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Estimating the Effects of Lifting Social Security's Payroll Tax Cap for Employers

Introduction

Social Security is primarily funded by a payroll tax levied on earnings up to a cap, which is currently $127,200. Many policymakers and analysts have proposed expanding Social Security's tax base by lifting or removing the tax cap to include higher earnings, which would increase revenues to the program. This memo analyzes the effects of applying the employer side of the payroll tax (6.2%) to all earnings, with no cap, which would likely reduce the price and therefore the supply of high-wage labor. By using current estimates for the price and quantity of high-wage labor, combined with estimates of the elasticities of high-wage labor supply, we can estimate the resulting change in quantity of the high-wage labor.

Policy Background

The Social Security payroll tax is 6.2% each for workers and employers, for a total of 12.4%. It is levied on earnings up to a cap, which is currently $127,200 in 2017 and is adjusted each year according to changes in the average wage (Social Security Administration [SSA] 2017b). Earnings above the tax cap are not taxed for Social Security purposes, nor are they credited towards the individual's future Social Security benefits. In effect, this means Social Security's tax is regressive.

Many policymakers – including Senators Bernie Sanders, John Larson, Tom Harkin, Sherrod Brown, and Mazie Hirono, and Representatives Al Lawson, Charlie Crist, and Ted Deutch – have proposed different variations on lifting or eliminating Social Security's tax cap, including some that would apply the tax on the employer side (SSA 2017c; Jefferson 2017). For simplicity, this memo examines the effects of subjecting all wages to the payroll tax on the employer side only.

There is some precedent for increasing the cap: in Medicare, the payroll tax cap was eliminated in 1994 for both employers and employees. There is also some precedent for uneven taxation of workers and employers for Social Security: in 2011-2012, for example, a "payroll tax

holiday" temporarily reduced the worker share by a third, as an economic stimulus measure, without any change in the employer share of the payroll tax (Walker, Bethell, and Reno 2012).

Raising or eliminating the tax cap would have no effect on workers earning under $127,200 or their employers. However, it would have a significant effect on higher earners and their employers. The tax rate that employers face on wages above $127,200 would go from 0% to 6.2%. As a result of this additional tax on the consumers of high-wage labor, the demand curve would shift down (see Figure 1). For any given quantity of labor, employers would pay a lower market rate, because they would also have to cover the tax. As a result of the price decrease, the quantity of high-wage labor that workers want to supply would also decrease.

Methodology

The impact of this potential policy change will be calculated by finding the following values:

1. The current quantity of high-wage labor (Q_{old})
2. The current price of high-wage labor (P_{old})
3. The new price of high-wage labor after the proposed tax change (P_{new})
4. The elasticity of supply for high-wage labor (E)

Using those values and the relevant equations, it will be possible to calculate the following:

5. The new quantity supplied of high-wage labor after the proposed tax change (Q_{new})
6. The new tax revenues as a result of the proposed tax change (R)

Calculations

1. The current quantity of high-wage labor (Q_{old}):

According to the Social Security Administration, each year about 6 percent of workers have earnings that exceed the tax cap (SSA 2017a, Table 4.B1; SSA 2015). Similarly, the Center for Economic and Policy Research analyzed Census data and found that 5.4% of workers have earnings

above the current tax cap of $127,200 (Barber and Bucknor 2017). Therefore, we need to find the approximate number of workers who make up the top 5-6% of earners, and (in part 2, below) their average earnings. The Social Security Administration lists the number of workers with any earnings taxable for Social Security purposes as 168.9 million in 2015 (SSA 2017a, Table 4.B1). From that value, 6% can easily be calculated, yielding an estimate of **10.13 million** workers with earnings above the tax cap.

2. The current price of high-wage labor (P_{old}): (i.e. average wage for high earners)

This analysis uses distributions of household income as a proxy for estimating the value or price of high-wage earnings. The two measures (income and earnings) are in fact distinct: income is a broader category that includes not only earnings from work but also all other sources of income, such as rental income, capital gains, interest, and others. However, earnings distributions are not readily available, nor are amounts for the top 6% of the distribution in particular, so the top 5% of household income is used as a proxy. The Census Bureau reports that the mean household income of the top 5% was approximately **$375,000** in 2016 (Semega, Fontenot, and Kollar 2017, Table A-2).

3. The new price of high-wage labor after the proposed tax change (P_{new}):

The old price was found to be $375,000, and we know that the first $127,200 of that falls below the current tax cap and therefore is already taxed for Social Security. Under this proposed tax change, the remainder of the amount would also be subject to a 6.2% payroll tax levied on employers. Therefore, for any given quantity of labor, employers would be willing to pay only a lower price, in order to cover the new additional tax they have to pay. The amount of the new tax itself can be calculated as follows:

Tax = (tax rate) x [difference between P_{old} and the current tax cap]
Tax = 0.062 x (375,000-127,200) = 0.062 x 247,800 = **$15,364**

Given this tax amount, the resulting market price (P_{new}) will depend on how the tax burden is allocated between workers and employers, with the amount of the price reduction representing the producer (worker) burden. Economists generally assume that most or all of the burden from a payroll tax is borne by workers, rather than employers (Olson 2016). This memo uses three assumptions about the distribution of the tax burden, and therefore, the amount of the new market price for high-wage labor (see Table 1). If workers bear 50% of the tax burden, P_{new} will be **$367,318**; if they bear 75% of the burden it will be **$363,477**; and if they bear the entire burden it will be **$359,636**.

4. Elasticity of supply for high-wage labor:

We know that the quantity of labor that high-wage workers want to supply will decrease as a result of the price decrease described above. The elasticity of labor supply will determine the size of that quantity change.

Estimates of labor supply elasticities for high-income individuals vary significantly across the literature, in large part because of the many different types of compensation for these individuals. Because payroll taxes are based on earned income (salaries and wages), this memo excludes elasticities based on total income. Most estimates find that labor supply for higher-income individuals is fairly inelastic in response to tax changes. Juhn et al. (2002) found an elasticity of 0.048 for the top 40% of the wage distribution, compared to 0.287 for the bottom 10% of the distribution. A study looking specifically at several thousand corporate executives in the 1990s found an elasticity of supply of 0.15 in the short run and 0.09 in the long run (Goolsbee 2000). Another study, looking specifically at older male physicians earning above $80,000 in 1983, estimated a labor supply elasticity of 0.33 (Showalter and Thurston 1997). More recently, in 2012 the Congressional Budget Office conducted a comprehensive review of studies on labor supply elasticities. For high-income individuals, they concluded that "the elasticities of executives' labor supply and wage income are barely outside the ranges of elasticities" estimated for all income levels, at 0.0 to 0.2

(McClelland and Mok 2012). This paper uses labor supply elasticities of **0.048** as a lower bound and **0.33** as an upper bound.

5. The new quantity of high-wage labor after the proposed tax change (Q_{new})

Using the values above for P_{old}, Q_{old}, P_{new}, and E, we can calculate the new quantity of high-wage labor after the proposed tax change, or Q_{new}. Table 2 lists the values and equations used in this calculation, and Table 3 uses those items to calculate Q_{new} under different elasticity and tax burden assumptions. Q_{new} is estimated to range from 9.99 million workers to 10.12 million workers, under the different assumptions.

6. Impact on Social Security payroll tax revenues as a result of the proposed tax change:

The new revenues to Social Security as a result of this new tax can be calculated as follows:

New revenues (R) = Q_n x (P_n - current tax cap) x tax rate
Lower bound: R = 9.99 million x ($359,636-127,200) x 0.062 = $143,966 mill.= **$144.0 bill.**
Upper bound: R = 10.12 million x ($367,318-127,200) x 0.062 = $150,660 mill.= **$150.7 bill.**

Conclusion

This analysis finds that lifting the payroll tax cap on employers and taxing all income would shift down the demand curve for high-wage labor. Workers would receive a lower market price, and as a result, the quantity of high-wage labor supplied would decrease from 10.13 million workers to somewhere between 9.99 million and 10.12 million, depending on the exact assumptions about the tax burdens and elasticity of supply. Because the supply of high-wage labor is fairly inelastic, the relative decrease in prices is larger than the relative decrease in quantity supplied.

The resulting increase in payroll tax revenue for Social Security would range from $144.0 billion to $150.7 billion a year, which represents an approximately 17-18% increase over the program's 2016 payroll tax revenue of $836.2 billion (SSA 2017d).

Figure 1: Effect of lifting the payroll tax cap on employers

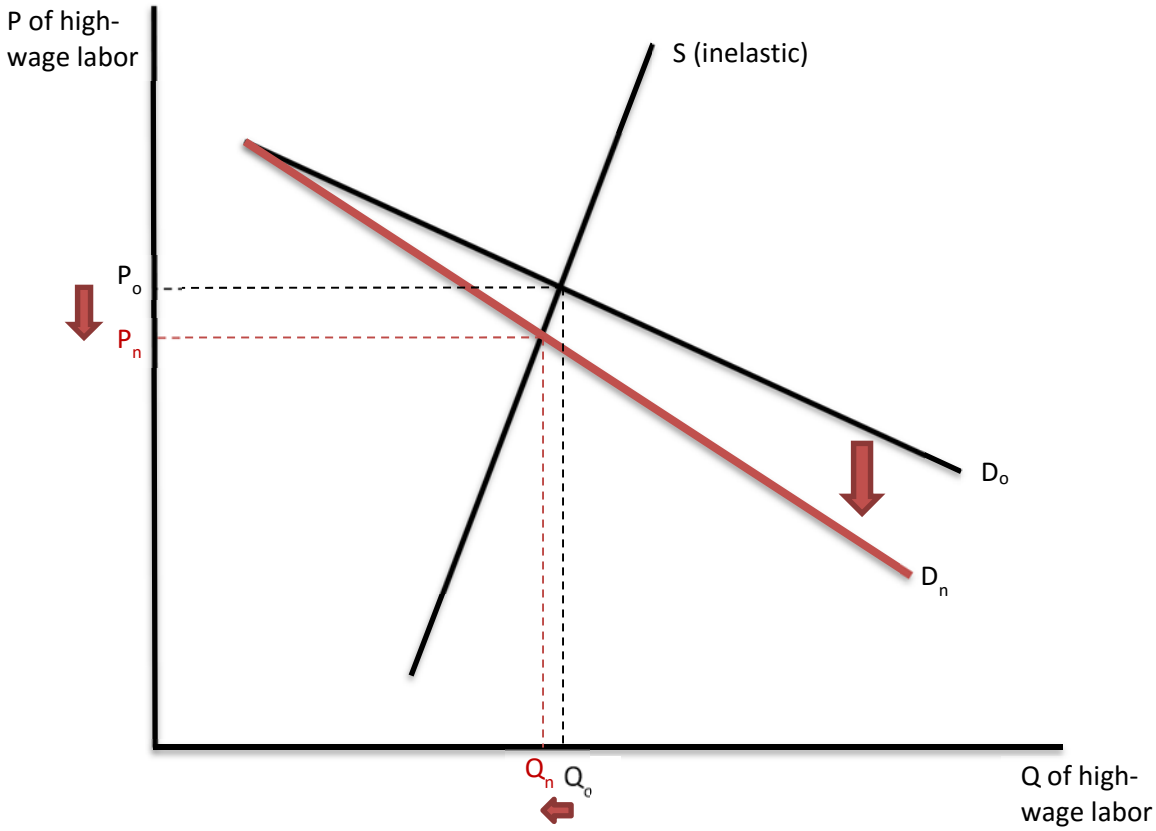

Table 1: Calculating P_{new} under different tax burden assumptions

Distribution of tax burden:	**Calculating the P_{new}:**
Employers (consumers): 50% Workers (producers): 50%	$P_{new} = P_{old}$ - (0.5 x tax) P_{new} = 375,000 - (0.5 x 15,364) P_{new} = **$367,318**
Employers (consumers): 25% Workers (producers): 75%	$P_{new} = P_{old}$ - (0.75 x tax) P_{new} = 375,000 - (0.75 x 15,364) P_{new} = **$363,477**
Employers (consumers): 0% Workers (producers): 100%	$P_{new} = P_{old}$- tax P_{new} = 375,000 - 15,364 P_{new} = **$359,636**

Table 2: Equations and values used in the Q_{new} calculations

Equations:	$Q_n = (E * \%\Delta P * Q_o) + Q_o$ $\%\Delta P = (P_n - P_o) / P_o$
Values:	E = 0.048 (lower bound) and 0.33 (upper bound) P_o = $375,000 P_n = $367,318 or $363,477 or $359,636 Q_o = 10.13 million

Table 3: Calculating Q_{new} under different elasticity and tax burden assumptions

	Lower-bound elasticity (0.048):	**Upper-bound elasticity (0.33):**
Tax burden shared equally (P_n = $367,318)	$\%\Delta P$ = (367,318 - 375,000)/375,000 = -0.021 Q_n = (0.048) (-0.021) (10.13) + 10.13 Q_n =**10.12 million** workers	$\%\Delta P$ = -0.021 Q_n = (0.33) (-0.021) (10.13) + 10.13 Q_n = **10.06 million** workers
Tax burden mainly on workers (P_n = $363,477)	$\%\Delta P$ = (363,477 - 375,000)/375,000 = -0.031 Q_n = (0.048) (-0.031) (10.13) + 10.13 Q_n =**10.115 million** workers	$\%\Delta P$ = -0.031 Q_n = (0.33) (-0.031) (10.13) + 10.13 Q_n =**10.03 million** workers
Tax burden fully on workers (P_n = $359,636)	$\%\Delta P$ = (359,636 - 375,000)/375,000 = -0.041 Q_n = (0.048) (-0.041) (10.13) + 10.13 Q_n = **10.11 million** workers	$\%\Delta P$ = -0.041 Q_n = (0.33) (-0.041) (10.13) + 10.13 Q_n = **9.99 million** workers

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