Applying consumer choice

In this section we’ll take what we’ve learned so far and apply it to a useful examples: a consumer choosing how much to work

- These will fit nicely in stories about things like unemployment, benefits, taxation, minimum wage...
- And we can start to see that the distinction between the demand and supply sides is an illusion
- Lots and lots of pictures today
- In your textbook (Serrano & Feldman) this is Chapter 5

Slave to the wage

Let’s think of a consumer choosing how much to work

- First we’ll say that the consumer can only get money by working
- Our consumer doesn’t particularly like working, but does like stuff, so has to work
- How can we fit this into our consumer choice model?
  - Good 1: leisure \( L \); the consumer enjoys time not working
  - Good 2: consumption \( c \); the consumer enjoys stuff
  - The price per unit of consumption is \( p \), representing a kind of composite price for stuff
  - The price of leisure is the wage rate \( w \); every hour the consumer doesn’t work carries an opportunity cost
  - And the consumer’s constraint is time
- Notice the trick: we manipulate the problem into a two good model
- We can address an important comparative static: how does the wage rate affect how much people work?
The consumption and leisure budget

The standard budget constraint from before was:

\[ p_1 x_1 + p_2 x_2 \leq m \]  

(1)

We could skip straight to this with our current ingredients, but let’s derive it; first, the consumer must spend no more than her labor income (for now)

\[ pc \leq w\ell \]  

(2)

Here, \( \ell \) represents hours worked; the consumer has a time constraint too:

\[ \ell + L = T \]  

(3)

We can combine lines 2 and 3 to get

\[ wL + pc \leq wT, \]  

which is in just the same form as line 1

Picturing the budget

Consumption (c)

0

Slope = \(-w/p\)

Budget set

Leod (L)

0

T

The budget set (compare the intercepts and slope to the standard case)

Adding preferences

Consumption (c)

0

T

0

A consumer with well-behaved preferences
Labor supply

Optimal choice the usual way: $\ell^*$ is labor supply

Comparative statics on wage

When wage increases, some consumers might want to work more

But some consumers might want to work less, which would result in a backward-bending labor supply curve

Which of these happens depends on whether the substitution effect...
Comparative statics on wage increase

The Hicks decomposition of a wage increase

This example can be a good, relatable way to get the idea of the Hicks (and Slutsky) decompositions

- Wage goes up
- The substitution effect
  - The relative price of leisure has gone up, and the relative price of consumption has fallen
  - I like stuff, and now each hour of work buys me more stuff, so I work more
- The income effect
  - But I don’t have to work so much to get the same amount of stuff as before
  - I don’t like working, so I work less
- Do these cancel out? Which one is more significant?
- As always, it depends on my preferences

Income from other sources

...has income other than she gets from working?
Tangency might not give the right answer

We have to worry about corner solutions when the budget constraint is non-standard

Unemployment benefits

Here’s a budget where the consumer receives \( b \) if they don’t work

Unemployment benefits

If \( b \) is very high the consumer prefers not to work at all—a corner solution again

Unemployment benefits

That’s why we typically see unemployment benefits phased out instead of all-or-nothing: the lumpier the budget set, the bigger the potential distortion of optimal choice
Overtime

Overtime pay would change the slope of the budget set: here wage goes up to $w_O$ after some threshold hours of work.

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Spring 2016

Overtime

The rate is not attractive enough to induce this consumer to work overtime.

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Overtime

A rate of at least this much would be required.

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Work

- We can start to see the power of the consumer choice model here.
- And we can start to see the beginnings of a very powerful model in which people are both consumers and producers.
- Question: what do you think the budget constraint really looks like for the type of labor supply decisions you might face in your own life?
  - Hold fixed your education and skills
  - What options are available to you?
  - Do you get to choose how much to work?
  - See Keynes “Economic Possibilities for our Grandchildren” (1930)
  - What about choosing a career?
- Try to also think about the many other ways that economic policy can influence the labor supply story we’ve built here.