

# WORKING PAPER

## *Executive Summary*

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## THE EFFECT OF INCREASING EARNINGS DISPERSION ON SOCIAL SECURITY PAYROLL TAX RECEIPTS

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Previous research has documented a persistent trend towards increased earnings dispersion. The Old Age and Survivors Insurance (OASI) program is financed by a payroll tax on earnings up to a maximum of \$113,700 in 2013. This maximum increases annually in line with movements in average wages, as measured by the Average Wage Index (AWI). If the dispersion of wages increases so that earnings above the taxable maximum grow more rapidly than the average, a smaller proportion of earnings will be subject to the Social Security tax and tax revenues will be lower than otherwise.

Using earnings and demographic data from the *Continuous Work History Survey* (CWHS), a one percent sample of all possible Social Security numbers, this project investigates trends in inequality over the period 1982-2009 and the impact of those trends on Social Security tax receipts. These data yields an extremely large sample that permits analysis of income dispersion within age groups. Importantly, the same measure of earnings is used to construct the AWI, which determines key features of the OASI program. Although limited data are available back to 1937, we do not use it because the current benefit formula dates back to only 1978. We further restrict our analysis to 1982 onwards because of concerns about data quality for 1978-81. The earnings data is restricted to wages and salaries and do not include earnings from self-employment. Earnings equal taxable earnings reported on W-2s for 1982-1990 and taxable earnings plus deferred compensation for 1991 onwards. We restrict our analysis to workers aged over 16 at the start of the year and under 75 at the end of the year. When we evaluate the impact of earnings dispersion on payroll tax receipts, we limit our sample to IRS taxable earnings subject to the OASDI payroll tax. We use covered IRS taxable earnings because Social Security taxable wages is truncated at the taxable maximum.

The paper uses two measures of earnings dispersion – the Gini and Theil coefficients. The Gini coefficient can vary between zero and one, with zero representing perfect equality and one representing perfect inequality. The Theil coefficient also takes the value zero under perfect equality, but lacks an upper bound. The Theil index has the advantage of being additive across different sub-groups. The paper exploits this feature to calculate the respective contributions to income dispersion of increases in income dispersion within five-year age groups and increases in the variation of average income across age groups.

Both the Gini and the Theil coefficient suffer from the disadvantage that they do not capture where inequality occurs within the income distribution. The project therefore also calculates and reports the ratios of the 90th, 99th, and other percentiles of the income distribution to the median.

The project first calculates ratios of the above percentiles of the income distribution to the median. Consistent with previous research, it shows that both the male and female ratios increased, with the increase being greatest for the highest earners. The project then calculates Gini and Theil coefficients, by year, for males and females. Under both measures, male inequality was higher than female inequality. Inequality increased considerably from 1982 to 2000 for both sexes, after which the trend was less clear. The project then calculates levels and trends in inequality by age. Among men, inequality increases strongly with age, and the rate of increase in inequality was greatest among those over 40. Among women, the relationship between age and inequality is less pronounced, and there was little increase in inequality at younger ages. The project then decomposes levels and trends in male and female inequality into its between- and within-cohort components. Within-cohort inequality is by far the larger component. For men, it trended strongly upward from 1982 to 2000, but subsequently showed no clear trend, whereas among women, the increase was much less pronounced.

The project then compares the percentages of men and women earning above the taxable maximum with the percentages calculated under a counterfactual that the age distribution of wage and salary earners had remained at the 1982 level. Younger workers are less likely to earn more than the taxable maximum, and under this counterfactual, substantially fewer men and women would have earned more than the taxable maximum. The aging of the baby boomers into peak earning years largely offset what would otherwise have been a substantial decline in the percentage earning above the taxable maximum.

The project then compares the percentages of wage and salary earnings that would have been subject to the payroll tax had the taxable maximum been specified percentiles of the earnings distribution, with the actual percentage of earnings subject to tax in each year. From 1983 through 2009, the taxable maximum has fluctuated within a percentage point of the 94th percentile of the earnings distribution, even though the percentage of earnings subject to the payroll tax has declined substantially. In order to return to the 1982 percentage of earnings subject to the payroll tax, it would be necessary to raise the 2009 taxable maximum from \$106,800 (the 94.4 percentile of the earnings distribution) to \$137,603 (the 97th percentile of the earnings distribution).

Finally, the project calculates the impact of between- and within-cohort increases in earnings dispersion on payroll tax receipts. It calculates that if the distribution of earnings had remained at 1982 levels, 2009 payroll tax receipts would have been 6 percent higher, of which 4 percent can be attributed to increases in within-cohort dispersion, and 2 percent to increases in between-cohort dispersion.

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