

# **ADVANCED MACROECONOMICS**

## Lecture Notes IV

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## This lecture

Heathcote, Jonathan, Kjetil Storesletten, and Giovanni L. Violante. 2009. Quantitative Macroeconomics with Heterogeneous Households. *NBER Working Paper No. 14768*.

An overview of recent developments and future trends

# Motivation

Quote from HSV 2009: "Until the 1970s, the field of macroeconomics concentrated on estimating systems of ad hoc aggregate relationships ("Cowles macroeconometrics") and largely abstracted from individual behavior and differences across economic agents."

# Representative agent model

Following the seminal work of Kydland and Prescott (1982) economists relied on representative agent framework.

Back in the day there was a lack of tools that could be used to solve dynamic models with heterogeneous agents and incomplete markets.



3. Many macroeconomic questions cannot be addressed without heterogenous agents

Quote from HSV 2009: "More broadly, macroeconomics is expanding from the study of how average values for the inputs (capital and labor) and outputs (consumption) of production are determined in equilibrium to the study of how the entire distribution of these variables across households is determined."

# Working horses

Heterogeneity with complete markets

The standard incomplete markets model

Quote from HSV 2009: "The first generation of SIM models allowed for only a narrow set of sources of heterogeneity, and a limited number of avenues for partially insuring idiosyncratic risk.

Agents were ex ante identical and ex post heterogeneous only because of exogenous shocks to income. Risk-free bonds were the only avenue of insurance.

Aggregate shocks were either entirely absent or limited to some special cases that preserved tractability."



## Three themes

The basic "standard incomplete markets" framework has been extended to incorporate

- (i) additional sources of risk
- (ii) more channels of insurance
- (iii) aggregate risk

## Other sources of risk

Health shocks:

- bad health resulting in higher mortality will affect savings
- a negative health shock significantly reduces Marginal Utility of non-medical consumption

## Additional channels of insurance

Financial markets: default is possible in reality

Housing and mortgages serve as a source of risk and insurance at the same time



## Shift in a paradigm

Heterogeneous agent models: "...provide a useful synthesis between the macro approach to economic questions, grounded in dynamic recursive equilibrium theory, and the micro approach focused on heterogeneity among individuals in their innate characteristics, their luck, and their choices." (HSV 2009)

## Optimistic conclusion-:)

HSV 2009:"The first generation of SIM models took a fairly narrow view of risk (only exogenous endowment shocks), of insurance (only saving), and of the interaction between aggregate and idiosyncratic shocks (none).

However, the greatest strength of this framework has proven to be its flexibility.

Macroeconomic research in the past decade has demonstrated that the SIM model can be successfully extended in all three directions."