Discussion of "Balance Sheet Recessions" by Huo and Rios-Rull

Sebastian Di Tella
Stanford GSB

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Introduction

- Can financial shocks create demand driven recessions?
- Unexpected shock to borrowing constraint
- Several ingredients
  - idiosyncratic risk: precautionary savings
  - search frictions
  - shopping effort
- I will go over a series of benchmarks to understand what each ingredient does.

Benchmark 1: no search, no shopping disutility

- No search frictions $s = d$, and no shopping disutiliy: $\xi_d = 0$.
- Full employment in services $S = T_s$
- Price of services
$$p = \frac{u_s}{u_c}$$
- Financial shock only reduces consumption of goods (precautionary savings, and r is fixed)
$$u_c \geq \beta(1 + r)\mathbb{E}u_c$$
- but employment in services is not affected.

Benchmark 2: add shopping disutility

- Add shopping disutility $\xi_d > 0$

$$p = \frac{u_s + \overbrace{u_d}^{<0}}{u_c}$$

- The market clearing price for services is different, but still full emplyment $S = T_s$
  - (as long as $p > 0$)

Benchmark 3: "search frictions" but no shopping disutility

- Now we have search frictions

$$s = d\Psi^d(q)$$

- but no disutility from shopping: $\xi_d \to 0$
- Still full employment: $S = T_s$
- Even though there is search, all households go to the cheapest market and do infinite shopping effort $d \to \infty$
- The price of services p adjusts to maintain full employment

Benchmark 4: homothetic preferences $\gamma = 0$

- Search frictions + disutility from shopping: partial employment $S < T_s$
- With $\gamma = 0$, homothetic preferences

$$u(c, s, d) = \overbrace{c_A(c, s)}^{H^1} - \xi_d \frac{d^{1+\gamma}}{1+\gamma}$$

- all agents go to the same market (p, q), and (s, c, d) are proportional
- Optimal choice of q (keeping s fixed)

$$\overbrace{\frac{dd}{dq} u_d}^{\text{Benefit}} = \overbrace{\frac{dp}{dq} u_c s}^{\text{Cost}}$$

$$\frac{\Psi_q^d(q)}{\Psi^d(q)} d\xi_d = \frac{-\Psi_q^f(q)}{\Psi^f(q)} p u_c s$$

Shock to borrowing constraint

- Increase in precautionary savings: C will fall in equilibrium (r is fixed)
- Can p fall to keep S constant? No, shopping is less important when prices are lower
- Let's try to build eq where S, and hence q don't change:

$$\overbrace{\frac{\Psi_q^d(q)}{\Psi^d(q)}}^{\frac{dd}{dq}} d\,\xi_d = \overbrace{\frac{-\Psi_q^f(q)}{\Psi^f(q)}}^{\frac{dp}{dq}} p\, u_c s$$

$$\frac{\Psi_q^d(q)}{\Psi^d(q)} d\xi_d = \frac{-\Psi_q^f(q)}{\Psi^f(q)} \underbrace{\left(u_s - \frac{\xi_d}{\Psi^d(q)}\right)}_{=pu_c(\text{FOC } s)} s\downarrow$$

- So $\downarrow S = \Psi^f(q\uparrow) T_s$.
- Choose relatively more expensive markets during downturn?

Non-homothetic preferences $\gamma > 0$

- With $\gamma > 0$: price and tightness dispersion (p, q)
- rich pay more (p) for higher prob. of buying $(\Psi^d(q))$, and shop more (d), but less than proportionally
- Choose q:

$$\overbrace{\frac{dd}{dq} u_d}^{\text{Benefit}} = \overbrace{\frac{dp}{dq} u_c s}^{\text{Cost}}$$

$$\frac{\Psi_q^d(q)}{\Psi^d(q)} d\xi_d d^\gamma = \frac{-\Psi_q^f(q)}{\Psi^f(q)} p u_c s$$

Shock with $\gamma > 0$

- With $\gamma > 0$ dispersion in (p, q).
- Shock to borrowing constraint: affects the poor more!
- Poor reduce consumption of services, while rich increase (prices p go down)
  - poor shop relatively more
  - rich shop relatively less
  - on average less shopping: so $S \downarrow$
- But now most people (poor) substitute to lower priced markets after the shock