Insight on the Issues

How Does Earnings Inequality Affect Social Security Financing?

Richard W. Johnson
Urban Institute

Growing wage inequality is exacerbating Social Security's financial problems. Economic inequality has soared over the past four decades; wages and salaries have grown much more rapidly near the top of the earnings distribution than at the middle and bottom (Cosic, Johnson, and Smith 2018; Kopczuk, Saez, and Song 2010; Piketty and Saez 2006; Saez 2017, 2018). This trend limits Social Security revenue (Baker 2013; Favreault 2009; Morrissey 2011) because Social Security exempts from payroll taxes annual cash earnings above a certain level ($132,900 in 2019). Over time, Social Security's revenue grows more slowly as additional earnings go to workers making more than Social Security's taxable maximum and fewer earnings go to lower-paid workers whose earnings are fully taxable.

This *Insight on the Issues* illustrates the impact of growing wage inequality on Social Security's finances. It computes system revenues and benefit payments under the assumption that the distribution of earnings had been more equal, so that 90 percent of earnings had been covered and taxed by Social Security since 1983, the last year for which the share of earnings covered by Social Security was that high, and that this ratio had continued indefinitely. The analysis compares system revenues and costs under this alternative scenario with historical outcomes and intermediate projections made by the Social Security actuaries. The results suggest that the growth in wage inequality accounts for a significant portion of Social Security's fiscal imbalance: if 90 percent of earnings had been subject to Social Security payroll

Social Security faces a long-term financing gap. As longer lifespans and declining fertility reduce the number of workers supporting each retiree, Social Security is reaching a fiscal imbalance: the system will pay more benefits than it collects in revenue beginning in 2020. The combined Old-Age and Survivors Insurance Trust Fund and Disability Insurance Trust Fund, which were built up over the past 4 decades when tax revenues from the large generation of baby-boom workers exceeded benefit payments, will cover the shortfall for about 15 years. But the Social Security actuaries' 2019 intermediate projections show that, under current rules, the combined trust funds will run out in 2035, after which the system will be able to pay only about four-fifths of scheduled benefits (Board of Trustees 2019).

taxes since 1983, the system's long-term financing gap would be 25 percent lower today and the combined trust funds would last another four years. Raising the taxable maximum to cover 90 percent of earnings could improve the system's finances (Social Security Administration 2018d).

EARNINGS AND SOCIAL SECURITY TAXES AND BENEFITS

Social Security is mostly financed by payroll taxes.[1] Covered workers and their employers each contribute 6.2 percent of workers' pay to Social Security. Every year, however, Social Security taxes earnings only up to a certain level, known as the taxable maximum, and future benefits are based only on earnings up to

the taxable maximum. That cap, set at $132,900 in 2019, adjusts each year with changes in the national average wage index, which is based on annual wages and salaries subject to federal income taxes plus contributions to deferred compensation plans.[2] Because wages generally grow faster than prices, the taxable maximum expressed in inflation-adjusted constant dollars has generally increased over time (figure 1). In 1980 the taxable maximum was $25,900, or $76,590 in inflation-adjusted 2018 dollars.[3]

Despite the increase in the taxable maximum over the past four decades, the share of covered workers' earnings subject to Social Security's payroll tax has been declining. The share of earnings below

FIGURE 1

Social Security's Taxable Maximum and the Percentage of Earnings below the Maximum, 1980–2032
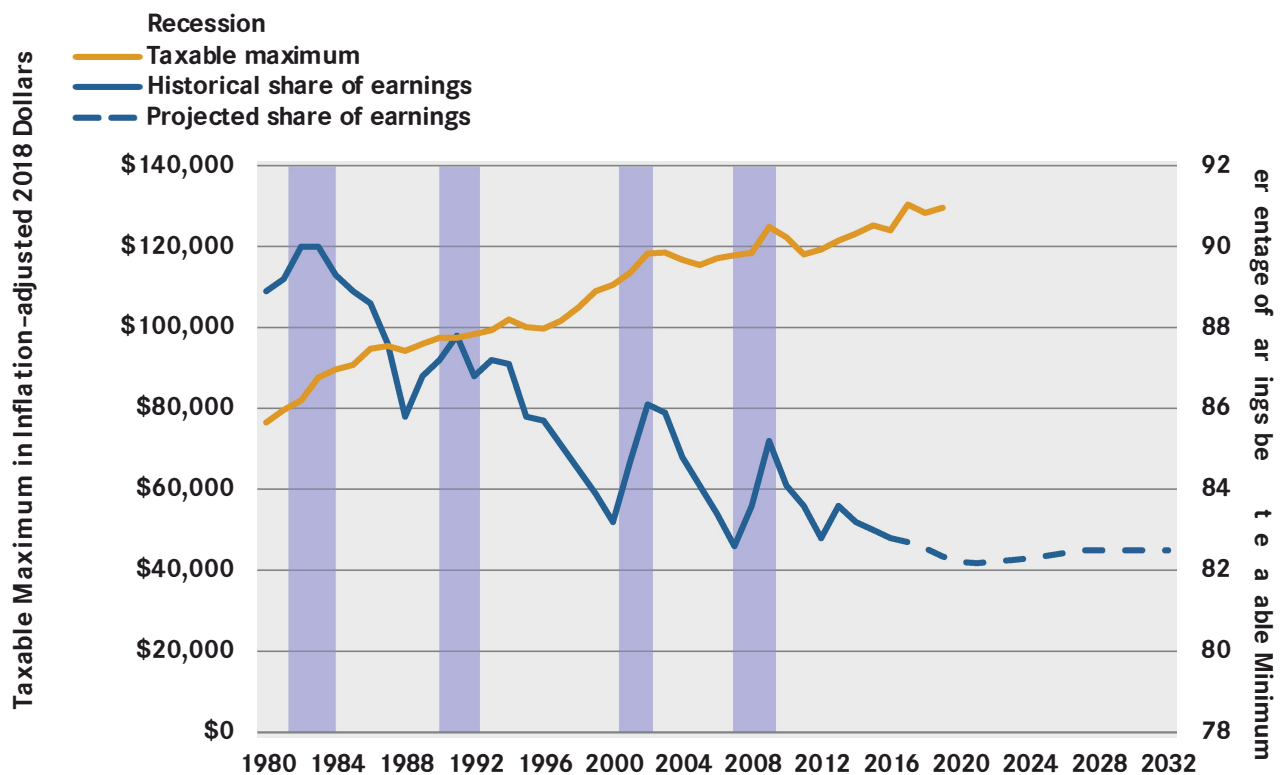
Source: Authors' calculations from Board of Trustees (2018), National Bureau of Economic Research (2010), and Social Security Administration (2018a).

Notes: The taxable maximum is adjusted by the change in the consumer price index for urban wage earners and clerical workers. Projections are based on the Social Security trustees' intermediate assumptions.

the taxable maximum fell from 90 percent in 1983, when Congress last made sweeping changes to Social Security benefits and financing, to 82.7 percent in 2017.[4] Under the Social Security Board of Trustees' intermediate assumptions, the system actuaries project that the share will fall to 82.2 percent in 2022 and then stabilize at 82.5 percent after 2026.[5] The share of earnings below the taxable maximum generally inches up during and immediately after economic downturns, which tend to suppress earnings at the upper reaches of the distribution.[6]

The share of covered workers' earnings subject to the program's payroll tax has fallen because earnings have increased more rapidly for high-wage workers than for moderate- and low-wage workers. Between 1990 and 2017, average earnings from wages and salaries, including deferred compensation, increased 46 percent for workers in the top 10 percent of the distribution, compared with 20 percent for workers in the bottom 90 percent of the distribution (figure 2). During that period, average earnings increased 52 percent for the top 5 percent of workers and
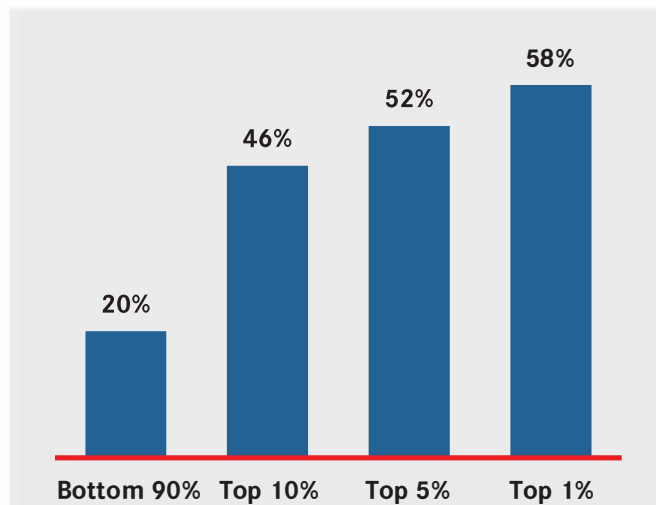
FIGURE 2
### Change in Average Inflation-Adjusted Annual Earnings, 1990–2017

Source: Authors' calculations from administrative earnings data reported by Social Security Administration (2018c).

Notes: The analysis adjusts earnings by the change in the consumer price index for urban wage earners and clerical workers.

58 percent for the top 1 percent of workers.[7] Possible explanations for the rising disparity in earnings growth include skill-biased technological change that disproportionately raised wages for well-educated workers (Autor 2014), growth in international trade (Hakobyan and McLaren 2016), and the decline in labor unions (Card 1996).

IMPACT OF INEQUALITY ON SOCIAL SECURITY FINANCES

To illustrate how growing earnings inequality affects Social Security financing, this report estimates how system revenues and benefit payments would likely have changed if earnings were more evenly distributed across the workforce. This alternative, counterfactual scenario assumes that 90 percent of earnings had been subject to Social Security's payroll tax since 1983, the last year for which the share of earnings covered by Social Security was that high, and that this ratio has continued indefinitely. The analysis compares system revenues and costs under this alternative scenario with historical outcomes and intermediate projections made by the Social Security actuaries through 2092, the final year in the Social Security actuaries' 75-year projection completed in 2018 (Board of Trustees 2018; Social Security Administration 2018a). The simulations compare payments and benefits scheduled under current law, not the more limited benefits that the system could pay under the existing long-term financing gap if current benefit and tax rules continue. Although this approach is relatively simple—adjusting historical and projected outcomes computed by the Social Security actuaries for increases in earnings below the taxable maximum—it illustrates the impact of growing earnings inequality on Social Security finances. The appendix provides more information about analytical methods.

Social Security revenues would increase significantly if 90 percent of earnings were covered by the system. That scenario would raise Social Security payroll tax revenues by 9 percent a year in 2019 and later years, with somewhat smaller increases between 1984 and 2017. Social Security would collect an additional $86 billion in payroll taxes in 2019, $145 billion in

FIGURE 3

Increase in Annual Social Security Tax Revenues and Benefit Payments if 90 percent of Earnings Were Subject to Social Security's Payroll Tax, 1983–2092
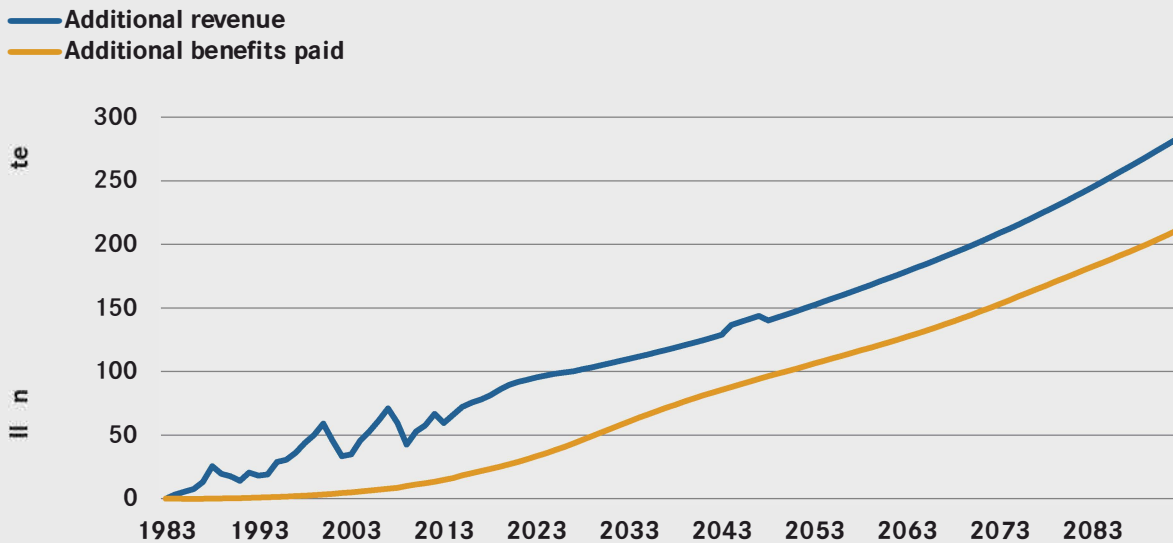
Source: Authors' calculations.

Notes: Estimates exclude changes in interest income. Additional benefits and revenues are adjusted by the change in consumer price index for urban wage earners and clerical workers. See the appendix for details on the methods.

2050, and $283 billion in 2092, measured in 2018 inflation-adjusted dollars (figure 3).

Additional payroll tax revenue would have eventually raised Social Security benefits, but the impact would not have become sizable for decades. Additional benefit payments would always grow more slowly than revenues because Social Security replaces only a fraction of beneficiaries' past earnings, especially at the higher end of the income scale. If 90 percent of earnings had been covered by Social Security since 1983, then annual benefit payments would have increased by 1 percent in 2006, and would increase by 2 percent in 2019, and by 4 percent in 2044 and later years. In inflation-adjusted 2018 dollars, annual benefit payments would increase by $25 billion in 2019, $100 billion in 2050, and $211 billion in 2092.

The cumulative impact of a more equal earnings distribution on Social Security revenues and benefit payments grows substantially over time (figure 4). If 90 percent of earnings had been covered by Social

Security each year since 1983, then system revenues would have increased by $1.5 trillion between 1983 and 2018 (measured in inflation-adjusted 2018 dollars), by $5.1 trillion between 1983 and 2050, and by $13.9 trillion between 1983 and 2092. Benefit payments would have increased by $0.2 trillion between 1983 and 2018, by $2.3 trillion between 1983 and 2050, and by $8.6 trillion between 1983 and 2092. Holding the share of earnings subject to Social Security payroll taxes at 90 percent would improve Social Security's cumulative finances by $5.3 trillion through 2092. Although sizable, this improvement would represent only a modest share of the cumulative $39 trillion shortfall over the period.

By raising revenues more than benefit payments, reducing earnings inequality would delay the year that Social Security's combined trust funds run out, and improve the system's long-run financial outlook (table 1). If 90 percent of earnings had been subject to Social Security's payroll tax since 1983 and that level continued indefinitely, then the projected year of

FIGURE 4

Cumulative Increase in Social Security Revenues and Benefit Payments if 90 percent of Earnings Were Subject to Social Security's Payroll Tax, 1983–2092
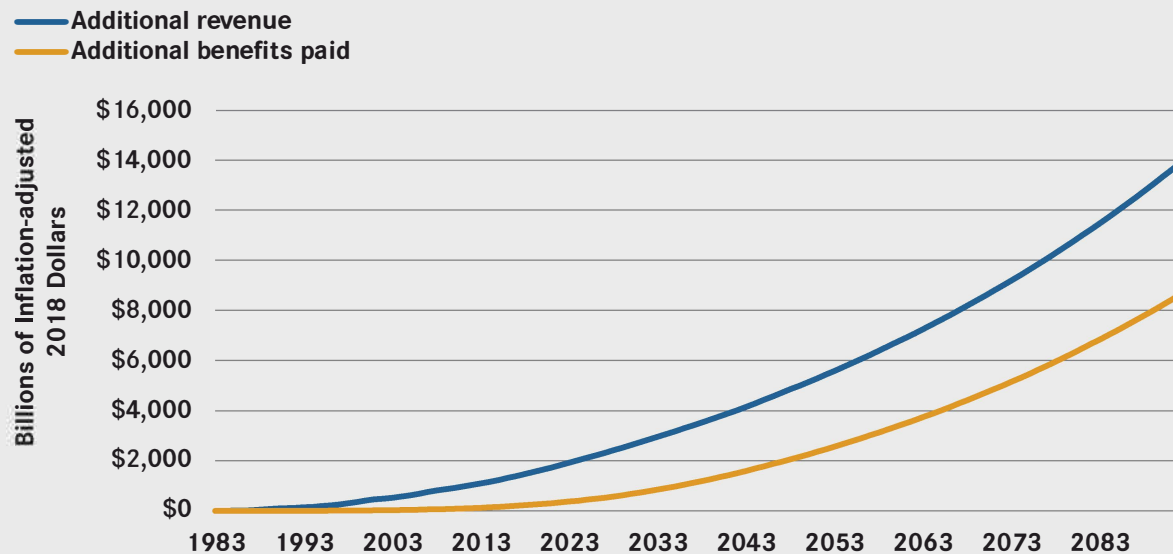
Source: Authors' calculations.

Notes: Additional benefits and revenues are adjusted by the change in consumer price index for urban wage earners and clerical workers. See the appendix for details on the methods.

depletion for Social Security's combined trust funds would increase from 2034 under the Social Security actuaries' 2018 intermediate projections to 2038.

The Social Security trustees compute actuarial balances to assess the system's long-range financial condition. These balances compare income rates, which project noninterest revenue as a percentage of taxable payroll, with cost rates, which project system costs (primarily scheduled benefit payments) as a percentage of taxable payroll. The annual balance subtracts the annual cost rate from the annual income rate. Social Security's long-range financial condition deteriorates as that balance becomes

TABLE 1

Changes in Social Security Finances if 90 percent of Earnings Were Subject to Social Security's Payroll Tax

	Baseline	Alternative Earnings Distribution	Change
Year the combined trust funds are depleted	2034	2038	4 years
Annual balance in 2092, as a percentage of taxable payroll	−4.32	−3.70	14.4%
Long-range actuarial balance (2018), as a percentage of taxable payroll	−2.84	−2.14	24.6%

Source: Authors' computations.

Notes: Baseline estimates are from the Social Security actuaries' 2018 intermediate projections (Board of Trustees 2018).

increasingly negative. The system's *annual balance* 75 years in the future shows how well the system can cover benefits at the end of the actuaries' projection period. The *long-range actuarial balance* summarizes the system's financial condition throughout the 75-year projection period. The long-range actuarial balance is computed as the present discounted value of noninterest revenues over the period plus the value of the combined trust funds at the start of the period, minus the present discounted value of projected costs over the period and the present discounted value of projected costs in the next year, all expressed as a percentage of the present discounted value of taxable payroll projected over the period.

A lower level of earnings inequality would raise Social Security's annual balance in 2092 (the 75th year of the 2018 projection) and long-range actuarial balance. Under the Social Security trustees' 2018 intermediate assumptions, the Social Security actuaries project an annual balance in the 75th year of –4.32 percent of taxable payroll and a long-range actuarial balance of –2.84 percent of taxable payroll. If 90 percent of earnings had been subject to Social Security's payroll tax since 1983, it is estimated that the annual balance in the 75th year would increase 14.4 percent, to –3.70 percent of taxable payroll, and the long-range actuarial balance would increase 24.6 percent, to –2.14 percent of taxable payroll.

The growth in wage inequality makes it more difficult to fix Social Security's fiscal imbalance. If wage inequality had remained at its 1983 level, so that 90 percent of earnings had been covered by Social Security, the system could have been balanced today through payroll tax rate increases alone if employers and employees each contributed an additional 1.07 percent of payroll. Because wage inequality has grown since 1983, employers and employees would have to begin contributing 1.42 percent of payroll today to close the long-term financing gap solely with tax hikes.

CONCLUSIONS

Growing wage inequality reduces the share of earnings subject to Social Security payroll taxes, slicing system revenues and worsening Social Security's financial outlook. As earnings grew faster for high-wage workers than for moderate- and low-

wage workers, the share of earnings subject to Social Security's payroll tax fell from 90 percent in 1983 to 82.7 percent in 2017, and the Social Security trustees project that the share will slip to 82.5 percent in 2027 and remain at that level indefinitely. This decline will reduce Social Security revenues by $13.9 trillion between 1983 and 2092. Although relatively slow earnings growth for workers below the taxable maximum will trim future benefit payments, revenues will shrink more than benefits, worsening Social Security's finances. If the wage distribution had been unchanged so that 90 percent of wages had been subject to Social Security payroll taxes since 1983, then the system's long-term financing gap would be 25 percent lower today and the combined trust funds would last another four years.

The analysis shows how the earnings distribution affects Social Security revenue from payroll taxes, but the earnings distribution affects the system in other ways too. For example, the concentration of earnings growth among high-wage workers can raise the national average wage index. Because initial benefits are tied to the growth in this index over a career, rising earnings for high-wage workers can boost Social Security benefits for workers throughout the wage distribution, including low-wage workers (although low-wage workers receive even higher Social Security benefits when their own wages grow faster). In addition, high-wage workers may eventually pay more income taxes on their Social Security benefits when their wages grow rapidly, because only those beneficiaries with significant income outside of Social Security owe income taxes on their benefits. Social Security receives some of the revenue from these income taxes, offsetting some of the Social Security payroll tax revenue lost when earnings become more unequal.

To mitigate the effect of growing earnings inequality on Social Security's finances, several Social Security reform proposals recommend raising the system's taxable maximum (Altman 2005; Commission on Retirement Security and Personal Savings 2016; Diamond and Orszag 2004; National Commission on Fiscal Responsibility and Reform 2010). The Social Security actuaries project that gradually raising the taxable maximum beginning in 2019 so that 90 percent of earnings are

subject to the payroll tax in 2028 and later years, and providing benefit credits for those additional covered earnings, would eliminate 28 percent of Social Security's long-range actuarial balance (Social Security Administration 2018d).[8] This step would improve Social Security's long-term financial outlook, but it would not eliminate the financial gap without additional revenue increases or benefit cuts.

APPENDIX: ESTIMATING IMPACTS ON SOCIAL SECURITY FINANCES

To illustrate the impact of earnings inequality on Social Security's finances, this report simulates how system revenues, benefit payments, and combined trust fund balances would likely change if earnings were more equally distributed across the workforce. It compares historical outcomes and the Social Security trustees' 2018 projections under their intermediate set of assumptions (Board of Trustees 2018; Social Security Administration 2018a) with outcomes simulated under the assumption that 90 percent of Social Security–covered payroll was taxable every year from 1984 to 2092, the final year in the Social Security actuaries' 2018 75-year projection. The simulations compare payments and benefits scheduled under current law, not the more limited benefits that the system could pay under the existing long-term financing gap if current rules continue.

The approach is relatively simple: adjusting historical and projected outcomes computed by the Social Security actuaries for increases in earnings below the taxable maximum. For simplicity, the analysis assumes that the hypothetical shift in the earnings distribution under the counterfactual scenario would not affect economic growth or the national average wage index that factors into the computation of benefits. Although this approach is not as precise as more sophisticated microsimulation or actuarial modeling, it illustrates the impact of growing earnings inequality on Social Security finances.

Simulating revenues under the counterfactual scenario is straightforward. For each year, the additional payroll that would be covered by Social Security if 90 percent of covered workers' total earnings fell under the program's taxable maximum

is calculated and multiplied by the payroll tax rate in effect that year (for employees and employers combined).[9] This additional tax revenue is added to historical revenues and those projected by the Social Security actuaries to derive total revenue under the counterfactual scenario. For simplicity, the analysis assumes that the shift in the earnings distribution does not change system revenues derived from the income taxation of benefits.

The additional earnings covered by Social Security under the counterfactual scenario eventually generate additional benefits, although the impact depends on how those earnings are distributed across the workforce. To estimate the increase in benefits, the analysis first computes annual Social Security retirement benefits for workers who received the median level of earnings each year from ages 30 to 64 and began collecting benefits at age 65. It then calculates how much their annual income and future benefits would increase if 90 percent of total payroll had been covered by Social Security and all earnings below the taxable maximum rose by the same percentage to reach that target. For workers who retired in 1985, the boost in retirement benefits is negligible because only their final year of earnings increases, but benefits grow meaningfully for later retirees. Annual benefits would increase about 2 percent for workers who retired in 2010, whose annual covered earnings would have risen for much of their careers. Annual benefits would increase about 5.7 percent for workers retiring after 2052, whose annual covered earnings would rise at least 9 percent throughout their careers.

Changing the distribution of earnings would affect only new benefits paid by Social Security. Because newly awarded benefits now account for about 10 percent of all benefits paid, benefits paid under the counterfactual scenario are set equal to actual benefits paid (or the amount now projected by the Social Security actuaries), augmented by one-tenth of the percentage increase in payments computed for new beneficiaries. The report assumes that the number of years that these additional benefits are paid equals the average age 65 life expectancy, which rises from about 15 years for men turning age 65 in 1984 to about 21 years for

men reaching that age in 2050, according to Social Security's intermediate projections (Social Security Administration 2018b).

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1 Since 1984, revenue from income taxes on Social Security benefits paid to relatively high-income beneficiaries has also helped finance the system. In 2017, the taxation of benefits accounted for 4 percent of Social Security's noninterest revenue (Board of Trustees 2018). The Social Security actuaries project that this share will rise over time as the portion of beneficiaries receiving Social Security payments subject to the income tax grows.

2 The taxable maximum rises only in years when Social Security grants beneficiaries a cost-of-living adjustment, which is triggered by an increase in the consumer price index for urban wage earners and clerical workers of at least 0.1 percent. Before 1975, Congress increased the taxable maximum on an ad hoc basis (Whitman and Shoffner 2011). The national average wage index excludes self-employment earnings.

3 Because inflation reduces the dollar's purchasing power, meaningful comparisons of dollar amounts over time should account for price changes. This report generally reports statistics in inflation-adjusted 2018 dollars, which show how much a dollar amount in a particular year could purchase in 2018. To convert an amount into 2018 dollars, multiply the value by the consumer price index for 2018 and then divide it by the consumer price index for that year.

4 The Social Security taxable maximum has been indexed to average wages since 1975, except for ad hoc increases in 1979, 1980, and 1981 (Whitman and Shoffner 2011).

5 The Congressional Budget Office (2018) projects that the portion of earnings subject to the Social Security payroll tax will fall to 81 percent in 2028 and 79 percent in 2048, and that it will remain at that level indefinitely.

6 The share of workers with annual earnings above the taxable maximum has not changed much over the past four decades. In both 1983 and 2015, 6.3 percent of workers earned more than the taxable maximum (Social Security Administration 2018a).

7 In 2017, the top 10 percent of earners received more than $98,200, the top 5 percent earned more than $135,700, and the top 1 percent earned more than $299,400. In 1990, the top 10 percent of earners received more than $77,300 (in inflation-adjusted 2017 dollars), the top 5 percent earned more than $98,800, and the top 1 percent earned more than $190,000.

8 Raising Social Security's taxable maximum has a slightly larger impact on system finances than changing the distribution of earnings because future benefit outlays would increase more under the latter option. Most workers who would pay more if the taxable maximum were raised would end up with high lifetime earnings. Because Social Security's benefit formula is progressive, they would not receive much additional payment from the system in exchange for their additional taxes. If, instead, the distribution of earnings became more equal, earnings and payroll taxes would increase for many lower-earning workers, and their future retirement benefits could increase significantly. These future payouts limit the impact on Social Security's finances.

9 The total tax rate was 11.4 percent from 1984 to 1987, 12.12 percent in 1988 and 1989, and 12.4 percent after 1989.

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