Suppose the government imposes a tax $\tau_w$ on wage income. That is, your after-tax wage rate is now $(1 - \tau_w)w$.

How do the hours individuals work change?

A Hint: this is not an obvious question.

We will start by assuming a temporary wage tax.

For example, the government decides to finance a war with a tax surcharge.
Wage Taxes and Labor Supply

Impact on Wages

\[
\frac{w'}{w^*} \quad \frac{(1-\tau_w)w'}{(1-\tau_w)w^*}
\]

Gap between before tax and after tax wages

Impact on Hours Worked

\[
\frac{w'}{w^*} \quad \frac{(1-\tau_w)w'}{(1-\tau_w)w^*}
\]

And reduction in hours worked

The Efficiency Loss

\[
\frac{w'}{w^*} \quad \frac{(1-\tau_w)w'}{(1-\tau_w)w^*}
\]

The yellow triangle shows the efficiency loss

LR Impact of Tax

\[
\frac{w^*}{w'} \quad \frac{(1-\tau_w)w'}{(1-\tau_w)w^*}
\]

What happens in Long Run?

LR Impact of Tax

\[
\frac{w^*}{w'} \quad \frac{(1-\tau_w)w'}{(1-\tau_w)w^*}
\]

This is Tricky.

A Foolish Project

Suppose the government imposes a permanent tax for a foolish project which will not make consumers better off or worse off

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Wage Taxes and Labor Supply

A Foolish Project

If we are in the backward bending part of the LR Labor Supply Curve, hours work increase.

Impact on Hours Worked

People move along the long run supply curve

Impact on Wages

People move along the long run supply curve

And the wage rate (both before tax and after tax) falls.

The Crucial Exception

The difference between LR and SR labor supply comes about because people feel poorer as wage rates go down.

People would certainly feel poorer if the government used the tax revenue for a foolish project.

But suppose the government used tax revenues to purchase goods like education and health care for people.

Taxing for Social Services
The difference between LR and SR labor supply comes about because people feel poorer as wage rates go down. People would certainly feel poorer if the government used the tax revenue for a foolish project. But suppose the government used tax revenues to purchase goods like education and health care for people. And suppose it was as efficient as the private sector in providing those goods. Just as efficient. Not more efficient. Not less efficient.

Then people would not feel any poorer because of the new taxes. They would only see that, on the margin, working brought them less.

Joe Smith works 2,000 hours a year and earns $20 an hour. Joe knows if he works an hour less, he has $20 less to spend.

The government now makes education and health care free, and pays for them by setting \( \tau_w = 40\% \). Joe Smith works 2,000 hours a year and earns $20 an hour. Joe knows if he works an hour less, he has $20 less to spend.
Joe Smith works 2,000 hours a year and earns $20 an hour. If he works an hour less, he gets $12 less to spend. But if he continues to work the same number of hours as before, he is neither richer nor poorer. Joe knows if he works an hour less, $20 less to spend.

The government now makes education and health care free, and pays for them by setting \( \tau_w = 40\% \). If Joe works an hour less, he gets $12 less to spend. But if he continues to work the same number of hours as before, he is neither richer nor poorer. Joe knows if he works an hour less, $20 less to spend.

In short, Joe is likely to respond to the higher taxes by working less.

A temporary wage tax increase will push us down the SR labor supply curve.

A permanent wage tax increase used to a foolish project will move us down the LR Labor Supply Curve.
A permanent wage tax increase used to fund social services will also push us down the SR labor supply curve.

Efficiency Loss:

End

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