Inequality, Household Behavior and the Macroeconomy

Course overview

Course Director: Zoltán Rácz

SSE, Department of Finance

May 15, 2024

Table of Contents

Do we need heterogeneity in macro models?

- By definition yes, if we are interested in questions that pertain differences across agents

Do we need heterogeneity in macro models?

- By definition yes, if we are interested in questions that pertain differences across agents
- But what if we are interested in aggregate quantities only?

Do we need heterogeneity in macro models?

- By definition yes, if we are interested in questions that pertain differences across agents
- But what if we are interested in aggregate quantities only?

As an example, assume that

- you know aggregate income Y (in each future period) and current aggregate wealth W
- you are interested in current aggregate consumption C

Do you care about how Y and W are distributed across households in the economy?

Not always!

First lecture: optimal consumption with no borrowing limits or uncertainty, in infinite horizon:

$$c_{i,0} = A\left[w_{i,0} + \sum_{s=0}^{\infty} \frac{y_{i,s}}{(1+r)^s}\right]$$

where A is a constant.

Not always!

First lecture: optimal consumption with no borrowing limits or uncertainty, in infinite horizon:

$$c_{i,0} = A\left[w_{i,0} + \sum_{s=0}^{\infty} \frac{y_{i,s}}{(1+r)^s}\right]$$

where A is a constant. Then

$$C_0 = \sum_i c_{i,0} = \sum_i A\left[w_{i,0} + \sum_{s=0}^{\infty} \frac{y_{i,s}}{(1+r)^s}\right] = A\left[W_0 + \sum_{s=0}^{\infty} \frac{Y_s}{(1+r)^s}\right]$$

Not always!

First lecture: optimal consumption with no borrowing limits or uncertainty, in infinite horizon:

$$c_{i,0} = A\left[w_{i,0} + \sum_{s=0}^{\infty} \frac{y_{i,s}}{(1+r)^s}\right]$$

where A is a constant. Then

$$C_0 = \sum_i c_{i,0} = \sum_i A\left[w_{i,0} + \sum_{s=0}^{\infty} \frac{y_{i,s}}{(1+r)^s}\right] = A\left[W_0 + \sum_{s=0}^{\infty} \frac{Y_s}{(1+r)^s}\right]$$

so

- it is enough to know aggregate quantities
- distribution is irrelevant!

When is distribution irrelevant?

1. No borrowing limits

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:
    a. assume no uncertainty in environment $\rightarrow$ trivial

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:
   a. assume no uncertainty in environment $\rightarrow$ trivial
   b. quadratic preferences $\rightarrow$

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:
   a. assume no uncertainty in environment $\rightarrow$ trivial
   b. quadratic preferences $\rightarrow$ there might be uncertainty, but agents optimally don't react to it

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:
   a. assume no uncertainty in environment $\rightarrow$ trivial
   b. quadratic preferences $\rightarrow$ there might be uncertainty, but agents optimally don't react to it
   c. complete markets & risk-averse agents $\rightarrow$

When is distribution irrelevant?

1. No borrowing limits
2. Uncertainty doesn't affect consumption. Several ways:
   a. assume no uncertainty in environment $\rightarrow$ trivial
   b. quadratic preferences $\rightarrow$ there might be uncertainty, but agents optimally don't react to it
   c. complete markets & risk-averse agents $\rightarrow$ there might be uncertainty, but agents optimally insure it away (because they want and they can).

What if the distribution of individuals is relevant?

We face a harder problem!

1. Need to solve the individuals consumption-savings problems

What if the distribution of individuals is relevant?

We face a harder problem!

1. Need to solve the individuals consumption-savings problems
2. To calibrate these models, we have to match moments in the data relating to individual-level uncertainty and decisions

   Conceptually more complicated than for representative agent models. Less good data is available.

What if the distribution of individuals is relevant?

We face a harder problem!

1. Need to solve the individuals consumption-savings problems
2. To calibrate these models, we have to match moments in the data relating to individual-level uncertainty and decisions

   Conceptually more complicated than for representative agent models. Less good data is available.
3. After a good model of agents' environments and knowing their optimal policies, we can simulate model populations and compare with reality, or perform counterfactuals.

Table of Contents

Other sources of wealth inequality

- higher saving rates of the rich

Other sources of wealth inequality

- higher saving rates of the rich
- health risks - a saving motive for the old

Other sources of wealth inequality

- higher saving rates of the rich
- health risks - a saving motive for the old
- more realistic earning processes

Other sources of wealth inequality

- higher saving rates of the rich
- health risks - a saving motive for the old
- more realistic earning processes
- more realistic social security - no need to save as poor if getting benefits for sure

Other sources of wealth inequality

- higher saving rates of the rich
- health risks - a saving motive for the old
- more realistic earning processes
- more realistic social security - no need to save as poor if getting benefits for sure
- stochastic returns, with persistence

Social Mobility

TABLE 3—INTERGENERATIONAL SOCIAL MOBILITY TRANSITION MATRIX

	Percentile (child)				
Percentile (parent)	0–20	20–40	40–60	60–80	80–100
0–20	0.36	0.29	0.16	0.12	0.07
20–40	0.26	0.24	0.24	0.15	0.12
40–60	0.16	0.21	0.25	0.24	0.15
60–80	0.15	0.13	0.20	0.26	0.26
80–100	0.11	0.16	0.14	0.24	0.36

Source: From Table 2 in Charles and Hurst (2003). Note that we exchange the row and the column from their version.

Social Mobility

It matters how easy it is to move across the wealth distribution

Social Mobility

It matters how easy it is to move across the wealth distribution

- Very important for welfare. Much worse to be poor if no hope of getting richer.

Social Mobility

It matters how easy it is to move across the wealth distribution

- Very important for welfare. Much worse to be poor if no hope of getting richer.
- Not easy to match in models

Social Mobility

It matters how easy it is to move across the wealth distribution

- Very important for welfare. Much worse to be poor if no hope of getting richer.
- Not easy to match in models
- Crucial driver: Stochastic returns to capital

Within Household inequality

We always treated the household as one unit. But in reality, it is composed of two adult individuals with not perfectly aligned preferences.

Within Household inequality

We always treated the household as one unit. But in reality, it is composed of two adult individuals with not perfectly aligned preferences.

- Intra-household bargaining can be very relevant. Connection to gender.

Within Household inequality

We always treated the household as one unit. But in reality, it is composed of two adult individuals with not perfectly aligned preferences.

- Intra-household bargaining can be very relevant. Connection to gender.
- Especially important when modeling the fact that households sometimes break up.

Within Household inequality

We always treated the household as one unit. But in reality, it is composed of two adult individuals with not perfectly aligned preferences.

- Intra-household bargaining can be very relevant. Connection to gender.
- Especially important when modeling the fact that households sometimes break up.

  Example: labor choices of women are affected by divorce laws.

Within Household insurance

We always treated the household as one unit. But in reality, two adults means two (somewhat independent) income processes.

Within Household insurance

We always treated the household as one unit. But in reality, two adults means two (somewhat independent) income processes.

- Household members can insure each other.

Within Household insurance

We always treated the household as one unit. But in reality, two adults means two (somewhat independent) income processes.

- Household members can insure each other.
- Without taking this into account, one overestimates the effect of risk

Within Household insurance

We always treated the household as one unit. But in reality, two adults means two (somewhat independent) income processes.

- Household members can insure each other.
- Without taking this into account, one overestimates the effect of risk
- Single households are more exposed.

Within Household insurance

We always treated the household as one unit. But in reality, two adults means two (somewhat independent) income processes.

- Household members can insure each other.
- Without taking this into account, one overestimates the effect of risk
- Single households are more exposed.
- For inequality in the aggregate, assortative matching is important (correlation between average income of spouses)

Labor supply

In our models, agents supplied labor inelastically. In reality (and richer models), people derive utility from leisure and decide how much to work. How would this affect idiosyncratic risk?

Labor supply

In our models, agents supplied labor inelastically. In reality (and richer models), people derive utility from leisure and decide how much to work. How would this affect idiosyncratic risk?

- Decreases welfare effects of risk: an extra decision is always good

Labor supply

In our models, agents supplied labor inelastically. In reality (and richer models), people derive utility from leisure and decide how much to work. How would this affect idiosyncratic risk?

- Decreases welfare effects of risk: an extra decision is always good
- Can insure oneself by varying labor supply (work more than having less money)

Labor supply

In our models, agents supplied labor inelastically. In reality (and richer models), people derive utility from leisure and decide how much to work. How would this affect idiosyncratic risk?

- Decreases welfare effects of risk: an extra decision is always good
- Can insure oneself by varying labor supply (work more than having less money)
- Can derive more happiness from leisure when cannot consume enough goods - easier to smooth utility

Labor market

In our model everyone faces the same, log-normal income risk. In reality, income risk depends on worker and occupation characteristics. Some of these are unobservable in data.

Labor market

In our model everyone faces the same, log-normal income risk. In reality, income risk depends on worker and occupation characteristics. Some of these are unobservable in data.

- We might capture some average income risk.

Labor market

In our model everyone faces the same, log-normal income risk. In reality, income risk depends on worker and occupation characteristics. Some of these are unobservable in data.

- We might capture some average income risk.
- But many people have much less uncertainty

Labor market

In our model everyone faces the same, log-normal income risk. In reality, income risk depends on worker and occupation characteristics. Some of these are unobservable in data.

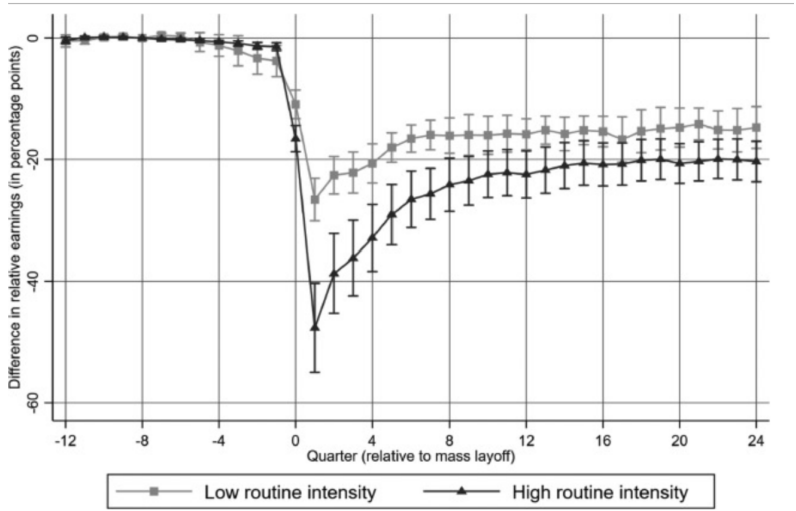
- We might capture some average income risk.
- But many people have much less uncertainty
- Some people face much bigger risks

Labor market

In our model everyone faces the same, log-normal income risk. In reality, income risk depends on worker and occupation characteristics. Some of these are unobservable in data.

- We might capture some average income risk.
- But many people have much less uncertainty
- Some people face much bigger risks
- Thus inequality in terms of income risk across people might be important. And we ignored that.

Long-term effects of displacement in a mass layoff



Course evaluation

- Probably not too exciting to fill it out
- But it's highly appreciated. Good for
  - me
  - future students
  - the school
- Enthusiastic, highly motivated, and highly disappointed students always fill these out. Not the rest $\Rightarrow$ biased estimates!
- If you want to give feedback directly to me, that's also very welcome.

Thank you!