Why macro needs microdata?

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What is macro?

• Macro is about general equilibrium
  • Interactions and interdependencies between households, firms … across product, labour, capital markets

• What are the aggregate outcomes?

• Heterogeneity/distribution may be of interest in its own right

• But does it matter for aggregate developments?
  • Business cycle: production, consumption, …
  • Structural: unemployment…
  • Growth: inequality → growth
The representative agent

- Traditional macro: Behaviour can be modelled based on the representative agent assumption (household, firm…)

- Aggregation: what matters to the ”average” agent is what matters for the aggregate outcome
  - Individual dynamics coincide with aggregate dynamics

- Implicit assumption: the distribution ”around” the representative agent is stationary and unaffected by shocks and policy changes!
  - Distributional aspects do not matter for aggregate outcomes
Critique of the representative agent

Theory:

- Implicit aggregation assumption is very restrictive
- Giving up the representative agent
  - Heterogeneity: preferences, endowments, initial position
  - Market structure (incomplete markets)

Empirical:

- Does the "representative agent" assumption have empirical support?
- How to assess this without microdata?
- Model development depends on data availability!
Shift in policy focus

• Traditional models: aggregate demand management (fiscal and monetary policy)

• During 1980s and 1990s increasing focus on structural policies

• Need for more precise modelling of behavioural responses, market structures, e.g. labour markets, immediately brings in heterogeneity

• New questions, new models, new data!
Theoretical developments

• 1970s: Microeconomic foundation of macroeconomics
  • Need to derive behaviour from micromodels (consistency – understand how behaviour depends on policy)
  • Explicit about objectives, markets, information etc.

• 2000s: Heterogeneous agent models
  • Taking heterogeneity seriously
  • Incomplete market structures
  • Behavioural assumptions (rationality?)
Models and data – why macro needs microdata?

• Fundamental assumptions can be tested

• Better empirical foundation of models

• Richer models can be developed

• Improvement of applied models – policy advice
Use of microdata in macro

Calibration:
• Determination of deep parameters, e.g. time preferences from microeconometric studies
• Choice of parameters to match key stylized facts
• Critique: Consistency across parameter choices?

Effect studies:
• Quasi-experimental situation – possibility to make statements on causality
• Captures the “partial” but not the general equilibrium effect
• Useful inputs – but cannot be applied unconditionally
Savings and consumption – A classical macro question

• Theory – standard model
  • Current income should have a small effect on consumption (consumption smoothing)
  • No role for e.g. mandated pension saving; voluntary saving is crowded out

• Empirics
  • Consumption highly sensitive to income
  • “Undersaving”
  • Mandated savings affected total savings
Private consumption – response to temporary fiscal expansion

Theory – income and consumption smoothing

Change in consumption

Data

Model

Periods after shock
Empirics

- Large fraction of households have consumption determined by current income
  - Credit constraints
  - Myopia
  - Inattention

- Response depends on type of shock

- The representative agent captures the behaviour of nobody!

Savings response to job change = change in permanent income
Theoretical challenge – how to explain these facts?

- Modelling intertemporal choices
  - Capital markets: can (all) agents borrow against future income?
  - Behavioural – too much rationality/foresight in standard models?

- Market structures
  - Available markets – market form
  - Information

- Models of bounded rationality
  - Myopia
  - Self-control
  - Information
Pension savings and wealth

- Individualized wealth data (including pension wealth)

- More precise studies of how e.g. mandated savings affect net savings – crowding out – strong heterogeneity

- Life-cycle – not meaningful to assess wealth distribution for the entire population – (wealth increases with age)

- Distributional implications of mandated pension savings – wage earners become capital owners!
Labour markets:
Labour economics - wide use of microdata

Structural unemployment:
• Unemployment insurance
  • Benefit levels, duration…

• Active labour market policies
  • Type of programme, timing…

• Effect studies have become standard
  • Even controlled experiments

• Building macromodels consistent with these findings

Dynamics:
• Unemployment persistence
  • "Scarring" at the level of individuals (depreciation of human capital)
  • Lost generations

• Cohorts entering the labour market when unemployment is high will subsequently experience higher unemployment

• Path dependence
Unemployment effect to a fall in aggregate demand

Evidence from Denmark

**Low education**

**Medium education**

- Old men
- Old women
- Young men
- Young women

- Evidence from Denmark
Impulse response to activity shock
Unemployment for elderly workers

Effect on unemployment rate

Time since impulse

Cohort/individual based
Aggregate
Inequality and growth

- Inequality and growth

- Inequality may have positive or negative effects on growth
  - Positive: incentives, savings
  - Negative: human capital

- Distribution matters for aggregate outcomes – but how?
  - Need for microdata!
Inequality and human capital

• Human capital – depends on
  • parents’ income (ability/willingness to pay)
  • social background

• (Un)equal opportunities

• Inequality may imply less equality of opportunity – effect on human capital – effect on growth

• Persistence over time/generations
Microdata are essential for modern macro

- Model developments
- Empirical validation
- Policy insights/recommendations