Econ 131
Spring 2015
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Midterm Solution

March 18

1. True False Statements/Questions (15 points, 2.5 points per question)
Explain your answer fully based on what was discussed in class (no more than 10 lines per question), since all the credit is based on the explanation.

a) Empirically, married women with high wage rate work more than married women with low wage rates. This implies that the labor supply of married women is very elastic with respect to their net-of-tax wage rate.

True: Empirical result is true based on OLS cross-sectional regressions from the 1960s to 1980s. This implies that married women labor supply is elastic if the OLS identification assumption holds: tastes for work do not differ for married women with high wages vs. married women with low wages. There are reasons to believe the assumption does not hold. For example, women with higher taste for work are likely to work harder at school, get a better education, and hence get higher wages. However, better identified studies (like the negative income tax experiments) have confirmed that married women in the 1970s were elastic to the net-of-tax wage. Finally, as the gender gap has declined, married women have become more like married men and less elastic with respect to the net-of-tax wage.

b) The US is land of opportunity where even kids growing up in low income families can succeed economically.

Uncertain: Some kids growing up in low income families do succeed economically. Economists can measure what fraction of kids growing up poor (for example in bottom quintile) end up in top quintile as adults. Empirically, the US has lower intergenerational mobility than other advanced economies (see class notes). However, the US has enormous heterogeneity in intergenerational mobility across cities (see class notes on study by Chetty et al. 2014). Some cities, like San Jose, have very high intergenerational mobility (comparable to Denmark). Others, like Atlanta have very low intergenerational mobility.

c) If bequests are mostly accidental, then taxing inheritances is desirable.

True: accidental bequests means that people did not intend to leave bequests (they wanted to spend their wealth on themselves or they accumulated wealth because they enjoyed it). In that case, taxing inheritances does not affect the negatively, work, savings and wealth accumulation behavior of those leaving bequests. It affects inheritors who receive less and make them work

more (through income effects). Hence, taxing bequests has positive economic consequences in this case. If society feels like inheritances are a non-deserved economic advantage, then taxing them is definitely desirable in that case.

d) Pre-tax top 1% income shares in the US are highly negatively correlated with the individual income top tax rate, hence top tax rates should be low.

Uncertain. It is true that top 1% income shares in the US are highly negatively correlated with the individual income top tax rate. The consequence for optimal top tax rates depends on the mechanism behind this correlation. If the mechanism is supply side responses, then indeed top tax rates should be low. If the mechanism is tax avoidance, then the government should close tax loopholes first to make the tax base inelastic before thinking about imposing high tax rates. If the mechanism is rent-seeking where high earners can extract more (at the expense of the bottom 99%) when top tax rate is low, then top tax rates should be high. Empirical evidence is not fully conclusive but tax avoidance cannot explain away the correlation. The supply-side story predicts that top tax rates cuts should lead to higher economic growth which cannot really be seen in the data.

e) The majority of the US public is opposed to the estate tax in large part because the public does not know that only the very rich have to pay the estate tax.

True: Yes, surveys show that a majority of people are agains the "death tax". However, indeed people don't know that it applies only to the wealthy. The study discuss in class by Kuziemko et al. 2015 does an online survey experiment. It finds that support for estate tax increase shots up from 17% to 53% when survey respondents are informed that only richest pay it.

f) Explain the key difference between an S-corporation and a C-corporation and how this difference can be exploited to evaluate the effect of the 2003 dividend tax cut on corporate investment decisions.

C-corporation face double taxation: the corporate income tax on profits and then the individual income tax when dividends are paid to shareholders or realized capital gains are made when shareholders sell their shares. S-corporations are pass-through entities whose profits at taxed solely and directly at the individual level as business income. Hence, S-corporations are not affected by the 2003 dividend tax cut and hence can be used as a control group to estimate whether C-corporations changed their investment behavior. Yagan (2015) discussed in class does this analysis (see class notes) and finds no effect of the dividend tax cut on investment behavior of C-corporations.

2. Exercise (15 points)

Assume that individuals have the same utility function over consumption and *labor* given

by:

$$U(c, l) = c - \frac{l^{k+1}}{k + 1}$$

where c represents consumption and l represents hours of *labor* and k is a given parameter.

Assume also that the only income that individuals have is from labor income, that the hourly wage rate is given by w.

a) Write the budget constraint faced by the individual.

$c = wl$

b) Set up the maximization problem of this individual and solve for the optimal labor supply function.

max $U(c, l)$ with respect to $c = wl$. Plug in $c = wl$ in $U(c, l)$ and take the derivative with respect to l. That gives the labor supply function: $l = w^{1/k}$

c) Assume now that the individual is being charged a tax rate τ on earnings. Solve for the labor supply function as a function of τ

Same steps as above with different budget constraint: $c = wl(1 - \tau)$ The maximization problem yields: $l = (w(1 - \tau))^{1/k}$

d) Calculate the labor supply elasticity with respect to $1 - \tau$.

$\epsilon = \frac{\partial l}{\partial 1 - \tau} \frac{1 - \tau}{l} = \frac{1}{k}$

e) Is the substitution effect caused by τ positive, negative or zero? Explain.

The substitution effect is negative. The more the person is taxed, the more she substitutes away from labor towards leisure.

f) Is the income effect caused by τ positive, negative or zero? Explain.

Here there is no income effect because the utility is quasi linear.

Assume that the government is trying to encourage labor supply and implements the following tax schedule:

Any gross income between $0 and $10,000 is **subsidized** at 25%
Any gross income between $10,000 and $20,000 is exempt from taxes
Any gross income between $20,000 and $25,000 is taxed at 50%
Any gross income above $25,000 is exempt from taxes

g) Graph the budget set in the labor/consumption axis. Make sure you label the axis and label every point where the slope changes by indicating its x and y ordinates.

See section notes 7 for an example of graph. The kink points are (0,0), (10k,12.5k), (20k,22.5k) and (25k,25k).

h) For every tax/subsidy bracket, determine the sign of the substitution effect, income effect and total effect compared to the baseline with no tax at all. Can you be even more specific when the utility function is given by $U(c, l) = c - \frac{l^{k+1}}{k+1}$ as above?

In general:

1st bracket: SE positive, IE negative, TE: positive

2nd bracket: SE zero, IE negative, TE: zero

3rd bracket: SE negative, IE negative, TE: negative

4th bracket: SE zero, IE zero, TE: zero

With the utility function from above, the IE is always zero:

1st bracket: SE positive, IE zero, TE: positive

2nd bracket: SE zero, IE zero, TE: zero

3rd bracket: SE negative, IE zero, TE: negative

4th bracket: SE zero, IE zero, TE: zero

i) Assume you are trying to assess the effect of such a tax schedule on the labor supply of individuals. Propose an empirical method that would allow you to answer your question. Explain the method and refer to a paper using this method.

You can use bunching here. See Saez (2010) or lecture notes.