respective male counterparts. Women in the 7th decile also receive a somewhat lower proportion of their earnings as elective deferrals, and the proportion has grown less steeply over time. On the other hand, women in the 4th–6th deciles receive a slightly higher percentage of their earnings as deferrals. However, note that the graph of female earners appears less smooth because of smaller sample sizes in the lower earnings deciles. In general, for women, only the upper 70 percent of the earnings distribution has experienced an increase since 1994, with the lower 30 percent experiencing a decrease since 1994. Recall that percentiles are developed separately for men and women. Because prevalence of deferrals is correlated with the earnings amount and because women have lower earnings, this is not necessarily a surprising result.

### ***Conclusion***

---

From 1990 through 2001, the percentage of earners taking elective deferrals has grown at the 5th decile and higher at all earnings levels and ages and for both sexes. Earners in the top half of the earnings distribution started in 1990 with a higher percentage of workers with deferrals, and since then this percentage has risen more among earners in the top half of the earnings distribution than among earners in the bottom half. For all ages and both sexes, the top decile moved from about 40 percent to 50 percent of positive earners with deferrals in 1990 to about 60 percent to 70 percent in 2001.

A strong age pattern in the percentage with deferrals seems to be mostly explained by this higher propensity to take deferrals among high earners. The peak earnings ages also have the higher percentage of deferrals, and earners of the same sex and earnings level have very little difference by age in the percentage with deferrals.

---

<sup>16</sup> The most conservative way to observe the trends in Chart 10 is to begin in 1994, because some of the apparent growth from 1990 to 1994 (particularly in the 9th and 10th deciles) may be from formerly censored self-employed earners entering the series.

Overall, elective deferrals have been growing as a percentage of total aggregate earnings. The portion of total earnings that is received as elective deferrals has risen at least slightly over time at all earnings deciles for men and at the upper 70 percent of the earnings distribution for women.

## **References**

---

- Clingman, Michael D., and Jeffrey L. Kunkel. 1992. Average wages for 1985-90 for indexing under the Social Security Act. Actuarial Note No. 133. Office of the Chief Actuary, Social Security Administration (September).
- Employee Benefit Research Institute. 2005. History of 401(k) plans: An update. In Facts from EBRI (February). <http://www.ebri.org/pdf/publications/facts/0205fact.a.pdf>.
- Kawachi, Janette, Karen E. Smith, and Eric J. Toder. 2005. Making maximum use of tax-deferred retirement accounts. CRR Working Paper No. 2005-19. Center for Retirement Research at Boston College (December).
- Utendorf, Kelvin R. 1999. Recent changes in earnings distributions in the United States: Age and cohort effects. ORES Working Paper Series, No. 82. Office of Policy, Office of Research, Evaluation, and Statistics, Social Security Administration (April).

**Table 1.**  
**Deferred compensation in Social Security administrative data**

Years	Deferred compensation is included in—		
	OASDI taxable earnings field	IRS (federal) personal taxable wages field	A separate field in SSA's earnings data
1951–1983			
Under OASDI taxable maximum	No	No	No
Over OASDI taxable maximum	No	No	No
1984–1989			
Under OASDI taxable maximum	Yes	No	No
Over OASDI taxable maximum	No	No	No
1990–2001			
Under OASDI taxable maximum	Yes	No	Yes
Over OASDI taxable maximum	No	No	Yes

SOURCE: Authors.

NOTE: OASDI = Old-Age, Survivors, and Disability Insurance; IRS = Internal Revenue Service; SSA = Social Security Administration.

**Table 2.**  
**Elective deferrals in the aggregate, 1990–2001**

Year	Percent of earners who make deferrals among all positive earners	Elective deferrals as a percent of aggregate earnings	
		Among all earnings	Among the earnings of those who have deferrals
1990	13.6	1.4	5.2
1991	15.9	1.6	5.3
1992	17.5	1.8	5.2
1993	18.5	1.9	5.5
1994	19.8	2.0	5.5
1995	21.3	2.2	5.5
1996	22.8	2.3	5.5
1997	24.4	2.5	5.5
1998	25.6	2.6	5.7
1999	26.8	2.7	5.7
2000	27.6	2.8	5.5
2001	28.1	2.9	5.8

SOURCE: Authors' calculations.

---

**Table 3a.**  
**Workers with any positive deferred earnings, by sex and year (in percent)**

Year	Men	Women
1990	55.8	44.2
1991	55.6	44.4
1992	54.7	45.3
1993	54.4	45.7
1994	54.5	45.5
1995	54.6	45.4
1996	54.5	45.5
1997	54.2	45.8
1998	54.1	45.9
1999	54.2	45.8
2000	54.1	45.9
2001	53.5	46.5

SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

---

---

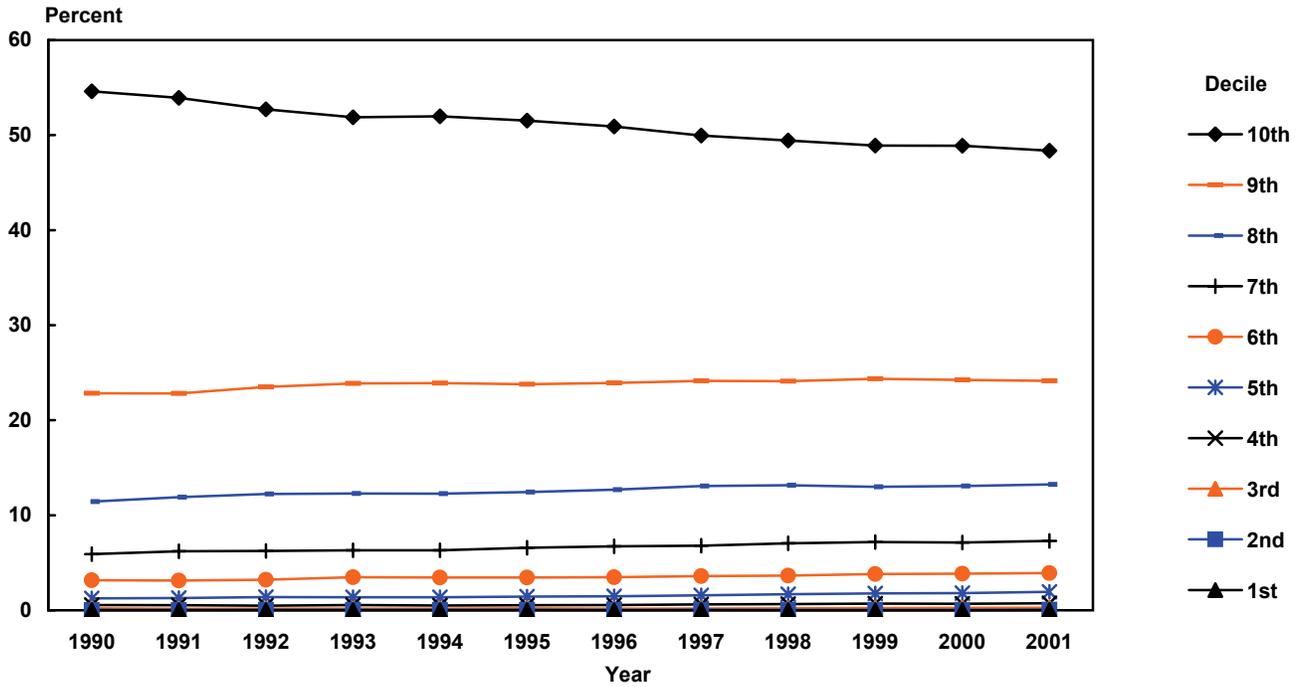
**Table 3b.**  
**Share of aggregate deferred earnings, by sex and year (in percent)**

Year	Men	Women
1990	66.3	33.7
1991	65.7	34.3
1992	64.8	35.2
1993	64.2	35.8
1994	64.3	35.7
1995	63.9	36.1
1996	63.7	36.3
1997	63.5	36.5
1998	63.1	36.9
1999	63.2	36.8
2000	62.9	37.1
2001	62.3	37.7

SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

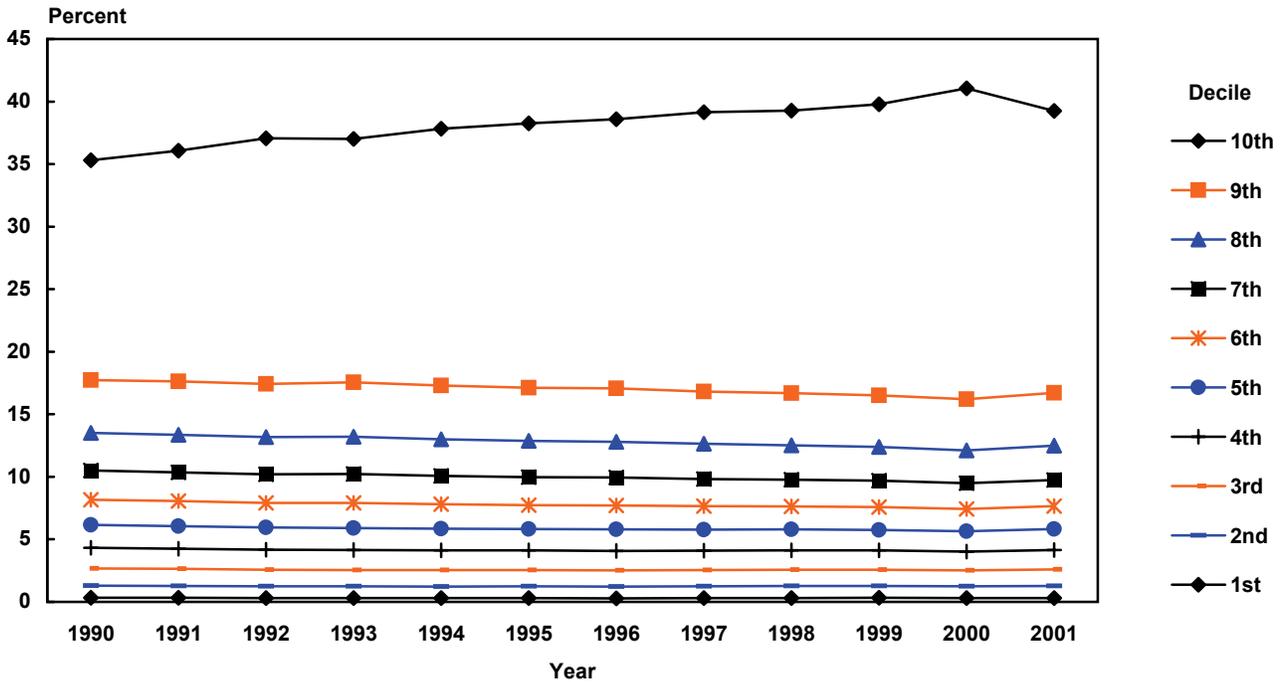
---

**Chart 1.**  
**Share of aggregate deferred earnings for all workers, by earnings decile and year, 1990 to 2001**



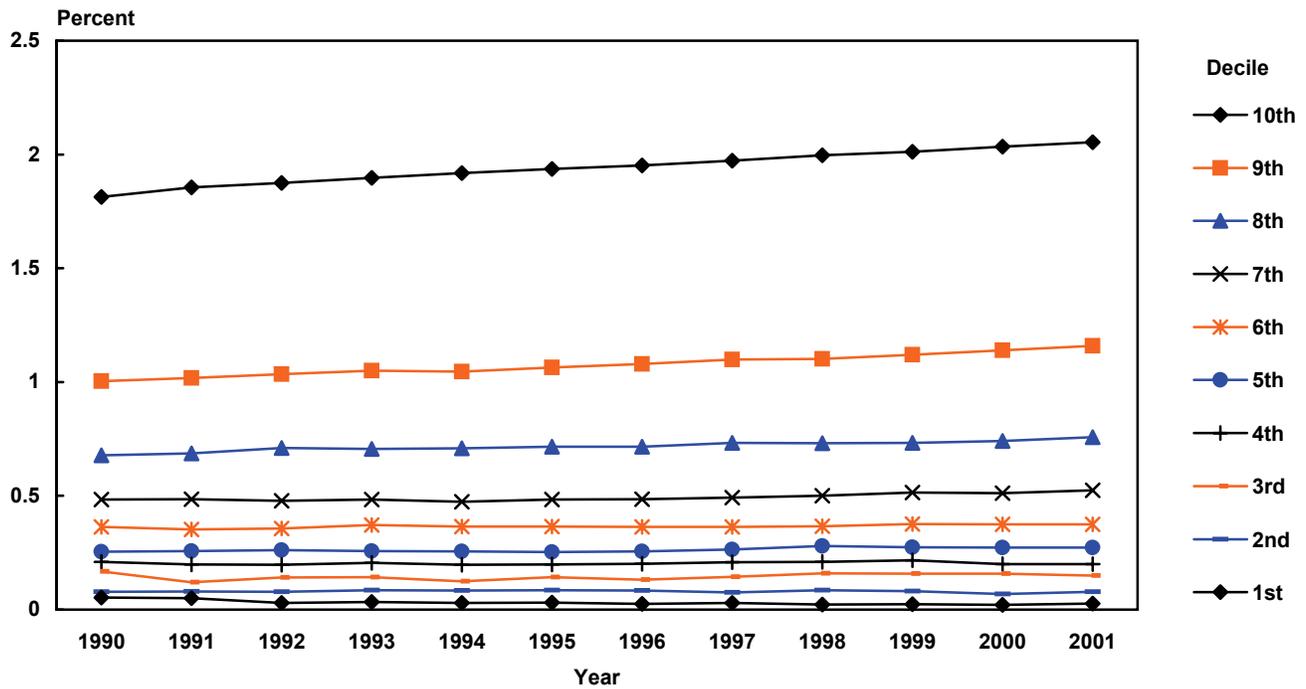
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 2.**  
**Aggregate earnings of all workers, as a percentage of total aggregate earnings, by earnings decile and year**



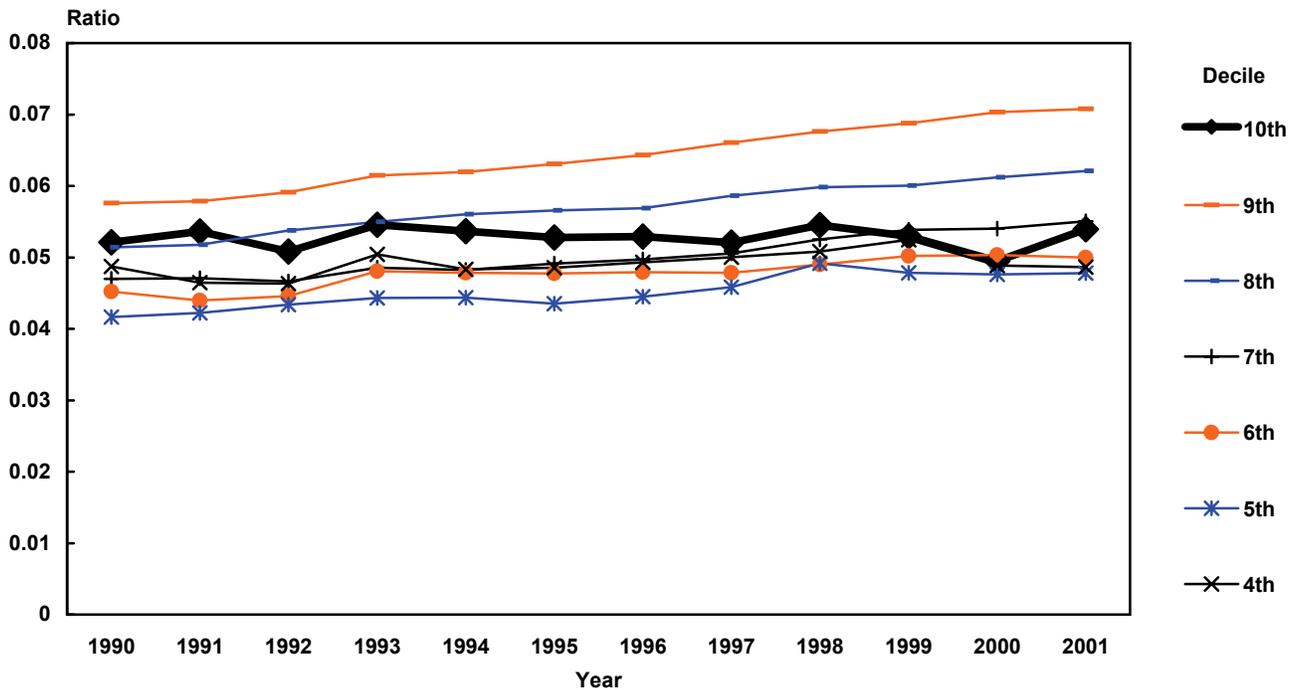
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 3.**  
**Average nonzero deferral amount by earnings decile and year relative to average nonzero deferral amount by year for all workers**



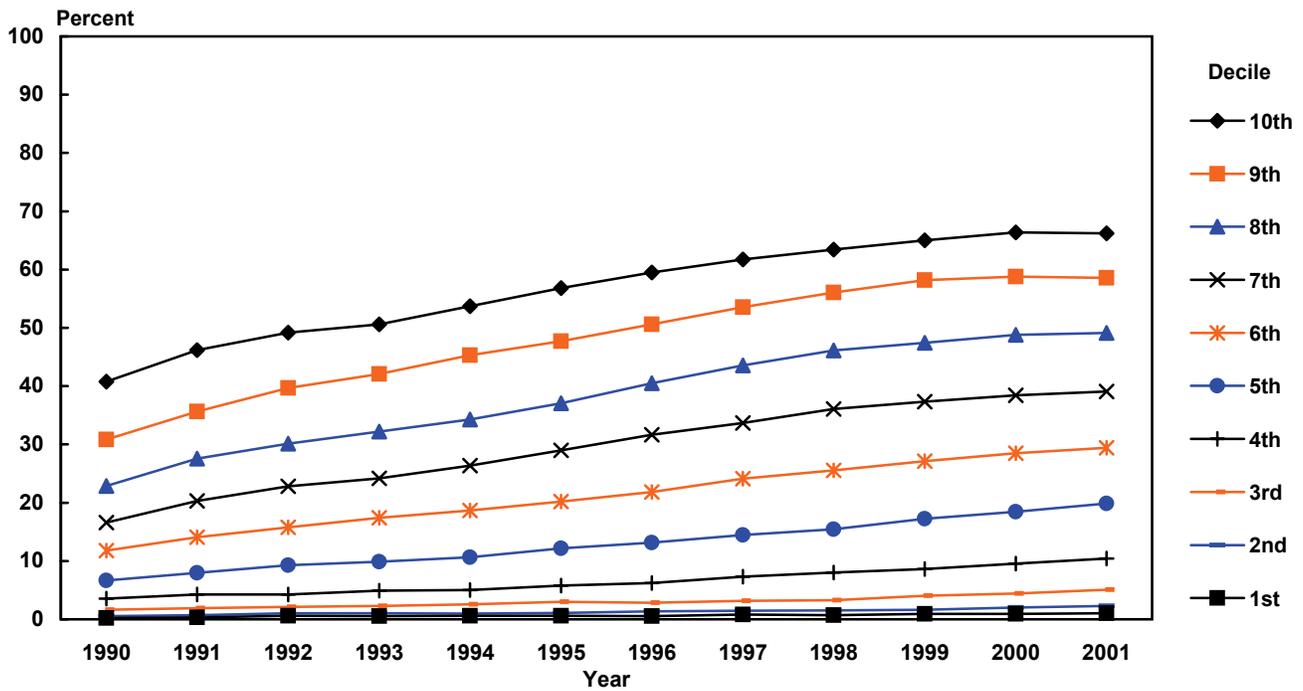
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 4.**  
**Ratio of average deferred amount by earnings decile to average total earnings amount by earnings decile for all workers, among those who have deferrals**



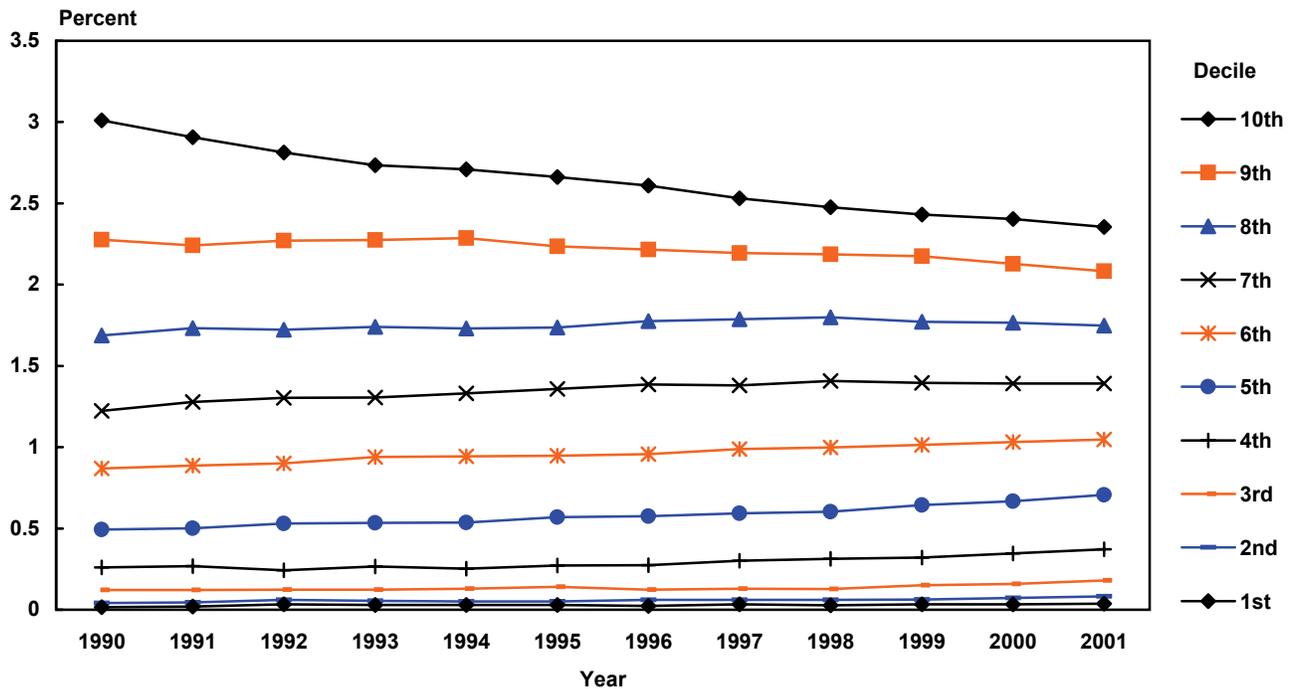
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 5.**  
**Percent of positive earners with deferrals, by earnings decile for all workers**



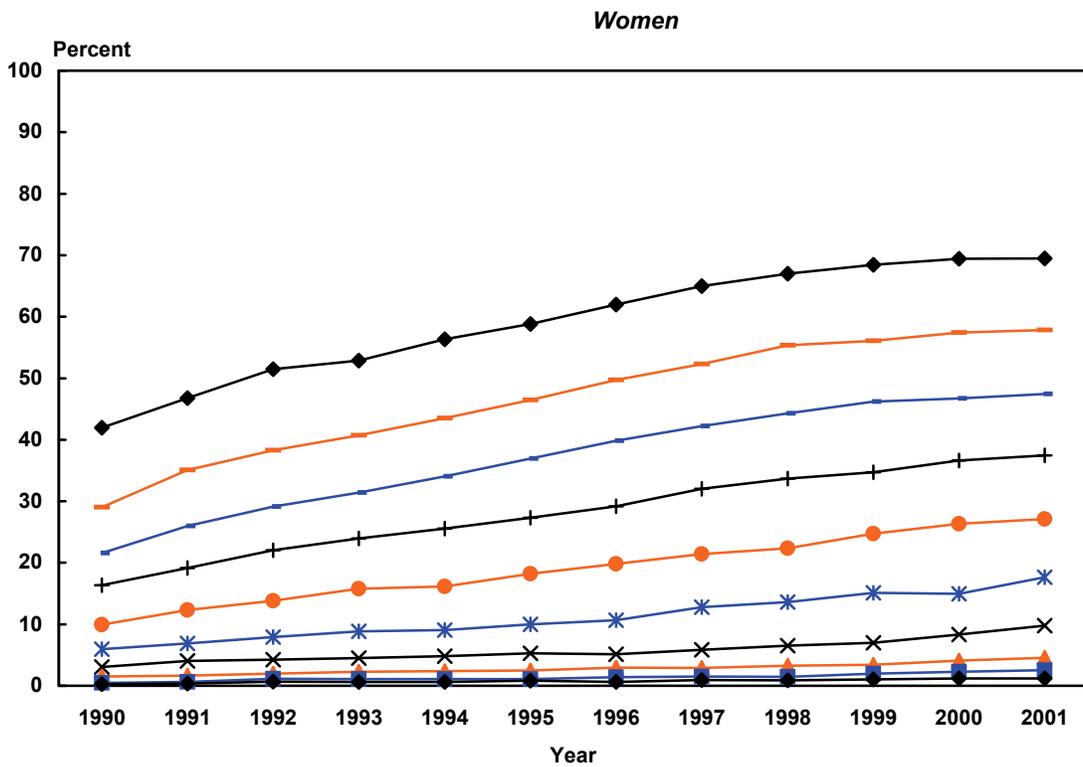
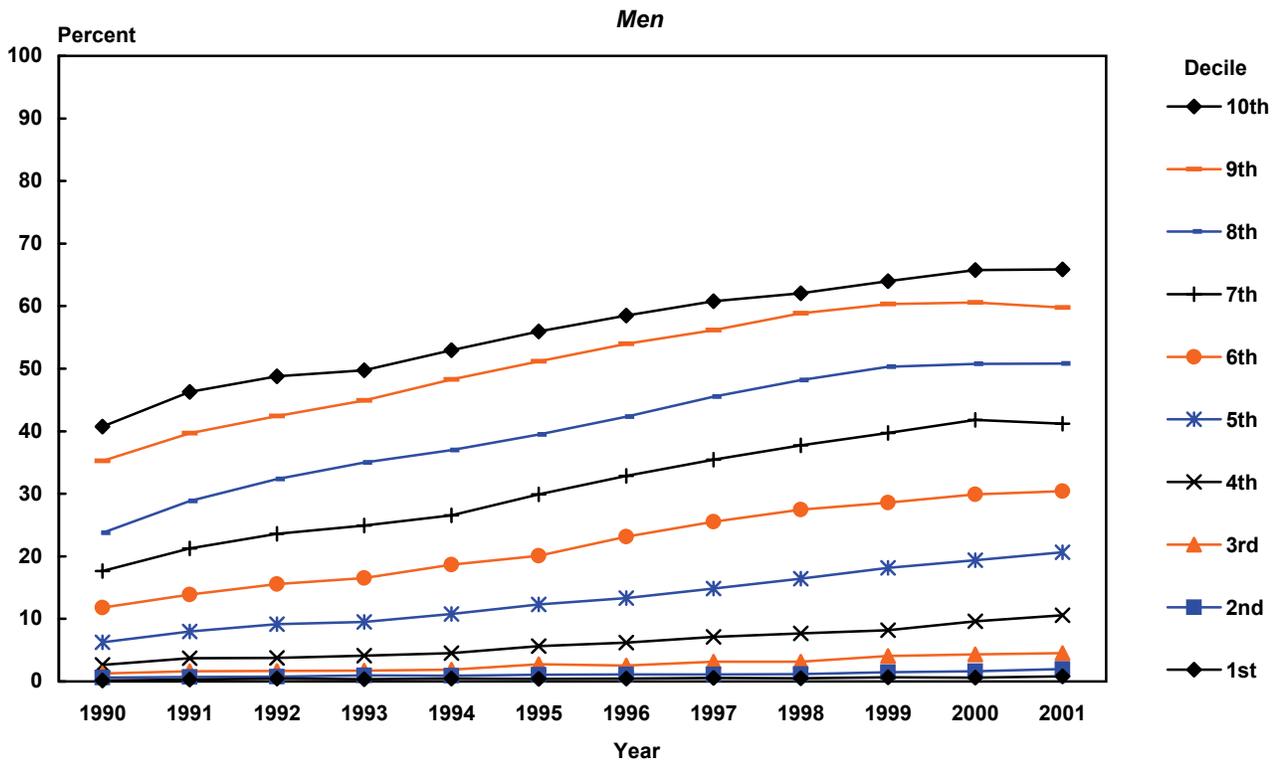
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 6.**  
**Ratio of percent of positive earners deferring by earnings decile and year to percent of total positive earners deferring by year, for all workers**



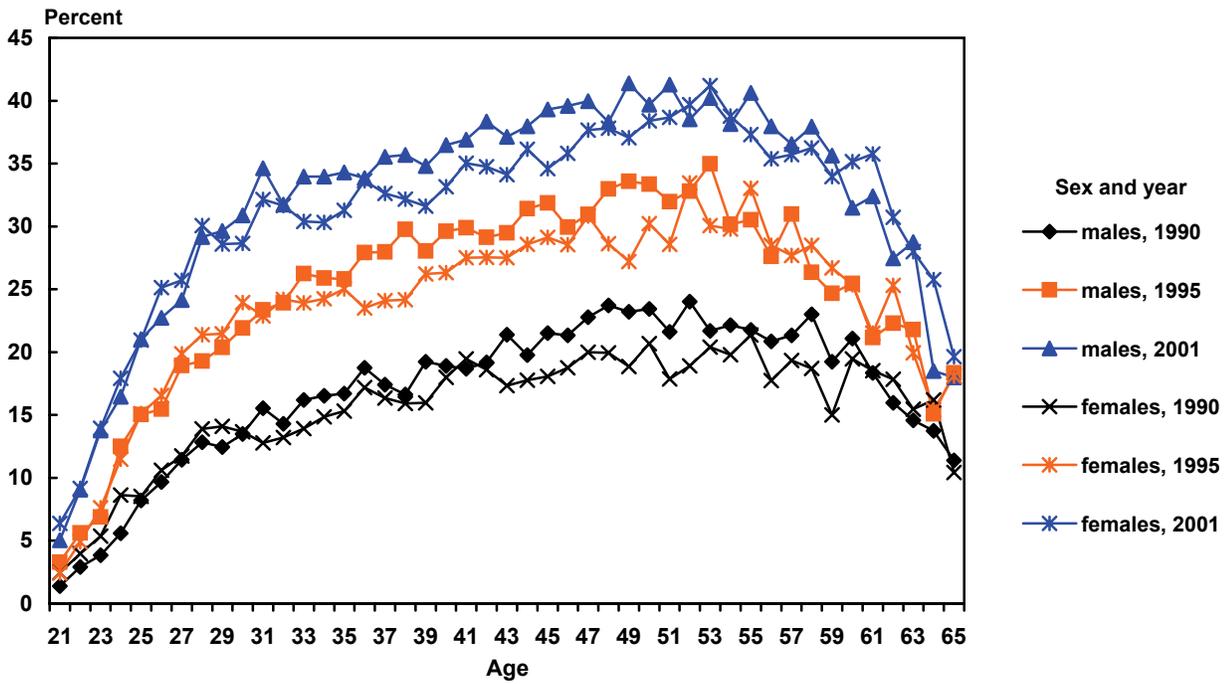
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 7.**  
**Percent of positive earners with elective deferred earnings, by earnings decile, sex, and year**



SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

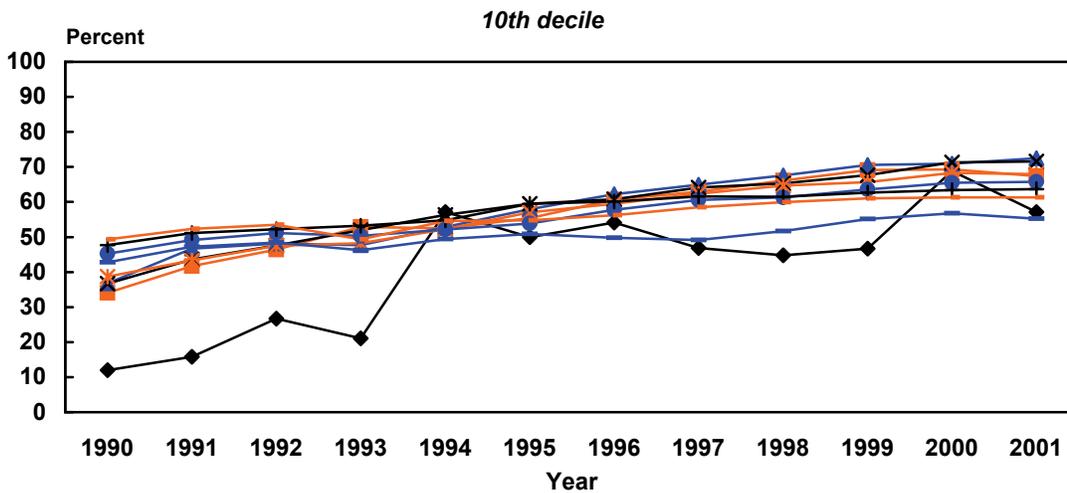
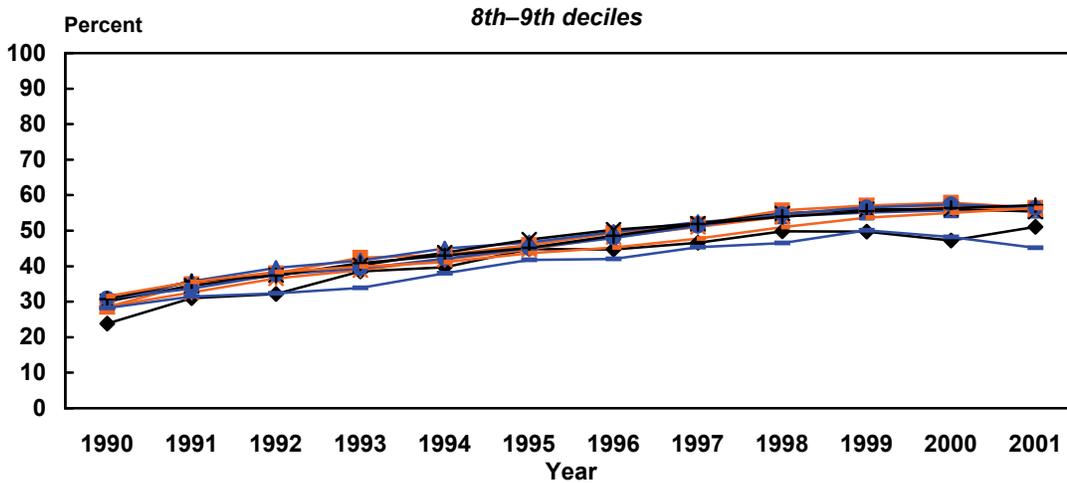
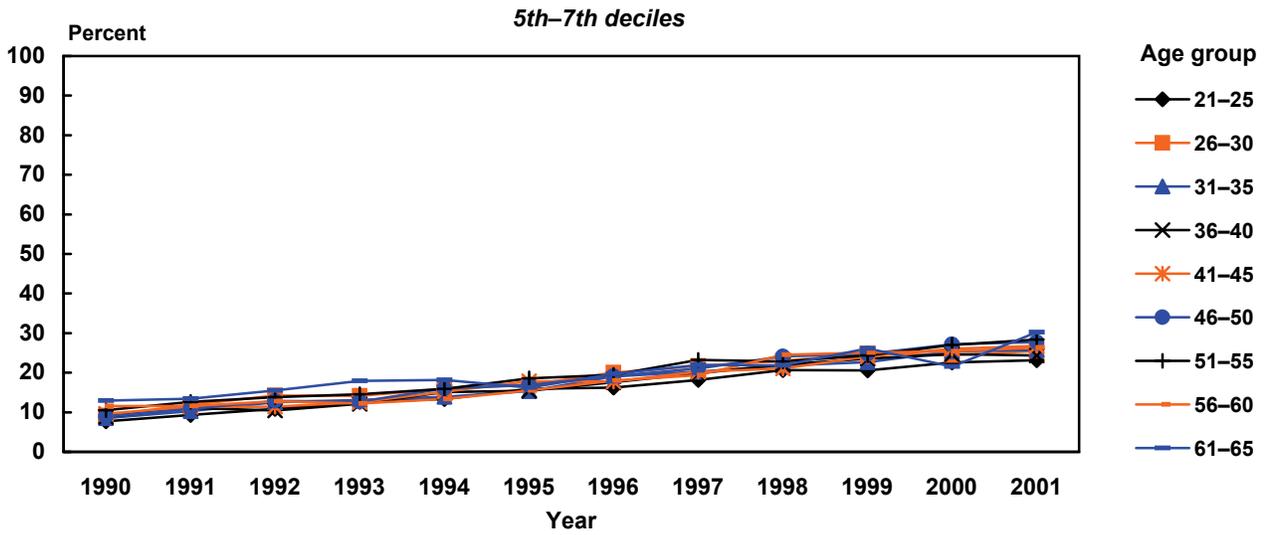
**Chart 8.**  
**Percent of positive earners with elective deferred earnings, by age, sex, and year**



SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

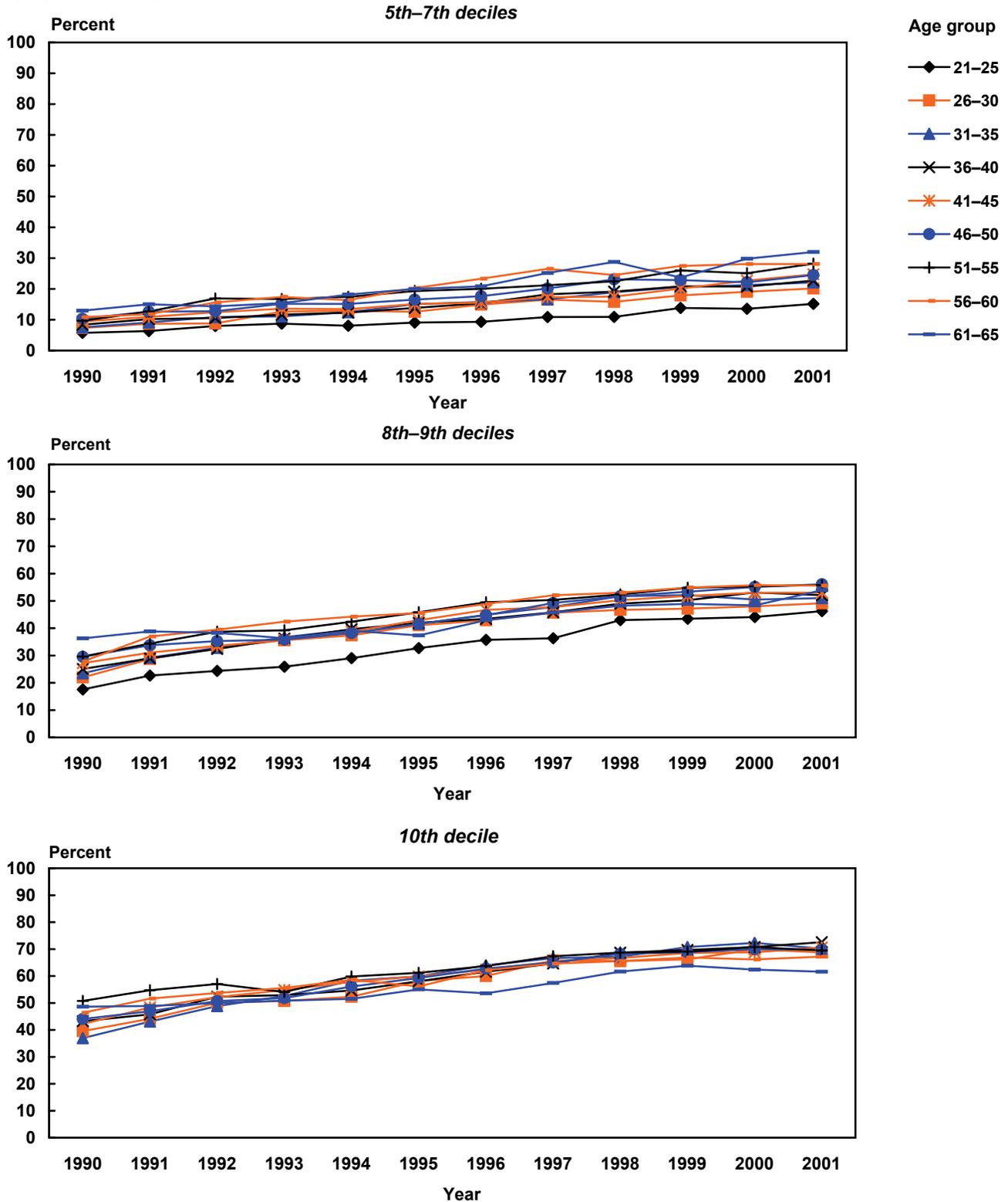
Chart 9a.

Percent of male positive earners with elective deferred earnings, by earnings decile group, age group, and year



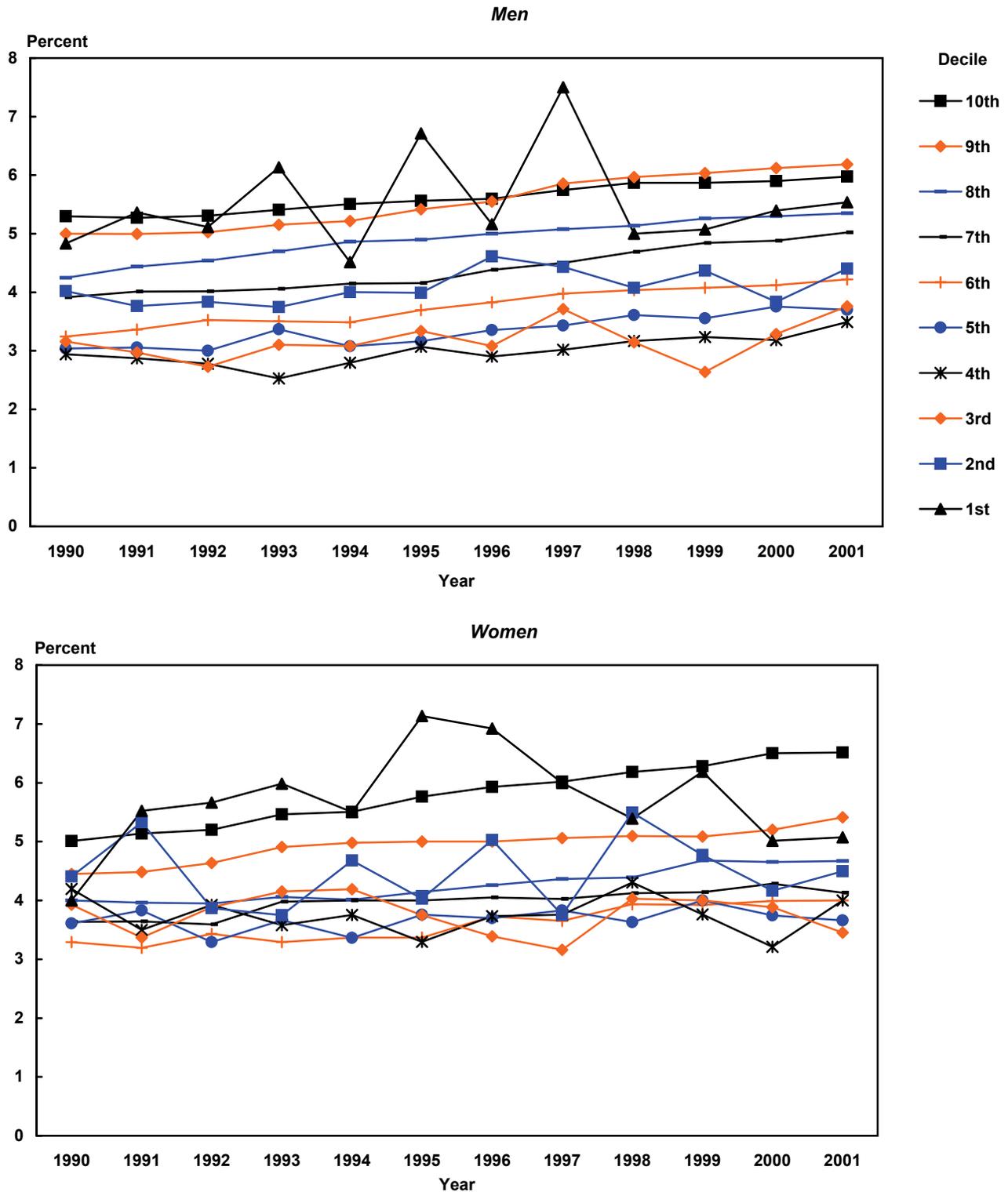
SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 9b.**  
**Percent of female positive earners with elective deferred earnings, by earnings decile group, age group, and year**



SOURCE: Authors' calculations on 0.1 percent Master Earnings File.

**Chart 10.**  
**Median of deferred earnings as a percent of total earnings by earnings decile, sex, and year, among those who defer**



SOURCE: Authors' calculations on 0.1 percent Master Earnings File.