US Top Marginal Tax Rate (Federal Individual Income Tax)

Source: IRS, Statistics of Income Division, Historical Table 23
Source: statistics computed by the author
above $z$ as depicted on Figure 1. This tax change has two effects on tax revenue. First, there is a mechanical effect, which is the change in tax revenue if there were no behavioural responses, and second, there is a reduction in tax revenue due to reduced earnings through behavioural responses. Let us examine these two effects successively.

- **Mechanical effect.**

  The mechanical effect (denoted by $M$) represents the increase in tax receipts if there were no behavioural responses. A taxpayer with income $z$ (above $\bar{z}$) would pay $(z - z)d\tau$ additional taxes. Therefore, summing over the population above $\bar{z}$ and denoting the mean of incomes above $\bar{z}$ by $\bar{z}_m$, the total mechanical effect $M$ is equal to

  $$M = [\bar{z}_m - z]d\tau. \quad (5)$$

- ** Behavioural responses.**

  As shown in Figure 1, the tax change can be decomposed into two parts; first, an overall *uncompensated* increase $d\tau$ in marginal rates (starting from 0 and not just from $z$), second, an overall increase in virtual income $dR = zd\tau$. Therefore, an individual with income $z$ changes its earnings by

  $$dz = -\frac{\partial z}{\partial(1 - \tau)}d\tau + \frac{\partial z}{\partial R}dR = -(\zeta z - \eta z)\frac{d\tau}{1 - \tau}, \quad (6)$$

  where we have used definitions (1) and (2). The reduction in income $dz$ displayed in equation (6) implies a reduction in tax receipts equal to $\tau dz$. The total reduction in tax receipts due to the behavioural responses is simply the sum of the terms $\tau dz$ over all
FIGURE 2 – Ratio mean income above z divided by z, \( z_m/z \), years 1992 and 1993

Source: Saez (2001), p. 211
Obtaining (15) in the context of the Mirrlees model is possible using the Mirrlees first-order condition. This derivation is presented in the Appendix. This rearrangement of terms of the Mirrlees formula is a generalization of the one developed by Diamond (1998) in the case of quasi-linear utility functions. This method, however, does not show the economic effects which lead to formula (14). Formula (14) can, however, be fruitfully derived directly in terms of elasticities using the same method as in Section 3. The formula is commented in the light of this direct derivation just after the proof.

**Direct proof of Proposition 1.** I consider the effect of the following small tax reform perturbation around the optimal tax schedule. As depicted on Figure 3, marginal rates are increased by an amount $d\tau$ for incomes between $z^*$ and $z^* + dz^*$. I also assume that $d\tau$ is second order compared to $dz^*$ so that bunching (and inversely gaps in the income distribution) around $z^*$ or $z^* + dz^*$ induced by the discontinuous change in marginal rates are negligible. This tax reform has three effects on tax receipts: a mechanical effect, an elasticity effect for taxpayers with income between $z^*$ and $z^* + dz^*$, and an income effect for taxpayers with income above $z^*$.

- **Mechanical effect net of welfare loss.**

As shown in Figure 3, every taxpayer with income $z$ above $z^*$ pays $d\tau dz^*$ additional taxes which are valued $(1 - g(z))d\tau dz^*$ by the government therefore the overall mechanical

17. Revesz (1989) has also attempted to express the optimal non-linear tax formula of Mirrlees in terms of elasticities. His derivation is similar in spirit to the one presented in the Appendix.
FIGURE 4 – Hazard Ratio $(1-H(z))/(zh(z))$, years 1992 and 1993

Source: Saez (2001), p. 219
FIGURE 5 – Optimal Tax Simulations

Utilitarian Criterion, Utility type I

Rawlsian Criterion, Utility type I

Utilitarian Criterion, Utility type II

Rawlsian Criterion, Utility type II

Source: Saez (2001), p. 224
Reform: Increase $\tau_1$ by $d\tau_1$ and $c_0$ by $dc_0 = z_1 d\tau_1$

1) Mechanical fiscal cost: $dM = -H_0 dc_0 = -H_0 z_1 d\tau_1$
2) Welfare effect: $dW = g_0 H_0 dc_0 = g_0 H_0 z_1 d\tau_1$
3) Fiscal cost due to behavioral responses:

$$dB = -dH_0 \tau_1 z_1 = d\tau_1 e_0 H_0 \tau_1 / (1 - \tau_1) z_1$$

Optimal phase-out rate $\tau_1$:

$$dM + dW + dB = 0 \implies \frac{\tau_1}{1 - \tau_1} = \frac{g_0 - 1}{e_0}$$
Starting from a Means-Tested Program

Consumption $c$

Earnings $w$

$45^\circ$

$G$

$0$

$w^*$

Source: revised version of Saez (2002), p. 1050
Introducing a small EITC is desirable for redistribution.

Starting from a Means-Tested Program

Source: revised version of Saez (2002), p. 1050
Introducing a small EITC is desirable for redistribution and consumption.

Starting from a Means-Tested Program:

Participation response saves government revenue.

Figure 3a: Optimal Tax/Transfer Derivation

Consumption $c$
Wage $w$

$c_0$, $c_1$, $c_2$

$45^\circ$

$0$, $w_1$, $w_2$

Source: revised version of Saez (2002), p. 1052
Figure 3a: Optimal Tax/Transfer Derivation (assuming $g_1 > 1$)

Consumption $c$

Wage $w$

Fiscal Effect: $-h_1 dc_1 < 0$

Welfare Effect: $h_1 g_1 dc_1 > 0$

Source: revised version of Saez (2002), p. 1052
Figure 3a: Optimal Tax/Transfer Derivation (assuming $g_1 > 1$)

Consumption $c$

Wage $w$

Net Welfare effect: $h_1 dc_1(g_1-1) > 0$

Labor Supply: $dh_1 w_1 \tau_1 < 0$

Source: revised version of Saez (2002), p. 1052
At the optimum: $dh_1 w_1 \tau_1 + h_1 dc_1 (g_1-1) = 0$ implies $	au_1/(1-\tau_1) = (1-g_1)/e_1 < 0$

Source: revised version of Saez (2002), p. 1052
2. Optimal Tax/Transfer System (no min wage)

Source: Lee and Saez (2008)
2. Set Min wage $\bar{w}=w_1$ and increase $c_1$ by $dc_1$

Welfare Effect > Direct Fiscal Effect
if govt values redistribution to low skill workers

Source: Lee and Saez (2008)
2. Desirability of Min Wage with Optimal Taxes

Consumption $c$

Wage $w$

Source: Lee and Saez (2008)
2. Desirability of Min Wage with Optimal Taxes

Consumption $c$

Wage $w$

With min wage set at $w_1$, $dc_1 > 0$ does not affect labor supply because $w_1$ cannot go down

Æ No indirect fiscal effect
Æ Welfare increases

Welfare Effect > Direct Fiscal Effect
if govt values redistribution to low skill workers

Source: Lee and Saez (2008)
3. Pareto Improving Policy when $\tau_1 > 0$ and min wage binds

Consumption $\mathbf{c}$

Wage $w$

$c_0$ $c_1$ $c_2$

$\tau_1 > 0 = \text{Tax on low skilled work:}$

$c_1 - c_0 < \bar{w}$

Source: Lee and Saez (2008)
3. Pareto Improving Policy when $\tau_1 > 0$ and min wage binds

Reduce $\bar{w}$ while keeping $c_1$, $c_2$ constant:

No direct fiscal effect of $d\bar{w}$, $dw_2$ as

$h_1 d\bar{w} + h_2 dw_2 = 0$ (no profits)

and tax $= (\bar{w} - c_1) h_1 + (w_2 - c_2) h_2$

\[ \begin{align*}
\text{Consumption} & \quad c \\
& \quad c_0 \quad c_1 \quad c_2 \\
\text{Wage w} & \quad 0 \quad d\bar{w} < 0 \quad dw_2 > 0 \\
\end{align*} \]

Source: Lee and Saez (2008)
3. Pareto Improving Policy when $\tau_1 > 0$ and min wage binds

Consumption $c$

Wage $w$

Unemployment decreases $\rightarrow$
New Workers better off and pay more taxes $\rightarrow$ Pareto Improvement

Reduce $\bar{w}$ while keeping $c_1$, $c_2$ constant:

No direct fiscal effect of $d\bar{w}$, $dw_2$ as $h_1d\bar{w} + h_2dw_2 = 0$ (no profits) and $\text{tax} = (\bar{w} - c_1) h_1 + (w_2 - c_2) h_2$

Source: Lee and Saez (2008)
Optimal Top Income Tax Rate (Mirrlees ’71 model)

Disposable Income
\[ c = z - T(z) \]

Market income \( z \)

Top bracket:
Slope 1-\( \tau \)

Reform:
Slope 1-\( \tau - d\tau \)

Source: Diamond and Saez JEP’11
Optimal Top Income Tax Rate (Mirrlees ’71 model)

Disposable Income
\[ c = z - T(z) \]

Mechanical tax increase:
\[ d\tau [z - z^*] \]

Behavioral Response tax loss:
\[ \tau \, dz = -\, d\tau \, e \frac{z \, \tau}{1 - \tau} \]

Source: Diamond and Saez JEP’11
Empirical Pareto Coefficient

\[ a = \frac{z^*}{zm - z^*} \] with \( zm = E(z|z > z^*) \)

\[ \alpha = \frac{z^* h(z^*)}{1 - H(z^*)} \]

Source: Diamond and Saez JEP'11
A. Top 1% Income Shares and Top MTR

Source: Piketty, Saez, and Stantcheva NBER'11
B. Top 1% Income Shares and Top MTR

Source: Piketty, Saez, and Stantcheva NBER'11
C. Top 1% and Bottom 99% Income Growth

Source: Piketty, Saez, and Stantcheva NBER'11
A. Top 1% Share and Top Marginal Tax Rate in 1975–9

Source: Piketty, Saez, and Stantcheva NBER'11
B. Top 1% Share and Top Marginal Tax Rate in 2004–8

Source: Piketty, Saez, and Stantcheva NBER'11
A. Changes Top 1% Share and Top Marginal Tax Rate

Source: Piketty, Saez, and Stantcheva NBER'11
B. Growth and Change in Top Marginal Tax Rate

Source: Piketty, Saez, and Stantcheva NBER'11
Disposable Income $c = z - T(z)$

Pre-tax income $z$

Mechanical tax increase: $d\tau dz \ [1-H(z)]$

Social welfare effect: $-d\tau dz \ [1-H(z)] \ G(z)$

Behavioral response: $\delta z = -d\tau e z/(1-T'(z))$

$\rightarrow$ Tax loss: $T'(z) \ \delta z \ h(z) dz$

$= -h(z) e z T'(z)/(1-T'(z)) \ dzd\tau$

Small band $(z,z+dz)$: slope $1- T'(z)$

Reform: slope $1- T'(z) - d\tau$

Source: Diamond and Saez JEP'11
Reform: Increase $\tau_1$ by $d\tau_1$ and $c_0$ by $dc_0 = z_1 d\tau_1$

$g_0 >> 1 \implies$ welfare effect $>>$ mechanical fiscal cost

\[ c_0 + dc_0 \]

Slope $1 - \tau_1$

Source: Diamond and Saez JEP'11
Reform: Increase $\tau_1$ by $d\tau_1$ and $c_0$ by $dc_0 = z_1 d\tau_1$

$g_0 \gg 1 \Rightarrow$ welfare effect $\gg$ mechanical fiscal cost

Fiscal cost due to behavioral responses proportional to $\tau_1/(1-\tau_1)$ and elasticity $e_0 = (1-\tau_1)/H_0 \, dH_0/d(1-\tau_1)$

Optimal phase-out rate $\tau_1$:

$$\tau_1 = \frac{(g_0-1)}{(g_0-1+ e_0)}$$

Example: if $g_0 = 3$ and $e_0 = 0.5$, $\tau_1 = 80\%$

Source: Diamond and Saez JEP'11
Reform: Increase $\tau_1$ by $d\tau_1$ and $c_0$ by $dc_0 = z_1 d\tau_1$

1) Mechanical fiscal cost: $dM = -H_0 dc_1 = -H_0 z_1 d\tau_1$

2) Welfare effect: $dW = g_0 H_0 dc_1 = g_0 H_0 z_1 d\tau_1$

3) Fiscal cost due to behavioral responses:

$$dB = -dH_0 \tau_1 z_1 = d\tau_1 e_0 H_0 \frac{\tau_1}{1-\tau_1} z_1$$

Optimal phase-out rate $\tau_1$:

$$dM + dW + dB = 0$$

$$\Rightarrow \frac{\tau_1}{1-\tau_1} = \frac{(g_0-1)}{e_0}$$

Slope $1 - \tau_1$
Starting from a positive phasing-out rate $\tau_1 > 0$:
1) Increasing transfers by $dc_1$ at $z_1$ is desirable for redistribution: net effect $(g_1-1)h_1 \cdot dc_1 > 0$ if $g_1 > 1$
2) Participation response saves government revenue $\tau_1 \cdot z_1 \cdot dh_1 = e_1 \cdot \tau_1 / (1-\tau_1) \cdot h_1 \cdot dc_1 > 0$
   $\Rightarrow$ Win-win reform ...if intensive response is small

Optimal phase-out rate $\tau_1$:

$(g_1-1)h_1 \cdot dc_1 + e_1 \cdot \tau_1 / (1-\tau_1) \cdot h_1 \cdot dc_1 = 0$
   $\Rightarrow \tau_1 / (1-\tau_1) = (1-g_1) / e_1 < 0$ if $g_1 > 1$
Source: Piketty, Thomas, and Emmanuel Saez (2012)
Table 2: Equality of Opportunity vs. Utilitarian Optimal Tax Rates

<table>
<thead>
<tr>
<th>Income percentile</th>
<th>Equality of Opportunity</th>
<th>Utilitarian (log-utility)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fraction from low background (=parents below median) above each percentile</td>
<td>Implied social welfare weight G(z) above each percentile</td>
</tr>
<tr>
<td>z= 25th percentile</td>
<td>44.3%</td>
<td>0.886</td>
</tr>
<tr>
<td>z= 50th percentile</td>
<td>37.3%</td>
<td>0.746</td>
</tr>
<tr>
<td>z= 75th percentile</td>
<td>30.3%</td>
<td>0.606</td>
</tr>
<tr>
<td>z= 90th percentile</td>
<td>23.6%</td>
<td>0.472</td>
</tr>
<tr>
<td>z= 99th percentile</td>
<td>17.0%</td>
<td>0.340</td>
</tr>
<tr>
<td>z= 99.9th percentile</td>
<td>16.5%</td>
<td>0.330</td>
</tr>
</tbody>
</table>

Notes: This table compares optimal marginal tax rates at various percentiles of the distribution (listed by row) using an equality of opportunity criterion (in column (3)) and a standard utilitarian criterion (in column (5)). Both columns use the optimal tax formula $T'(z)=[1-G(z)]/[1-G(z)+\alpha(z)*e]$ discussed in the text where $G(z)$ is the average social marginal welfare weight above income level $z$, $\alpha(z)=(zh(z))/(1-H(z))$ is the local Pareto parameter (with $h(z)$ the density of income at $z$, and $H(z)$ the cumulative distribution), and $e$ the elasticity of reported income with respect to $1-T'(z)$. We assume $e=0.5$. We calibrate $\alpha(z)$ using the actual distribution of income based on 2008 income tax return data. For the equality of opportunity criterion, $G(z)$ is the representation index of individuals with income above $z$ who come from a disadvantaged background (defined as having a parent with income below the median). This representation index is estimated using the national intergenerational mobility statistics of Chetty et al. (2013) based on all US individuals born in 1980-1 with their income measured at age 30-31. For the utilitarian criterion, we assume a log-utility so that the social welfare weight $g(z)$ at income level $z$ is proportional to $1/(z-T(z))$.

Source: Saez and Stantcheva (2014)
T(z) is continuous in z.

The graph represents the Individual Income Tax, where:

- The slope is 37% at some point.
- The slope is 12% at another point.
- The slope is 10% at yet another point.

The taxable income is represented on the x-axis, and T(z) on the y-axis.
T(z) is continuous in z

slope 10%
slope 12%
slope 37%

Individual Income Tax
Marginal Income Tax

$T'(z)$ is a step function

- 10%
- 12%
- 37%
$c = z - T(z)$

after-tax and transfer income

Budget Set

slope = $1 - T'(z)$

$-T(0)$

$45°$

$z^*$

pre-tax income $z$
\[ c = z - T(z) \]

\[ \tau_p = \text{participation tax rate} \]

\[ (1 - \tau_p)z \]
Labor Supply Theory

\[ c = \text{consumption} \]

\[ l = \text{consumption} \]

\[ c = wl + R \]

Indifference Curve

Marshallian Labor Supply \( l(w, R) \)
Hicksian Labor Supply $l^c(w,u)$

Consumption $c =$ consumption

Utility $u$

Slope $= w$

Labor Supply Theory
Labor Supply Income Effect

\[ \eta = w \frac{\partial l}{\partial R} \leq 0 \]
Labor Supply Substitution Effect

\[ \varepsilon^c = \frac{w \partial l^c}{l \partial w} > 0 \]

utility \( u \)

slope = \( w + \Delta w \)

slope = \( w \)

\( l^c(w, u) \)

\( l^c(w + \Delta w, u) \)
Uncompensated Labor Supply Effect

\[\varepsilon^u = \varepsilon^c + \eta\]

Substitution effect: \(\varepsilon^c > 0\)

Income effect: \(\eta \leq 0\)
Effect of Tax on Labor Supply

\[ c = z - T(z) \]

- **Income effect** $l \downarrow$ if $T(z) < 0$
- **Substitution effect** $l \downarrow$ if $T'(z) > 0$

- **Income effect** $l \uparrow$ if $T(z) > 0$
- **Substitution effect** $l \downarrow$ if $T'(z) > 0$

Slope $= 1 - T'(z)$
Laffer Curve

\[ R = \tau \cdot Z(1 - \tau) \]

\[ \tau^* = \frac{1}{1 + e} \text{ with } e = \frac{1 - \tau}{Z} \cdot \frac{dZ}{d(1-\tau)} \]
Utilitarianism and Redistribution

\[ u\left(\frac{c_1 + c_2}{2}\right) \]

\[ u(c_1) + u(c_2) \]
Labor Supply Theory

\[ c = (1-t)z + R \]

Marshallian Labor Supply 
\[ z(1-\tau,R) \]

Indifference Curves

\[ c = \text{consumption} \]

Slope = 1 - \( \tau \)
\[ c = \text{consumption} \]

\[ z^c(1-\tau,u) \]

\[ \text{Hicksian Labor Supply} \]

\[ \text{Slope} = 1-\tau \]

\[ \text{utility } u \]

\[ \text{Labor Supply Theory} \]
Labor Supply Income Effect

\[ \eta = (1 - \tau) \frac{\partial z}{\partial R} \leq 0 \]

\[ z(1 - \tau, R + \Delta R) \]

\[ z(1 - \tau, R) \]
\[ \text{Labor Supply Substitution Effect} \]

\[ \text{utility } u \]

\[ \text{slope} = 1 - \tau + d\tau \]

\[ \varepsilon^c = \frac{(1 - \tau)}{z} \frac{\partial z^c}{\partial (1 - \tau)} > 0 \]

\[ z^c(1 - \tau, u) \]

\[ z^c(1 - \tau + d\tau, u) \]
Uncompensated Labor Supply Effect

Slutsky equation: $\varepsilon^u = \varepsilon^c + \eta$

Income effect: $\eta \leq 0$

Substitution effect: $\varepsilon^c > 0$
Effect of Tax on Labor Supply

\[ c = z - T(z) \]

\[ \text{slope} = 1 - T'(z) \]

- \( T(z) < 0 \): income effect \( z \downarrow \)
- \( T'(z) > 0 \): substitution effect \( z \downarrow \)
- \( T(z) > 0 \): income effect \( z \uparrow \)
- \( T'(z) > 0 \): substitution effect \( z \downarrow \)

45°
Starting from a Means-Tested Program

Disposable income
\[ c = z - T(z) \]

Pre-tax earnings \( z \)

\[ \text{45}^\circ \]

G

0

\( w^* \)
Introducing a small EITC is desirable for redistribution if $1 to low paid workers more valued than $1 distributed to all.
Introducing a small EITC is desirable for redistribution.

Participation response saves government revenue.

Disposable income $c = z - T(z)$
Introducing a small EITC is desirable for redistribution.

Starting from a Means-Tested Program

Participation response saves government revenue

Win-Win reform

Disposable income $c = z - T(z)$

Pre-tax earnings $z$

$45^\circ$

$z^*$
Introducing a small EITC is desirable for redistribution. Participation response saves government revenue.

Win-Win reform

If intensive response is small.
Disposable income $c = z - T(z)$

Starting from a means-tested program
Reducing generosity of $G$ and phase-out rate is desirable if society puts low weight on zero earners.

Starting from a means-tested program, $G-dG = $1 to zero earners less valued than $1 distributed to all.
Reducing generosity of $G$ and phase-out rate is desirable if society puts low weight on zero earners.

Starting from a means-tested program, labor supply response saves government revenue.

Win-Win reform.
Historically, a 70 percent marginal tax rate is not unusual

The top marginal income tax rates from 1913 to 2018

1981
Reagan took office

SOURCE: TAX POLICY CENTER
Table 2: Revealed Social Preferences

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Consumption lover vs. Frugal</strong></td>
<td>Consumption lover &gt; Frugal</td>
<td>Consumption lover = Frugal</td>
<td>Consumption lover &lt; Frugal</td>
<td></td>
</tr>
<tr>
<td># obs. = 1,125</td>
<td>4.1%</td>
<td>74.4%</td>
<td>21.5%</td>
<td></td>
</tr>
<tr>
<td><strong>B. Hardworking vs. leisure lover</strong></td>
<td>Hardworking &gt; Leisure lover</td>
<td>Hardworking = Leisure lover</td>
<td>Hardworking &lt; Leisure lover</td>
<td></td>
</tr>
<tr>
<td># obs. = 1,121</td>
<td>42.7%</td>
<td>54.4%</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td><strong>C. Transfer Recipients and free loaders</strong></td>
<td>Disabled person unable to work</td>
<td>Unemployed looking for work</td>
<td>Unemployed not looking for work</td>
<td>Welfare recipient not looking for work</td>
</tr>
<tr>
<td># obs. = 1,098</td>
<td>1.4</td>
<td>1.6</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Average rank (1-4) assigned</td>
<td>57.5%</td>
<td>37.3%</td>
<td>2.7%</td>
<td>2.5%</td>
</tr>
<tr>
<td>% assigned first rank</td>
<td>2.3%</td>
<td>2.9%</td>
<td>25.0%</td>
<td>70.8%</td>
</tr>
</tbody>
</table>

Notes: This table reports preferences for giving a tax break and or a benefit increase across individuals in various scenarios. Panel A considers two individuals with the same earnings, same taxes, and same disposable income but high marginal utility of income (consumption lover) vs. low marginal utility of income (frugal). In contrast to utilitarianism, 74% of people report that consumption loving is irrelevant and 21.5% think the frugal person is most deserving. Panel B considers two individuals with the same earnings, same taxes, and same disposable income but different wage rates and hence different work hours. 54.4% think hours of work is irrelevant and 42.7% think the hardworking low wage person is more deserving. Panel C considers transfer recipients receiving the same benefit levels. Subjects find the disabled person unable to work and the unemployed person looking for work much more deserving than the abled bodied unemployed or welfare recipient not looking for work.
We assume now that the government can increase benefits by $1,000 for some recipients of government benefits.

Which of the following four individuals is most deserving of the $1,000 increase in benefits?

Please drag and drop the four individuals into the appropriate boxes on the left. The upper box, marked 1 should contain the individual you think is most deserving. The box labeled "2" should contain the second most deserving individual, etc.. Please note that you can put two individuals in the same box if you think that they are equally deserving.

Individual A gets $15,000 per year in Disability Benefits because she cannot work due to a disability and has no other resources.

Individual B gets $15,000 per year in Unemployment Benefits and has no other resources. She lost her job and has not been able to find a new job even though she has been actively looking for one.

Individual C gets $15,000 pear year in Unemployment Benefits and has no other resources. She lost her job but has not been looking actively for a new job, because she prefers getting less but not having to work.

Individual D gets $15,000 per year in Welfare Benefits and Food Stamps and has no other resources. She is not looking for a job actively because she can get by living off those government provided benefits.

Source: survey in Saez and Stantcheva (2013)

<table>
<thead>
<tr>
<th>Items</th>
<th>1 = Individual most deserving of a $1,000 benefit increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual A</td>
<td></td>
</tr>
<tr>
<td>Individual B</td>
<td></td>
</tr>
<tr>
<td>Individual C</td>
<td></td>
</tr>
<tr>
<td>Individual D</td>
<td></td>
</tr>
</tbody>
</table>
Which of the following two individuals is most deserving of a $1,000 tax break?

Individual A earns $30,000 per year, by working in two different jobs, 60 hours per week at $10/hour. She pays $6,000 in taxes and nets out $24,000. She is very hard-working but she does not have high-paying jobs so that her wage is low.

Individual B also earns the same amount, $30,000 per year, by working part-time for 20 hours per week at $30/hour. She also pays $6,000 in taxes and hence nets out $24,000. She has a good wage rate per hour, but she prefers working less and earning less to enjoy other, non-work activities.

- Individual A is most deserving of the $1,000 tax break
- Individual B is most deserving of the $1,000 tax break
- Both individuals are exactly equally deserving of the $1,000 tax break

Source: survey in Saez and Stantcheva (2013)
Which of the following two individuals do you think is most deserving of a $1,000 tax break?

Individual A earns $50,000 per year, pays $10,000 in taxes and hence nets out $40,000. She greatly enjoys spending money, going out to expensive restaurants, or traveling to fancy destinations. She always feels that she has too little money to spend.

Individual B earns the same amount, $50,000 per year, also pays $10,000 in taxes and hence also nets out $40,000. However, she is a very frugal person who feels that her current income is sufficient to satisfy her needs.

- Individual A is most deserving of the $1,000 tax break
- Individual B is most deserving of the $1,000 tax break
- Both individuals are exactly equally deserving of the tax $1,000 break

Source: survey in Saez and Stantcheva (2013)
Means-tested Transfers in the US, 1960-2019

- **health**
- **housing**
- **children in-kind**
- **children cash**
- **elderly/disabled**
- **general**

Optimal Tax/Transfer Systems

- $z-T(z)$ after-tax and transfer income

- $-T(0)$

- 45°

No taxes/transfers

Optimal tax system with no behavioral responses: 100% redistribution
Optimal Tax/Transfer Systems

$z - T(z)$

after-tax and transfer income

No taxes/transfers

Optimal tax system with
behavioral responses

Optimal tax system with
no behavioral responses: 100% redistribution

Pre-tax income $z$

0
Social Marginal Welfare Weights

- Rawlsian weights
- Utilitarian weights
- Libertarian=equal weights

pre-tax income z

g
Social Marginal Welfare Weights

- Rawlsian weights
- Libertarian=equal weights
- Utilitarian weights

pre-tax income z
FIGURE 1
Child Tax Credit, Single Parent
For one child, tax year 2020

Notes: Assumes all income comes from earnings, and child meets all tests to be a CTC-qualifying dependent. Credit for married parents begins to phase out at $400,000 of income. Only citizen children qualify for the $2,000 CTC for children under 17. Noncitizens under age 17 who meet the dependency tests of eligibility can qualify for the credit for dependents over age 17.
FIGURE 1
Child Tax Credit, Single Parent
For one child, tax year 2021

Credit for children ages 0–5
Credit for children ages 6–17
Prior law credit for children ages 0–16
Credit for other dependents

Adjusted gross income

$0 $50,000 $100,000 $150,000 $200,000 $250,000 $300,000

Notes: Assumes all income comes from earnings, and child meets all tests to be a CTC-qualifying dependent. $3,000 and $3,600 credits are fully refundable; prior law limited refunds to $1,400 out of the maximum $2,000 credit. Credit for married parents first phases out at $150,000 of income until credit reaches pre-2021 level; begins second phase out at $400,000 of income. Only citizen children qualify for the $3,000 and $3,600 credits for children under 18. Noncitizens under age 18 who meet the dependency tests of eligibility can qualify other dependent credit.
Basic income vs. Means-tested transfer

Budget: $c = (1-\tau)z + R$

**Basic income:** give $R$ to all,
Tax all earnings $z$ at MTR $\tau$

**Means-tested transfer:** give $R$ to people with $z=0$,
give $R-\tau z$ to people with $z$ in $(0,z^*)$,
Tax earnings $z$ at MTR $\tau$ but only above $z^*$

$z^* = \frac{R}{\tau}$