RESEARCH REPORT

Measuring Work Disincentives at Older Ages

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Measuring Work Disincentives at Older Ages

Compensation drives work decisions: people are more likely to participate in the labor force and tend to work more hours when they are better rewarded for their efforts, and they are less likely to participate when the rewards for work fall (Keane 2011). How much work rewards employees depends on cash pay as well as benefits, taxes, and the structure of various public programs. Many employers supplement workers' wages and salaries with health and retirement benefits, while Social Security and Medicare payroll taxes and federal and state income taxes reduce net compensation. Rules governing public programs also affect how much work pays: Social Security benefits depend on lifetime earnings, so workers tend to accumulate additional future benefits as they earn more.

The tax code, employee benefits, and the retirement system can reduce the financial gains from working at older ages, discouraging older adults from remaining employed. Federal rules require that people with individual retirement accounts (IRAs) begin withdrawing funds at age 72. These withdrawals are taxable and can push workers into a higher income-tax bracket, raising taxes on their earnings. Medicare eligibility begins at age 65 for people without disabilities, but those who remain employed past that age and receive health benefits from their employer forfeit much of their Medicare benefits because Medicare covers only health care expenses not covered by their employer-sponsored health insurance.

Social Security can also discourage work at older ages. Only the 35 highest-earnings years are considered in the Social Security benefit formula, so once workers have 35 years of covered employment, additional work raises future Social Security benefits only if these additional earnings exceed what was earned in previous years. Moreover, Social Security's progressive benefit formula often penalizes older workers. Social Security benefits replace 90 percent of earnings for beneficiaries with very limited lifetime earnings, but an additional dollar in monthly earnings averaged over a career increases monthly Social Security benefits only 15 cents for workers with high lifetime earnings. Because older workers with long employment histories tend to have relatively high lifetime earnings, additional employment does not raise future Social Security benefits much for many older workers. Workers who earned much less than their spouse over their lifetime often receive Social Security benefits tied to their surviving or deceased spouse's earnings, further weakening the relationship between their own earnings and future retirement benefits.

Traditional defined-benefit (DB) pension plans are another source of work disincentives at older ages. Most public-sector employers and some large private-sector employers offer these plans to employees. They provide a lifetime pension that begins at retirement and is generally equal to a set fraction of the worker's final average salary for each year of completed service. Because workers can only collect these earnings after they separate from their employer, a DB pension's lifetime value often declines if employees remain at work after they qualify for full benefits and thus receive fewer lifetime monthly payments, penalizing work at older ages.

Together, these features of the tax code, employee benefits, and the retirement system can create strong financial penalties for working at older ages. Although many older adults choose to work despite these penalties, these financial disincentives may encourage many other older adults to leave the labor force.

This report describes the combined impact of the tax system, employee benefits, Social Security, and Medicare on the financial incentive to work at older ages. We compute the implicit tax on work, which indicates how much employees' financial reward for working falls below compensation paid by employers, and we show how it varies across the workforce and how it changes as workers age. The implicit tax includes direct taxes, such as state and local income taxes and Social Security and Medicare payroll taxes paid directly by workers, as well as indirect taxes, such as payroll taxes paid by employers and the increment to future income tax liabilities from additional work. The implicit tax also includes other negative and positive offsets, such as the loss of Medicare benefits by Medicare-eligible workers who receive health benefits from their employers and the gain in future Social Security benefits from working longer. To measure the tax on work, we compare how much a person would pay in taxes and other offsets over his or her lifetime by working at a particular age with how much he or she would pay if not engaging in any additional work. Estimates come from the Dynamic Simulation of Income Model 4 (DYNASIM4), the Urban Institute's dynamic microsimulation model, and use the tax laws in effect in 2019.

The results show that the tax, retirement, and employee benefits systems increasingly discourage work as people age. Combining direct income and payroll taxes paid by employees, indirect taxes paid by employers, and compensation offsets from retirement and employee benefit programs, our simulations indicate that the median implicit tax on work rises from 14.6 percent of total compensation at age 60 to 27.3 percent at age 65, 30.3 percent at age 66, and 29.9 percent at age 70. Implicit taxes on work increase with age because most workers with employer health benefits forfeit Medicare benefits beginning at age 65, minimum withdrawal requirements for IRAs push many older workers into higher income-tax brackets, and older workers tend to accumulate fewer additional Social Security credits than younger workers. Implicit taxes on work are generally higher for single workers than for married workers.

Background

Income taxes and Social Security and Medicare payroll taxes reduce take-home pay and make employment less rewarding, discouraging people from working. Certain rules regarding employee benefits, Social Security, and Medicare create additional work disincentives, especially at older ages.

Taxes

Earnings are subject to income taxes by the federal government and most state governments. (Some local governments also tax earnings.) The federal income tax code is progressive, exempting the first several thousand dollars of income and raising marginal tax rates as income grows. In 2019, single filers with no dependents who took the standard deduction did not owe any federal income tax unless their income exceeded $12,200 (or $13,850 if they were age 65 or older). Their married counterparts who filed jointly were exempt from federal income tax if their income did not exceed $24,400 (or $27,000 if both spouses were age 65 or older). Marginal tax rates ranged from a low of 10 percent on taxable income that did not exceed $9,700 (for a single taxpayer) or $19,400 (for a married couple) to a high of 37 percent on taxable income over $510,300 or $612,350.[1] The value of most itemized deductions also phases out at very high incomes. Further, single people whose adjusted gross income (AGI) exceeded $200,000 and married couples whose AGI exceeded $250,000 faced up to a 3.8 percent tax surcharge on their net investment income.

Social Security benefits are generally not subject to federal income taxes except for high-income beneficiaries, particularly those who continue to work, receive generous pension benefits, or collect significant investment income. If AGI plus tax-exempt interest income and one-half of Social Security benefits (modified AGI) fall below $25,000 for single taxpayers or $32,000 for couples, beneficiaries pay no federal income taxes on their Social Security income. However, up to 50 percent of Social Security income is taxable for single taxpayers with modified AGI between $25,000 and $34,000 (or between $32,000 and $44,000 for couples). Up to 85 percent of Social Security income is taxable for single taxpayers with modified AGI over $34,000 (or $44,000 for couples). These income thresholds are fixed. As price and productivity gains raise wages and Social Security benefits over time, a growing share of beneficiaries will pay taxes on their Social Security benefits.

People must generally begin withdrawing funds from traditional IRAs and employer retirement accounts once they reach a certain age. The minimum required distribution age had been 70-and-a-half, but federal legislation signed into law in December 2019 raises the age to 72 in 2020. Workers (and

sometimes their employers) can contribute to these accounts each year and can deduct those contributions from their taxable income (up to a certain limit). Income taxes must be paid on funds withdrawn from the accounts. At the minimum required distribution age, account holders must withdraw about 4 percent of their account balance. This required minimum distribution increases each year as remaining life expectancy declines. People who are still working at the minimum required distribution age do not have to withdraw funds from an employer retirement account, but they do have to withdraw funds from traditional IRAs. (Roth IRAs, which are funded by post-tax contributions, do not require older account holders to take distributions.) Because many people transfer funds from 401(k) plans and other employer retirement accounts to IRAs when they change jobs, IRAs now hold more funds than employer retirement accounts (Investment Company Institute 2017).

Most workers also pay state income tax on their earnings and some retirement benefits. Forty-one states and the District of Columbia tax earnings.[2] State income taxes are much lower than federal income taxes. In 2018, the top marginal tax rate in most states was about 6 or 7 percent; the highest marginal tax rate, in California, was 12.3 percent.[3]

Earnings are also subject to Social Security and Medicare payroll taxes. Workers and their employers each pay a flat Social Security tax equal to 6.2 percent of earnings and a flat Medicare tax equal to 1.45 percent of earnings. Annual earnings above a certain level are exempt from Social Security taxes but not Medicare taxes. The taxable ceiling for Social Security, which increases each year by the percentage change in the average economy-wide wage, was $132,900 in 2019. Although employers nominally pay half of the payroll tax, most economists believe that employers offset their share of the tax bill by reducing wages below what they would have paid without the payroll tax. Thus, workers ultimately pay the entire payroll tax themselves, and we include employer contributions in our measure of the implicit tax rate.

Since 2013, Medicare has imposed a tax surcharge on high earners. Workers must pay an additional 0.9 percent Medicare payroll tax on earnings above $200,000 for single taxpayers and above $250,000 for married couples. Employers are not subject to the Medicare surcharge.

Employee Benefits

Employers typically offer their workers nonwage benefits, mostly health insurance and retirement plans. These benefits generally influence the financial gains from working.

HEALTH BENEFITS

About one-half of employers offered health insurance benefits to their workers in 2017, at an average per worker annual cost of $6,690 for single coverage (Claxton et al. 2017). The average cost is higher for older workers because they tend to use more health services than younger workers. Most employees who choose to participate in employer-sponsored health insurance must make explicit contributions to offset part of the cost. The average annual contribution in 2017 for single coverage was $1,213. The share of health insurance costs that workers explicitly pay themselves is of less economic relevance here, however, because workers generally pay the entire cost of their health benefits, either explicitly or implicitly in the form of lower wages. Basic economic theory predicts that employers in competitive labor markets pay compensation equal to workers' productivity, and payments in the form of health benefits and other types of nonwage compensation are offset by lower wages. Although antidiscrimination laws forbid employers from charging older workers higher contributions than younger workers, employers may compensate for the high cost of providing health benefits to older workers by limiting wage growth at older ages.

Workers with employer-sponsored health insurance generally forfeit their benefits when they retire. At age 65, however, virtually all Americans qualify for Medicare benefits, eliminating the need to obtain primary coverage in the nongroup market. For workers who wish to retire before age 65, some employers offer retiree health benefits, enabling these workers to continue their employer-sponsored health insurance after they retire until they qualify for Medicare benefits at age 65. Some retiree health plans also supplement Medicare benefits after age 65. Retiree health benefits reduce work incentives.

Workers with employer-sponsored health insurance forfeit their Medicare benefits when they remain on the job beyond age 65. Federal law establishes employer-sponsored health insurance as the primary payer of medical expenses for active workers age 65 and older. Medicare becomes secondary coverage, paying only for Medicare-covered services not included in the employer benefits package. The loss of Medicare benefits raises the cost of employing older workers, which employers can offset by limiting an employee's wage growth at older ages. The Medicare secondary payer rule, then, creates an implicit tax on work at older ages.

RETIREMENT PLANS

About one-half of full-time workers participated in employer-sponsored retirement plans in 2017.[4] There are two general types of retirement plans: defined-contribution (DC) plans, which covered 43 percent of civilian workers, and traditional DB pension plans, which covered 21 percent of civilian workers (Bureau of Labor Statistics 2019). (Some workers have both types of coverage.) In 401(k) plans,

the most common type of DC retirement plan, employers (and generally employees) make tax-deferred contributions to a retirement account in a participant's name, usually a share of the employee's salary but sometimes a specific dollar amount. At retirement, workers receive the funds that have accumulated in their accounts. They can use these funds to purchase annuities, although relatively few do (Johnson, Burman, and Kobes 2004). Income from DC accounts is taxable upon withdrawal. Workers face tax penalties if they withdraw funds before age 59-and-a-half, but penalties are waived if they receive benefits as annuities.

Traditional DB pension plans provide workers with lifetime annuities that begin at retirement and pay benefits typically expressed as a multiple of years of service and earnings received near the end of a career (e.g., 1 percent of average salary over the final three years on the job, multiplied by years of service). Participants cannot collect benefits until they reach their plan's retirement age. Some plans allow workers to collect reduced benefits at specified early retirement ages. Income from DB plans is not taxable until it is received in retirement.

Pension wealth, or the present discounted value of the stream of future expected benefits, tends to grow slowly in DB plans for young workers, increase rapidly at older ages once workers approach the plan's retirement age, and decline if workers remain on the job past the retirement age. Pension wealth is minimal at younger ages because junior employees typically earn low wages and have completed only a few years of service. Further, future benefits are discounted many years into the future. Wealth rises rapidly as workers age and accumulate tenure. An additional year on the job increases DB pension benefits not only by adding an additional percentage of pay but also by raising the value of previous benefit accruals through a combination of real wage growth and inflation. This increment is often substantial for workers with lengthy job tenures. Pension wealth also increases as workers approach retirement age and benefits are no longer discounted far into the future.

Workers in traditional DB plans often lose pension wealth if they stay on the job beyond a certain age or seniority level. Growth in promised annual retirement benefits slows at older ages as wage growth declines. Some plans also cap the number of years of service that workers can credit toward their pensions, and others cap the share of preretirement earnings that the plan can replace in retirement. Moreover, for every year that workers remain on the job past the plan's retirement age, they forgo a year of benefits. Pension wealth declines when the increase in annual benefits from an additional year of work is insufficient to offset the loss from the reduction in the number of pension installments.

Pension wealth in DC plans, which equals the value of the account balance, grows each year by the value of employee and employer contributions to the plan and by the investment returns earned on the account balance. Although sharp changes in investment returns can lead to discontinuities in DC plan wealth, it does not systematically increase before the retirement age or fall thereafter.

Social Security

Social Security benefits depend on the employment and earnings history of both the beneficiary and spouse. Adults qualify for future benefits based on their own earnings once they accumulate 40 quarters of covered employment. Benefits are calculated in three steps, beginning with the computation of average wage-indexed monthly earnings from the highest 35 years of indexed earnings. The second step uses average indexed monthly earnings to compute the primary insurance amount (PIA), the monthly benefit payable at the full retirement age (FRA). The benefit formula is progressive, providing a larger PIA as a share of lifetime earnings for those with low lifetime earnings than for those with high lifetime earnings. The last step computes the actual Social Security benefit by actuarially adjusting the PIA based on when a beneficiary begins collecting payments. Social Security reduces payments for those who collect benefits before the FRA and increases benefits for those who do not begin collecting until after the FRA, because delaying retirement reduces the number of monthly payments received.

Social Security also pays auxiliary benefits to eligible spouses, divorced spouses, and survivors of retired workers, based on the worker's earnings. Unless reduced for early retirement, benefits paid to current and divorced spouses equal one-half of the worker's PIA, and benefits paid to survivors equal the deceased worker's full PIA (even if they divorced before the worker's death). Auxiliary benefits are then reduced by the amount of benefits received as a retired worker. Workers who earn at least as much as their spouses over their lifetime or not much less than their spouses do not qualify for spousal benefits, because the Social Security benefits they receive based on their own earnings exceed half the value of their spouse's benefit.

The impact of an additional year of work on future Social Security benefits depends on a worker's earnings history, his or her spouse's earnings history, and the age the worker chooses to begin collecting benefits. Because average indexed monthly earnings are based on a worker's highest 35 years of earnings, working an extra year will not raise future Social Security benefits unless current earnings exceed adjusted earnings in the least remunerative of the 35 years already used in the computation (Goda, Shoven, and Slavov 2011). Further, those with much lower lifetime earnings than their spouses

receive benefits based on their spouses' earnings histories and gain no additional Social Security benefits from work.

Delaying benefit take-up increases the size of monthly Social Security checks, up to age 70. Workers born in 1950 (who faces an FRA of 66) would receive monthly Social Security payments equal to only 75 percent of their PIA if they claimed benefits at age 62, the earliest possible age. But they would receive 132 percent of their PIA if they delayed claiming benefits until age 70. (These adjustments end at age 70, so delaying take-up beyond age 70 does not raise monthly benefits.) Thus, those who postpone collecting benefits until they leave the labor force raise the value of their monthly benefit checks by working an extra year, but they also reduce the number of lifetime payments they receive. The optimal take-up age depends in part on mortality expectations: Those who survive to quite advanced ages will gain more from claiming later than those who die earlier. Evidence shows that many people could raise the value of their lifetime Social Security benefits by claiming at older ages (Coile et al. 2002; Shoven and Slavov 2014).

Past Research

Several studies have highlighted the work disincentives built into the tax-and-transfer system. Gokhale, Kotlikoff, and Sluchynsky (2002) compared, for a representative two-earner couple, lifetime earnings with lifetime taxes and the lifetime value of transfer payments lost because of work. The authors concluded that workers sacrifice nearly 50 cents in tax payments and forgone transfers for every dollar earned, but they did not consider how this implicit tax changes with age. Goda, Shoven, and Slavov (2009) estimated that the loss of Medicare benefits that results because Medicare is the secondary payer of health care costs for workers with employer-sponsored health insurance creates an average implicit tax on work for men that increases from 15 percent at age 65 to 45 percent at age 80. For women, the Medicare-related tax on work increases from 20 percent at age 65 to 80 percent at age 80. Diamond and Gruber (1999) estimated that Social Security creates an implicit tax on work of 8 percent for a 62-year-old man who earned the median economy-wide salary throughout his career. The authors estimated that the implicit tax on work related to Social Security increases to 33 percent at age 65 and 44 percent at age 69.

Butrica et al. (2006) computed implicit tax rates on work at older ages, accounting for the combined impact of federal income taxes, payroll taxes, Social Security, Medicare, and employee benefits. They concluded that for an unmarried man earning a moderate salary throughout his career with a DC retirement plan and no retiree health insurance, the implicit tax rate on work increases from 14 percent

at age 55 to 25 percent at age 62, 39 percent at age 65, and 50 percent at age 70. The authors found that implicit tax rates are higher for workers who earn more and for workers in DB pension plans. These estimates did not account for state income taxes.

Most existing studies were based on prototypical workers, making it difficult to determine how implicit tax rates are distributed across the workforce. An exception is a study from Auerbach and colleagues (2017), who estimated implicit tax rates by running a nationally representative sample of older adults from the Federal Reserve's 2013 Survey of Consumer Finances through the Fiscal Analyzer, a software tool the authors developed. The study accounted for the full range of tax and transfer programs, including Medicaid, the Supplemental Nutrition Assistance Program, Temporary Assistance to Needy Families, and the estate and gift tax. They estimated that a one-year, $20,000 increase in current earnings incurs a marginal net tax rate of 47 percent for workers in the middle of the income distribution. The marginal tax rate is 59 percent for those in the top fifth of the income distribution and 83 percent for those in the bottom fifth. The tax rate is especially high for people with limited resources because many would lose means-tested transfers (such as Medicaid, Supplemental Nutrition Assistance Program benefits, and Temporary Assistance for Needy Families benefits) by working. One shortcoming of these estimates, however, is that they are based on relatively few observations. Their sample included only 2,658 households headed by adults ages 50 to 79. Further, the study relied on imputed earnings histories, which could limit the reliability of estimates of future Social Security benefits and the implicit tax on work that arises from Social Security rules.

Methods

To examine how the financial rewards from working change as people age, we compute the implicit tax rate on work (the implicit tax on work divided by total compensation) for a random sample of adults ages 60 to 70. Our analysis defines the implicit tax on work as the difference between the compensation paid by employers and the total value of wages and nonwage benefits that workers take home. It includes direct taxes, such as state and local income taxes and Social Security and Medicare payroll taxes paid directly by workers. It also includes indirect taxes, such as payroll taxes paid by employers and the increment to future income tax liabilities from additional work, as well as other negative and positive offsets, such as the loss of Medicare benefits by Medicare-eligible workers who receive health benefits from their employers and the gain in future Social Security benefits from working longer. To measure the tax on work, we compare how much someone would pay in taxes and other offsets by working full-time at a particular age with how much they would pay if they did not work at all. The

analysis uses the tax laws in effect in 2019, including the provisions of the Tax Cut and Jobs Act; it does not incorporate the increase in the minimum required distribution age that goes into effect in 2020.

DYNASIM4

We use DYNASIM4 to simulate earnings, total compensation, and the implicit tax on work at various ages for a random sample of older adults. Developed by the Urban Institute, DYNASIM4 starts with a representative sample of the US population in 2006 from the Survey of Income and Program Participation and ages it year by year, simulating key demographic, economic, and health events. For example, DYNASIM4 projects that each year, some people in the sample get married, have a child, or find a job. Other people become divorced or widowed, stop working, begin collecting Social Security, become disabled, or die. These transitions are based on probabilities generated by carefully calibrated equations estimated from nationally representative household survey data. The equations account for differences by sex, education, income, and other characteristics in the likelihood of various experiences. For consistency with Social Security's and Medicare's projections, we generally follow the assumptions on future annual inflation and interest rates, earnings growth, fertility, mortality, and immigration that were adopted by these programs' trustees.

DYNASIM4 projects employment, earnings, and employee benefits each year. Annual earnings for an individual are determined as the product of three independently simulated variables: employment status, annual hours worked, and a worker's hourly wage. For those who work, the model projects whether an employer provides health benefits and a retirement plan as well as the type of retirement plan provided (DB, DC, or cash balance). The model simulates DB pensions from private-sector employers based on DB plan formulas from the Pension Benefit Guaranty Corporation's pension insurance modeling system. For federal government workers and military personnel, DYNASIM4 uses actual benefit formulas to calculate pension benefits. Pension benefits for state and local government workers are simulated based on pension replacement rates available from the Bureau of Labor Statistics. The model projects that some DB plans will freeze over time and assumes that employers move workers in frozen DB plans into cash-balance plans. For workers offered a DC plan by their employer, DYNASIM4 projects DC plan participation and employer and employee contributions as well as account balances. Employer-sponsored health insurance is simulated in a similar way, by projecting whether an employer offers health insurance coverage and whether an employee participates.

DYNASIM4 also projects benefit payments and tax liabilities. The model uses program rules—combined with projections of lifetime earnings, disability and health status, and household income and

wealth—to project Social Security retirement and disability benefits, Medicaid coverage, and Medicare payments and premiums. Tax calculators simulate Social Security and Medicare payroll taxes and federal and state income taxes. They incorporate payment rules in effect for 2017 and cover every state that levies an income tax. For additional information about DYNASIM4, see Urban Institute (2015) and Favreault, Smith, and Johnson (2015).

Computing Implicit Tax Rates

The analysis uses DYNASIM4 to simulate total compensation and the implicit tax on work at older ages. Total compensation includes cash earnings; the employer share of Social Security and Medicare payroll taxes; employer contributions toward workers' employer-sponsored health insurance and DC retirement plans (for workers with these benefits); and, for workers in a DB pension plan, the change in DB pension wealth from an additional year of work. DB pension wealth usually increases with an additional year of work, but it sometimes falls for workers who remain employed after reaching their plan's normal retirement age and forfeit retirement benefits while they continue working.

The implicit tax on work includes direct taxes, indirect taxes, and other offsets. Direct taxes consist of federal and state income taxes and Social Security and Medicare payroll taxes paid directly by workers. We use the tax rates in effect in 2019 and assume that they continue indefinitely. We do not include income taxes levied by local governments, because most localities do not tax income and DYNASIM4 does not project these payments. To isolate the direct tax associated with work, we compute how much income taxes a person would pay if he or she did not work and subtract that from the taxes he or she pays when working.

Indirect taxes consist of Social Security and Medicare payroll taxes paid by employers and the increment to future federal and state income taxes from additional work. People who work longer may save more, generating future investment income, and they generally accrue additional future Social Security and pension income. People who work longer also generally postpone collecting Social Security and any DB pension they may have earned, increasing their monthly payments when they collect. The additional future income that flows to people who work longer raises their future tax liability.

Other offsets include losses of Medicare benefits and gains to future Social Security benefits from working longer. Our analysis computes lost Medicare benefits as the expected value of services paid by Medicare Parts A, B, and D (covering inpatient and outpatient care and pharmaceuticals), minus the premiums that a worker would have paid for Parts B and D. (Medicare beneficiaries do not generally pay premiums for Part A.) We consider the loss of Medicare benefits and increments to future Social

Security wealth as an implicit tax (either positive or negative) because they alter net compensation without changing employer payments.

Using DYNASIM4, we simulate earnings, total compensation, direct taxes, and the implicit tax on work from ages 60 to 70. We restrict our sample to 9,962 adults born between 1959 and 1968 who were working at age 59 and who survived to age 70. We simulate outcomes under the assumption that workers continue in the job they held at age 59 and receive each year their age-59 earnings, adjusted for inflation, because earnings do not generally increase faster than inflation after age 55 (Johnson and Neumark 1996). At each age, we compare financial outcomes under a scenario in which workers remain employed for another year and retire the following year with outcomes under an alternative scenario in which workers retire at that age. We assume that retirees do not work at all and collect Social Security and any other retirement benefits to which they are entitled, but they do not begin collecting Social Security before age 62 (the early entitlement age for Social Security) or after age 67 (the approximate Social Security FRA for most workers in our sample). The analysis subtracts current direct and indirect taxes and other offsets (and the expected present value of future lifetime taxes and offsets) simulated under the no-work scenario from those simulated under the work scenario to estimate taxes associated with work. The present value calculations use a 2.9 percent annual real interest rate. The simulations do not change spouses' employment; spouses' employment remains at the levels simulated by DYNASIM4's baseline projections under both the work and no-work scenarios. All estimates are reported in constant 2015 dollars.

Results

We begin by computing a standard tax rate, showing how much older adults pay directly from their paycheck by working an additional year. For workers across the labor force, the mean direct tax on work at ages 60 to 66 varies between 21.1 and 24.8 percent (table 1). Most taxes are paid as federal income taxes. Over the age range, the average federal income-tax rate associated with working for another year varies from 11.7 to 14.3 percent of earnings. Mean state income-tax rates on work are much lower, ranging from 2.8 to 3.5 percent. Average payroll taxes paid directly by workers vary from 6.5 to 7.1 percent. This rate is lower than the statutory rate of 7.65 percent (6.2 percent to Social Security, including the Social Security disability trust fund, and 1.45 percent to Medicare) because some workers are not covered by Social Security or Medicare and because workers do not pay taxes on annual income that exceeds the taxable maximum (set at $132,900 in 2019).

TABLE 1

Mean Direct Tax on Work

Age	Annual salary ($)	Employee payroll taxes ($)	Federal income taxes ($)	State income taxes ($)	Direct tax on work ($)	Take-home pay ($)	Direct tax rate (%)
60	65,389	4,276	7,690	1,852	13,819	51,571	21.1
61	65,351	4,287	7,778	1,869	13,934	51,417	21.3
62	65,333	4,318	7,841	1,957	14,116	51,217	21.6
63	65,351	4,313	7,782	1,858	13,953	51,398	21.4
64	65,341	4,315	7,652	1,826	13,793	51,548	21.1
65	65,340	4,605	9,173	2,258	16,035	49,304	24.5
66	65,327	4,610	9,358	2,263	16,231	49,096	24.8
67	65,327	4,566	10,755	2,209	17,530	47,797	26.8
68	65,327	4,620	11,576	2,370	18,566	46,762	28.4
69	65,325	4,677	12,131	2,382	19,189	46,136	29.4
70	65,546	4,748	13,344	2,473	20,564	44,982	31.4

Source: Authors' calculations from DYNASIM4.
Note: Table shows mean annual salary and mean direct taxes on full-time annual employment at each given age. Estimates are reported in inflation-adjusted 2015 dollars and incorporate 2019 tax rules.

The mean direct tax on work increases to 26.8 percent at age 67 and to 31.4 percent at age 70. The average direct tax on work is more than a quarter higher (or 6.5 percentage points higher) at age 70 than at age 66. The direct tax increases at age 67 because we assume workers will begin collecting Social Security at that age, when they reach the program's FRA, which pushes many workers into a higher income-tax bracket. At age 70, people with traditional IRAs must begin withdrawing taxable funds from those accounts, which also pushes some workers into higher tax brackets, raising the average federal income-tax rate on work to 20.4 percent and the average state income-tax rate on work to 3.8 percent. Average payroll tax rates also increase with age because our simulation assumes that the cap on earnings subject to the Social Security payroll tax grows faster than older workers' annual salaries. Consequently, the share of older workers' earnings subject to the Social Security payroll tax grows with age.

The mean direct tax rate on work, which indicates the share of aggregate salary that goes to taxes, exceeds the median direct tax rate, which indicates the tax rate in the middle of the distribution. One-half of workers pay a tax rate that equals or exceeds the median rate, and the other half pay a rate that falls short of the median. The median direct tax rate on work ranges from 14.2 to 15.2 percent at ages 60 to 66 and increases to 19.4 percent at age 70 (table 2). The median rate falls short of the mean rate because the mean rate weights higher earners more than lower earners and because the progressive federal income tax raises tax rates on higher earners.

TABLE 2

Median Direct Tax Rate on Work, by Marital Status, Gender, and Annual Earnings Quintile (%)

		Annual Earnings Quintile			Marital Status		Gender	
Age	**All**	**Bottom**	**Middle**	**Top**	**Single**	**Married**	**Men**	**Women**
60	15.0	10.0	15.4	17.8	17.4	14.2	14.5	15.8
61	15.2	9.4	15.5	18.0	17.6	14.2	14.4	15.9
62	14.6	7.9	15.1	17.9	17.7	13.4	14.0	15.3
63	14.7	7.7	15.1	17.9	17.8	13.4	14.1	15.4
64	14.5	7.7	15.0	17.8	17.7	13.2	13.8	15.5
65	14.3	7.7	15.0	18.6	16.2	13.5	13.8	14.8
66	14.2	7.7	14.8	18.5	16.2	13.5	13.6	14.9
67	17.0	7.7	18.0	20.5	20.5	16.2	16.7	17.6
68	18.4	7.7	19.6	20.9	24.2	16.9	17.6	19.3
69	18.5	7.7	20.2	21.1	24.4	17.1	17.7	19.5
70	19.4	7.7	20.4	22.0	26.5	17.9	18.8	20.2

Source: Authors' calculations from DYNASIM4.

Note: Table shows the median direct tax rate on annual full-time employment, computed as the ratio of annual direct taxes to annual salary. Direct taxes consist of federal and state income taxes and employee Social Security and Medicare payroll taxes. The direct tax on work is computed by simulating direct taxes under the assumption of no paid employment and subtracting those from direct taxes simulated under the assumption of full-time employment. Estimates incorporate 2019 tax rules.

Because the federal income tax code and most state income tax codes are progressive, the direct tax on work increases with earnings. At age 65, the median direct tax on work for workers in the top quintile of the annual earnings distribution is 18.6 percent, compared with 15.0 percent for those in the middle quintile and 7.7 percent for those in the bottom quintile. At age 70, the median direct tax rate on work increases to 22.0 percent for those in the top quintile of the earnings distribution.

Single filers face significantly higher direct tax rates on work than their married counterparts (table 2). At age 65, for example, the median direct tax rate on work is about 3 percentage points higher for single filers than for married filers (16.2 versus 13.5 percent). Additional earnings are less likely to push married filers into a higher tax bracket than single filers because the standard deduction and the income thresholds associated with each tax bracket are higher for married filers. At age 70, the median direct tax rate on work is 9 percentage points higher for single filers than for married filers (26.5 versus 17.9 percent). The direct tax rate on work is slightly higher for older women than for older men because older women are more likely to be single.

Implicit Tax on Work

A broader measure of the tax rate on work than the simple direct tax rate includes taxes paid indirectly by employers plus compensation offsets created by public and private benefits. Before estimating this tax rate, we must construct a more complete measure of compensation that adds employer

contributions for payroll taxes and health and retirement benefits to salary and that includes changes in future DB pension payments associated with additional work. Adding these employer contributions to salary raises mean compensation at age 60 from $65,389 to $85,880, a 31 percent increase (table 3). The largest component of nonsalary compensation at ages 60 and 61 is employer contributions for health insurance, followed by changes in DB pension wealth. Employer contributions to DC retirement plans and Social Security and Medicare payroll taxes are smaller. As workers age, health insurance contributions from employers increase, because health care costs generally increase at older ages, while increments to DB pension wealth fall. For workers in their late sixties, mean employer contributions to Social Security exceed the mean change in DB pension wealth.

TABLE 3

Components of Total Mean Compensation ($)

		Employer Contributions					
Age	Salary	Health insurance	DC retirement plan	Social Security payroll tax	Medicare payroll tax	Change in DB pension wealth	Total Compensation
60	65,389	9,197	1,122	3,197	918	6,057	85,880
61	65,351	9,382	1,145	3,208	918	7,169	87,173
62	65,333	9,536	1,164	3,214	916	4,377	84,540
63	65,351	9,714	1,188	3,228	916	3,288	83,685
64	65,341	9,972	1,195	3,239	916	4,881	85,544
65	65,340	10,149	1,201	3,250	916	2,347	83,203
66	65,327	10,209	1,224	3,262	916	2,223	83,161
67	65,327	10,398	1,236	3,271	916	1,979	83,128
68	65,327	10,545	1,233	3,281	917	1,943	83,245
69	65,325	10,820	1,240	3,290	917	2,070	83,662
70	65,546	11,024	1,252	3,304	919	2,141	84,187

Source: Authors' calculations from DYNASIM4.

Note: DB = defined-benefit; DC = defined-contribution. Table reports mean values expressed in inflation-adjusted 2015 dollars and incorporates 2019 tax rules.

Relatively few workers are covered by DB pension plans. Among those with coverage, however, annual increments to DB pension wealth substantially raise total compensation before age 62. For workers with DB pension coverage, the mean increase in DB pension wealth from working an additional year is about $30,700 at age 60 and $31,900 at age 61. The impact of DB pension wealth accruals on total compensation falls sharply at age 62, when many plans allow participants to begin collecting their pension.

Table 4 shows the implicit tax on work and breaks down its components. Adding indirect taxes and compensation offsets raises the mean tax on work 20 percent at age 60, to $16,613. Current federal income tax payments are the largest component of the implicit tax at age 60, followed by the Social

Security payroll tax and the Medicare payroll tax paid jointly by employees and employers. Current state income tax payments and increments to future federal and state income tax liabilities are also significant. However, increments to future Social Security benefits offset about half of the Social Security payroll tax paid by workers (directly and indirectly) from ages 60 to 65.

Medicare secondary payer rules substantially increase the implicit tax on work at age 65. Nearly all nonworking adults can begin receiving Medicare benefits at age 65, but most employed 65-year-olds who receive employer-sponsored health insurance forfeit Medicare because their employer benefits are the primary payers of their health costs. Medicare pays only for those services not covered by employer health plans, but most employer plans provide coverage at least as generous as Medicare. The loss of Medicare benefits at age 65 costs workers about $9,700, on average, increasing the average implicit tax on work more than 50 percent. At age 65, the average total implicit tax on work is 68 percent higher than the average direct tax ($26,952 versus $16,035).

TABLE 4

Mean Components of the Implicit Tax ($)

					Increment to Future Payments					
Age	**Social Security payroll tax**	**Medicare payroll tax**	**Federal income tax**	**State income tax**	**Federal income tax**	**State income tax**	**Social Security benefits**	**Lost Medicare benefits**	**Total implicit tax**	**Direct tax**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Sum of (1) to (8)	(10)
60	6,393	1,998	7,690	1,852	1,252	201	2,773	0	16,613	13,819
61	6,416	1,997	7,778	1,869	1,356	207	2,491	0	17,133	13,934
62	6,429	2,020	7,841	1,957	2,158	272	3,728	0	16,949	14,116
63	6,456	2,001	7,782	1,858	1,930	311	2,442	0	17,896	13,953
64	6,477	1,992	7,652	1,826	2,852	466	5,753	0	15,513	13,793
65	6,501	2,271	9,173	2,258	2,289	159	3,765	9,736	26,952	16,035
66	6,523	2,264	9,358	2,263	2,033	241	1,798	9,879	29,070	16,231
67	6,543	2,211	10,755	2,209	1,023	119	2,799	10,072	28,353	17,530
68	6,562	2,256	11,576	2,370	489	56	2,780	10,264	28,975	18,566
69	6,579	2,304	12,131	2,382	470	48	2,532	10,449	29,889	19,189
70	6,607	2,364	13,344	2,473	494	52	2,423	10,669	31,355	20,564

Source: Authors' calculations from DYNASIM4.

Note: Table shows the components of the total implicit tax on annual full-time employment. Direct taxes consist of federal and state income taxes and employee Social Security and Medicare payroll taxes. The tax on work is computed by simulating taxes under the assumption of no paid employment and subtracting those from taxes simulated under the assumption of full-time employment. Increments to future payments are the present discounted value of the expected future annual stream, discounted at an annual real rate of 2.9 percent. Estimates are mean values, reported in inflation-adjusted 2015 dollars, and incorporate 2019 tax rules.

By age 60, average Social Security payroll taxes dwarf the average increment to future Social Security benefits from working another year. The average increment to future Social Security benefits is generally lower for workers in their late sixties than for workers in their early sixties. Older workers tend to have higher lifetime earnings than younger workers, so the Social Security benefit formula tends to replace a smaller share of additional earnings for older workers than for younger workers. Further, older workers are more likely than younger workers to have accumulated 35 years of covered employment, so an additional year of employment raises older workers' future benefits only to the extent that their additional annual earnings exceed their previous lowest-paying year of employment (in wage-indexed dollars).

Required minimum distributions from IRAs raise the implicit tax on work at age 70 by pushing workers into higher tax brackets and increasing their federal and state income tax payments in the same way that it raises the direct tax on work. Between ages 69 and 70, mean federal income tax liabilities for workers who have a DC plan increase by about $2,000, or 10 percent, and for those who have both a DC and a DB plan, the increase is $4,300, or 25 percent.

Distribution of the Implicit Tax on Work

The mean implicit tax rate on work at ages 60 to 64 ranges from 18.1 to 21.4 percent (table 5). The implicit tax rate in this age range is somewhat lower than the direct tax rate, because total annual compensation is higher than annual salary. The median implicit rate is lower than the mean rate, ranging from 11.9 to 14.6 percent.

At age 65, the implicit tax rate on work increases sharply as workers with employer-sponsored health insurance forgo Medicare benefits. The mean implicit rate jumps to 32.4 percent, and the median rate jumps to 27.3 percent. Implicit tax rates generally increase slowly through age 69, then spike at age 70 when workers with traditional IRAs must start withdrawing funds from their accounts. At age 70, the mean implicit tax rate on work is 37.2 percent, and the median implicit tax rate on work is 29.9 percent.

The implicit tax rate on work varies substantially across the workforce. At age 60, one-quarter of workers face an implicit rate of no more than 9.0 percent (the 25th percentile of the distribution), and one-tenth of workers face an implicit rate of no more than 2.9 percent (the 10th percentile). Implicit tax rates are much higher near the top of the distribution. One-quarter of 60-year-old workers face an implicit tax rate of at least 20.6 percent (the 75th percentile of the distribution), and one-tenth of workers face an implicit rate of at least 27.3 percent (the 90th percentile).

TABLE 5

Total Annual Compensation and the Implicit Tax on Work

Age	Mean total annual compensation ($)	Mean implicit tax ($)	Mean implicit tax rate (%)	Percentiles of the Implicit Tax Rate (%) 10th	25th	50th (median)	75th	90th
60	85,880	16,613	19.3	2.9	9.0	14.6	20.6	27.3
61	87,173	17,133	19.7	3.6	9.2	14.7	20.5	27.2
62	84,540	16,949	20.0	-6.3	4.8	14.2	25.1	39.7
63	83,685	17,896	21.4	-3.5	6.8	16.2	27.7	44.3
64	85,544	15,513	18.1	-15.8	-0.3	11.9	24.5	41.9
65	83,203	26,952	32.4	-1.4	13.9	27.3	46.1	74.3
66	83,161	29,070	35.0	2.2	16.3	30.3	50.6	84.4
67	83,128	28,353	34.1	9.2	16.4	27.5	41.6	61.6
68	83,245	28,975	34.8	9.6	17.3	28.7	43.5	63.6
69	83,662	29,889	35.7	10.2	17.7	28.8	43.7	64.5
70	84,187	31,355	37.2	10.8	18.9	29.9	44.9	66.3

Source: Authors' calculations from DYNASIM4.

Note: Total annual compensation consists of salary; employer contributions to employer-sponsored health insurance, DC retirement plans, and Social Security and Medicare payroll taxes; and annual increments to DB pension wealth (for covered workers). The implicit tax on work consists of federal and state income taxes, employee- and employer-paid Social Security and Medicare payroll taxes, the present discounted value of the future incremental stream of federal and state income taxes from working an additional year, and the value of Medicare benefits forfeited when Medicare-eligible workers receive employer-sponsored health insurance, minus the present discounted value of the increment to future Social Security benefits from working an extra year. Present discounted values are estimated using a 2.9 percent real annual interest rate. The tax on work is computed by simulating taxes under the assumption of no paid employment and subtracting those from taxes simulated under the assumption of full-time employment. All dollar values are reported in inflation-adjusted 2015 dollars. Estimates incorporate 2019 tax rules.

The tax rate spread is higher at older ages. At age 64, 10 percent of workers face an implicit tax rate of less than −15.8 percent; they face a negative tax rate because they gain more in future Social Security benefits by working another year than they pay directly or indirectly in combined income and payroll taxes. Another 10 percent of 64-year-old workers face implicit tax rates of at least 41.9 percent. At age 65 and older, when implicit tax rates are higher across the board, tax rates exceed 46 percent for one-quarter of workers and 74 percent for one-tenth of workers. At age 70, one-quarter of workers face an implicit tax rate of at least 44.9 percent, and one-tenth face an implicit tax rate of at least 66 percent.

Before age 65, workers with high annual earnings face steeper implicit tax rates on work than workers with low annual earnings, but implicit tax rates for workers with low salaries soar when they reach age 65 (table 6). The distribution of total annual compensation is skewed. At age 60, total annual compensation for workers with annual earnings in the top quintile of the distribution averages about 4 times as much as for those in the middle quintile and about 14 times as much as for those in the bottom quintile. The median implicit tax rate on work at age 60 is 9.4 percent for those in the bottom quintile of the annual earnings distribution, 14.1 percent for those in the middle earnings quintile, and 18.9

percent for those in the top earnings quintile. The mean implicit tax rate varies somewhat more with earnings than the median rate.

TABLE 6

Median Implicit Tax on Work, by Marital Status, Gender, and Annual Earnings Quintile (%)

		Annual Earnings Quintile			Marital Status		Gender	
Age	**All**	**Bottom**	**Middle**	**Top**	**Single**	**Married**	**Men**	**Women**
60	14.6	9.4	14.1	18.9	16.7	13.9	14.4	15.0
61	14.7	9.6	14.1	18.7	16.8	13.9	14.4	15.1
62	14.2	9.1	13.2	18.5	17.6	12.8	13.2	15.8
63	16.2	13.5	14.8	19.6	19.8	14.3	15.4	17.2
64	11.9	5.6	10.5	16.6	16.0	9.6	10.7	13.4
65	27.3	37.3	28.0	24.9	33.4	24.4	24.6	31.0
66	30.3	47.7	31.4	26.5	37.2	27.2	27.5	34.5
67	27.5	17.5	31.2	26.9	33.4	25.4	26.0	29.7
68	28.7	18.2	32.4	27.3	36.0	25.6	26.8	31.3
69	28.8	19.1	32.4	27.5	36.3	25.7	27.2	31.4
70	29.9	20.3	32.8	28.4	37.9	26.1	28.1	32.4

Source: Authors' calculations from DYNASIM4.

Note: The implicit tax on work consists of federal and state income taxes, employee- and employer-paid Social Security and Medicare payroll taxes, the present discounted value of the future incremental stream of federal and state income taxes from working an additional year, and the value of Medicare benefits forfeited when Medicare-eligible workers receive employer-sponsored health insurance, minus the present discounted value of the increment to future Social Security benefits from working an extra year. Present discounted values are estimated using a 2.9 percent real annual interest rate. The tax on work is computed by simulating taxes under the assumption of no paid employment and subtracting those from taxes simulated under the assumption of full-time employment. Estimates incorporate 2019 tax rules.

At age 65, however, the median implicit tax rate for workers in the bottom earnings quintile soars as the median rate reaches 37.3 percent and further climbs to 47.7 at age 66. The median implicit tax rate also increases for workers with higher earnings, reaching 28.0 percent for workers in the middle earnings quintile and 24.9 percent for those in the top earnings quintile, but the increase is much smaller. The loss of Medicare benefits drives the age-65 increase in the implicit tax rate, and those losses are a larger share of total compensation for low-wage workers than for higher-wage workers, even though low-wage workers are less likely to receive health insurance benefits from their employer (and are thus more likely to retain their Medicare benefits when they work past age 65). The loss of Social Security benefits also raises the implicit tax on work for low-wage workers. Our simulations assume that workers defer receipt of Social Security benefits until they stop working or reach age 67. Whereas lifetime Social Security benefits increase when moderate- and high-wage workers delay take-up (although by less than the additional Social Security taxes they must pay when they work longer), lifetime benefits fall when low-wage workers delay take-up. Life expectancy is relatively low for low-wage workers, so low-wage workers who remain employed and defer Social Security are less likely than

their higher-wage counterparts to live long enough for the additional future monthly Social Security benefits they gain to offset the initial loss in benefits. This penalty disappears at age 67, when our simulations assume that workers claim Social Security benefits. At ages 67 to 70, workers in the bottom earnings quintile face a lower median implicit tax rate on work between 17.5 and 20.3 percent.

Single adults generally face higher implicit tax rates on work than married adults. At age 62, the median implicit tax rate on work for single adults is 17.6 percent, compared with 12.8 percent for married adults. Single filers face higher implicit tax rates on work than married filers because they face higher average personal income-tax rates from the federal and state governments. The absolute gap between single and married filers increases at age 65; the implicit tax rate on work at that age is 33.4 percent for single adults and 24.4 percent for married adults. The gap increases because the loss in Medicare benefits from working at age 65 is larger, relative to earnings, for single workers, who tend to earn less than married workers. At age 70, the median implicit tax rate is 37.9 percent for single adults and 26.1 percent for married adults.

The implicit tax rate on work does not differ much by gender between ages 60 and 64, but women generally face a higher implicit tax rate than men at age 65 and older (table 6). At age 65, the median implicit tax rate for women is 31.0 percent, compared with 24.6 percent for men. Women and men experience comparable Medicare losses by working beyond age 65, but women generally earn less than men. Consequently, those losses as a share of compensation are generally larger for women than for men. Moreover, women tend to gain less in Social Security benefits from working longer than men because they are more likely than men to receive benefits on their spouse's earnings record.

Conclusions

Elements of the tax, retirement, and employee benefits systems increasingly discourage work as people age, and the impact is substantially larger than the work-related taxes paid directly by employees. Combining direct income and payroll taxes paid by employees, indirect taxes paid by employers, and compensation offsets from retirement and employee benefit programs, our results show that the median implicit tax on work increases from 14.6 percent of total compensation at age 60 to 27.3 percent at age 65, 30.3 percent at age 66, and 29.9 percent at age 70. By contrast, median direct tax rates on work are only 14.3 percent at age 65 and 19.4 percent at age 70. Implicit taxes on work increase with age because most workers with employer-sponsored health insurance forfeit Medicare benefits beginning at age 65, minimum withdrawal requirements for IRAs push some older workers into

higher income-tax brackets, and older workers tend to accumulate fewer additional Social Security credits then younger workers.

Some older workers face even higher implicit tax rates. At age 70, one-quarter of workers face an implicit tax rate of at least 44.9 percent, and one-tenth face an implicit tax rate of at least 66.3 percent. Implicit taxes on work at age 65 are generally higher for single workers and those with lower earnings than for married workers and those with higher earnings.

These estimates understate employment disincentives for low-income workers because they do not account for the potential loss of means-tested benefits (such as Supplemental Nutrition Assistance Program and Temporary Assistance for Needy Families benefits, Supplemental Security Income payments, and Medicaid) that low-income workers could suffer. As Auerbach and colleagues (2017) point out, additional earnings could make some low-income people ineligible for benefits, significantly reducing the financial rewards from working.

Understanding the implicit tax on work at older ages is important because it can discourage work at older ages. Working longer can improve future retirement security by allowing people to save more for retirement and reduces the time spent in retirement collecting benefits and spending down savings. Working longer also increases the output and productivity of the economy and generates additional payroll and income tax revenue that funds retirement and other crucial public programs.

Some recent policy and societal changes have likely increased work incentives at older ages. In December 2019, Congress increased the age at which workers must begin withdrawing funds from their IRAs to from 70-and-a half to 72. This change will reduce the 2020 implicit tax on work at age 70, although the tax will increase at age 72. The decline in DB pension plans and growth in DC retirement plans mean that fewer workers lose retirement benefits by remaining employed past their plan's retirement age. The erosion of employer-sponsored retiree health benefits increases the cost of retiring before the Medicare eligibility age. Increases in Social Security's FRA and delayed retirement credits make work at older ages more rewarding, and growth in married women's earnings has reduced the prevalence of Social Security spouse and survivor benefits, tying future Social Security benefits more closely to one's employment history.

Additional policy changes may be warranted to further reduce work disincentives at older ages. Policymakers might consider a payroll tax credit for older workers, many of whom pay more in payroll taxes than they receive in additional future Social Security benefits, especially when factoring in the indirect taxes paid by their employers. This reform might not reduce total tax revenue much because it could draw more older people into the workforce and boost income tax revenue. Extending Social

Security's delayed retirement credits past age 70 and including more work years to the Social Security benefit formula would also make work more rewarding at older ages. Perhaps most important, eliminating the requirement that Medicare serve as the secondary payer of medical expenses for Medicare-eligible workers with employer-sponsored health insurance would substantially boost work incentives at older ages. The high cost of medical insurance for older workers discourages some employers from retaining or hiring workers older than 65. Allowing Medicare to be the primary payer would lower employment costs and reduce the implicit tax rate faced by older workers, potentially attracting more older people into the labor force. This change, however, would raise the cost of the Medicare program, which is already facing budgetary problems.

Many older adults face employment challenges, including health problems, a lack of training and up-to-date skills, a lack of motivation, and competing family responsibilities. Nonetheless, policy changes that would make work more financially rewarding could convince more older adults to remain in the workforce, contribute to the nation's economic growth, and reduce the strain on retirement programs.

Notes

[1] "2019 Tax Brackets," Tax Foundation, November 28, 2018, https://taxfoundation.org/2019-tax-brackets.

[2] "State Individual Income Tax Rates 2000–2019," Tax Policy Center, March 29, 2019, https://www.taxpolicycenter.org/statistics/state-individual-income-tax-rates-2000-2018.

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