"A Theory of Macroprudential Policies in the Presence of Nominal Rigidities" by Farhi and Werning

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Summary

Quick Summary:

- when output is demand-determined, the distribution of wealth across agents matters
- we can reduce unemployment by reallocating wealth towards
  - agents with high marginal propensity to consume
  - agents who spend disproportionately on unemployed factors

  (and conversely for overheating)
- these reallocations can be done ex-ante (macro-prudential) or ex-post (redistribution with macro stabilization benefits)

Contribution

- culmination of several years of work of Emmanuel and Iván on inefficient financial allocations in New Keynesian-style models
- overturn old (and out-dated) consensus that "macro stabilization is the job of monetary policy"
- identify a general role for financial market intervention in (New) Keynesian models
- provide generic inefficiency results for Keynesian models (akin to Geanakoplos-Polemarchakis, Greenwald-Stiglitz, 1986)

→ very ambitious

- it does so successfully

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Contribution

How surprised should we be about the results?

- General idea:
  - reallocating wealth between agents with different propensity to spend (plus further details) will affect demand

  $\rightarrow$ intuition well known from traditional Keynesian model

- Contribution: embed mechanism into rigorous Keynesian framework
  - clarifies our thinking (e.g. results hold under complete markets)
  - micro-foundations allow for careful welfare analysis
  - clear guide for quantifying policy intervention (reflected in optimal tax formula)

  $\rightarrow$ large benefits to modern treatment of Keynesian ideas

Policy Relevance

Old World View:

- monetary policy is responsible for AD management
- (micro-)prudential banking regulation is responsible for financial stability

$\rightarrow$ world view shattered by financial crisis

Macroprudential Policy Beyond Banking Regulation

New (Emerging) World View:

- monetary policy alone cannot do the job of AD management
- macro-prudential regulation is useful to complement it
  - because of limits to monetary policy (AD externalities)
  - because of financial market imperfections (financial externalities)

  $\rightarrow$ macropru is most important when the two imperfections combine

$\rightarrow$ macro-prudential policy needs to go beyond banking regulation

$\rightarrow$ implications for perimeter of regulation (shadow banking etc.)

$\rightarrow$ Jeanne and Korinek (2014), "Macroprudential Policy Beyond Banking Regulation"

Structure of Paper

Theory Part: Generic Inefficiency à la Geanakoplos-Polemarchakis

Applications: very relevant, but much more applied:

- Deleveraging in a liquidity trap
- Capital controls under fixed exchange rates
- Capital controls in the face of liquidity traps
- Fiscal transfers in a monetary union
- ...

Cohesiveness of the paper:

- how well do the general model and the applications fit together? (theory very general, applications very stark)

→ desirable to provide a simpler in-between example

Necessary Ingredients

What are the necessary ingredients for the inefficiency to matter?
(Or: what are the necessary ingredients for a planner to improve equilibrium?)

1. output is demand-determined
   in paper: stark restrictions on monetary policy:
   - ZLB on interest rates
   - fixed exchange rate and interest parity
2. agents need to have significantly different MPCs
   in paper:
   - either agents in different countries
   - or differential financial constraints

A Simple Keynesian Example

Two types of agents:

1. Capitalists:
   - obtain fraction α of output Y_t
   - infinitely-lived $\rightarrow$ MPC = $(1-\beta) << 1$
2. Workers:
   - obtain fraction $(1-\alpha)$ of output Y_t
   - hand-to-mouth $\rightarrow$ MPC = 1

Output demand-determined (with usual micro-foundations):

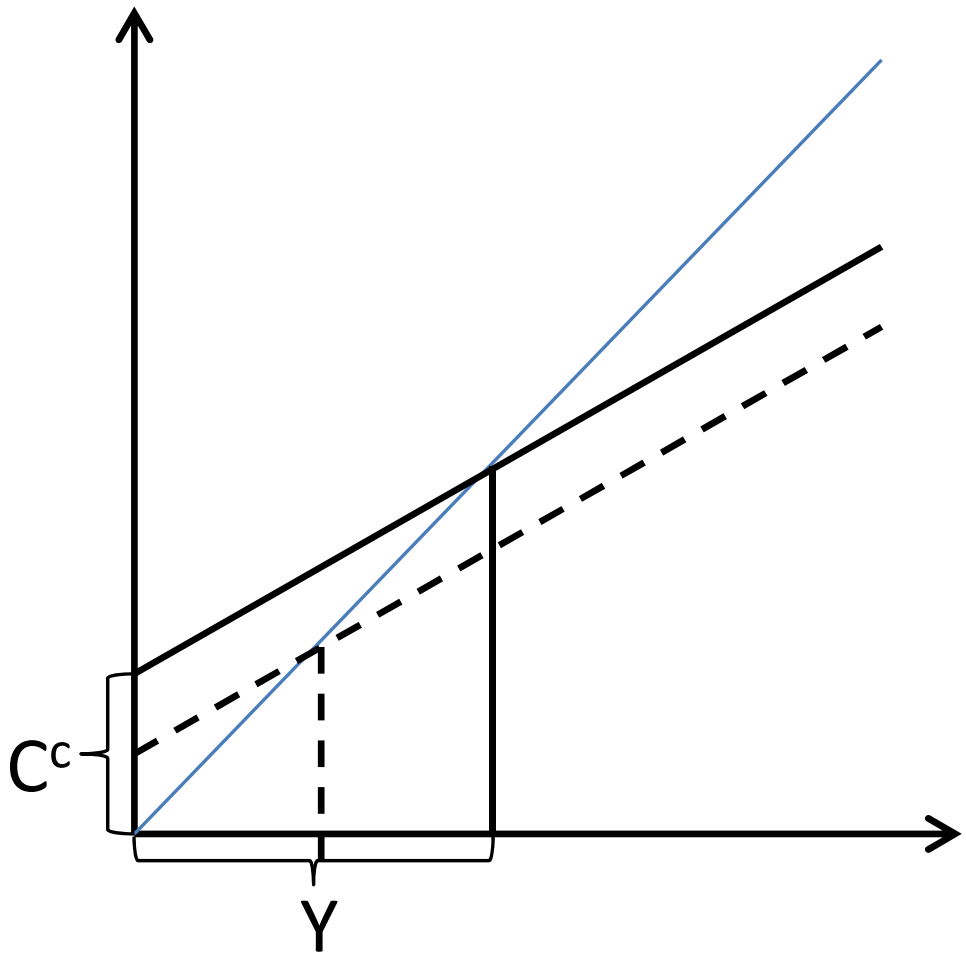
$$Y_t = C_t^c + C_t^w = C_t^c + (1-\alpha) Y_t = \frac{C_t^c}{\alpha}$$

Demand of capitalists C_t^c determined by real interest rate R_{t+1}:

$$u'(C_t^c) = \beta R_{t+1} E\left[u'(C_{t+1}^c)\right]$$

Illustration of Example: Keynesian Cross

$$Y_t = C_t^c + (1-\alpha) Y_t$$



Simple Example: Introduce Demand Shocks

- Assume a shock Δ_t to period t demand
  (possible micro-foundations: wealth redistribution, future uncertainty, etc.)
- In ideal case, central bank adjusts R_{t+1} to restore demand by Δ_t
- If R_{t+1} cannot adjust, then Keynesian multiplier is triggered
  $\rightarrow$ demand-determined equilibrium
  $\rightarrow$ over-/underproduction
- BUT: wealth redistribution by $\approx \Delta_t$ restores efficient output
  - ex-post: via fiscal transfers, automatic stabilizers, etc.
  - ex-ante: via "macroprudential" policy:
    - ★ make workers buy $\approx \Delta_t$ insurance from capitalists
    - ★ this is MORE insurance than privately optimal for workers
- note: opposite results for supply shocks

Contrasting Fire-Sale and AD Externalities

Macroprudential regulation justified by both fire-sale externalities and AD externalities:

1. Models of fire-sale externalities
   (Lorenzoni, 2008; Jeanne-Korinek, 2010, ...)
   - welfare cost = being financially constrained
   - no direct effect on output

2. Models of AD externalities
   (Farhi-Werning, Schmitt-Grohe-Uribe, 2012, Korinek-Simsek):
   - welfare cost = output gap
   - no direct impact on financial constraints

Both very relevant, with different timing (first more of 1, then more of 2)

Combining AD and Fire-Sale Externalities

Extension of our Keynesian Example to Fire Sales:

- introduce asset, with price $P_t(C_t^w)$ increasing in worker consumption
- worker consumption C_t^w is increasing in asset price $P_t \simeq C_t^w$

$$C_t^w = (1-\alpha)Y_t + \tilde{\phi}P_t = (1-\alpha)Y_t + \phi C_t^w = \frac{1-\alpha}{1-\phi}Y_t$$

- aggregate demand is

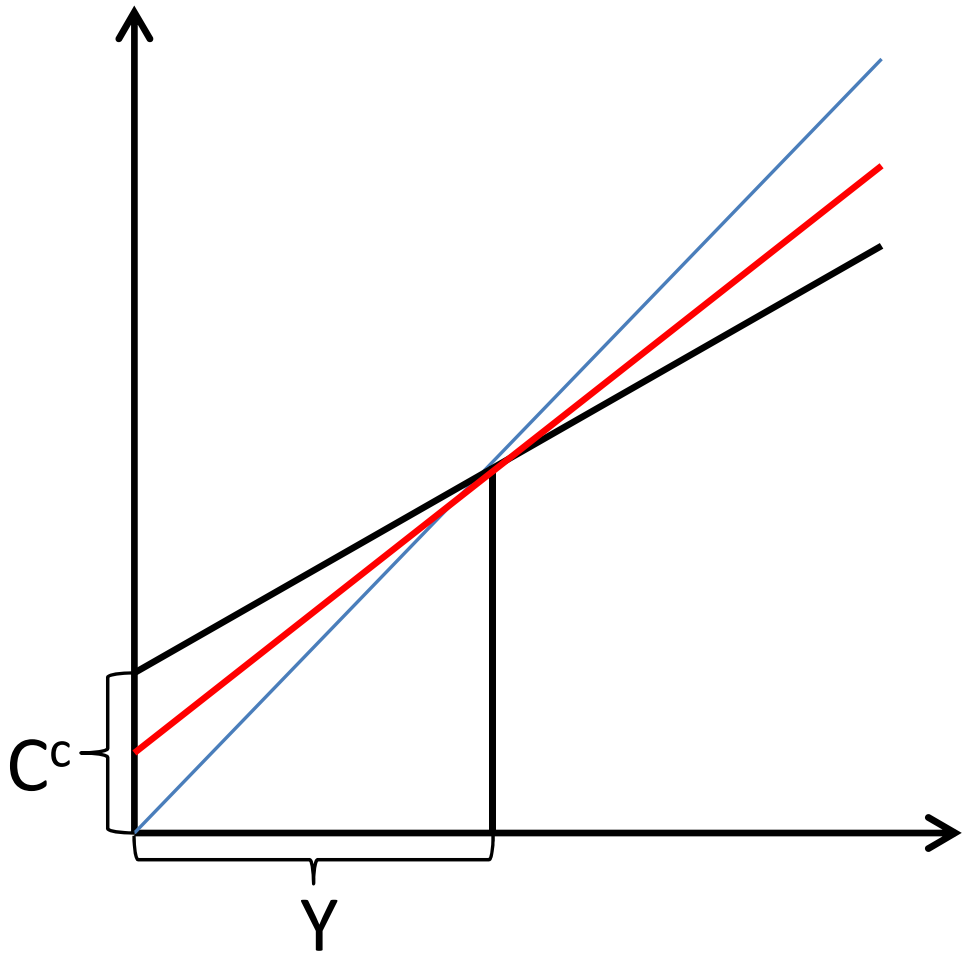
$$Y_t = C_t^c + C_t^w = C_t^c + \frac{1-\alpha}{1-\phi}Y_t = \frac{1-\phi}{\alpha-\phi}C_t^c$$

$\rightarrow$ fire-sale and AD effects compound each other

$\rightarrow$ externalities from both also compound each other!

Fire Sales Compound AD Externalities

$$Y_t = C_t^c + \frac{1-\alpha}{1-\phi} Y_t$$



Liquidity Traps and Excessive Leverage

Can monetary policy substitute for macroprudential policy?

- Macroprudential policy:
  creates a wedge between $MRS_{t,t+1}$ of borrowers versus lenders
- Monetary policy:
  common wedge on $MRS_{t,t+1}$ of both borrowers and lenders
  $\rightarrow$ effects on leverage are ambiguous
  - substitution effect on borrowers $\rightarrow$ less leverage
  - temporary income effect on borrowers $\rightarrow$ more leverage
  - and opposite forces on lenders

  $\rightarrow$ in standard specifications, leverage actually goes up!

$\rightarrow$Korinek and Simsek (2014), "Liquidity Trap and Excessive Leverage"

ALSO: a higher inflation target would help