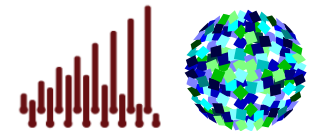


# RISKS POSED BY THE 1%

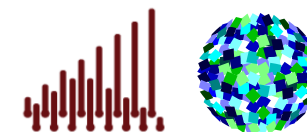
Does increasing inequality of wealth exaggerate the risks to economic prosperity, and how can tax policy respond?

Justin van de Ven and Peter Dolton



# QUESTIONS FOR ANALYSIS

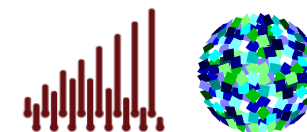
- How will the relationship between the distribution of wealth and economic growth evolve in the UK during the next half century?
- How might capital taxes be reformed to account for inter-relationships between the distribution of wealth, growth, and individual welfare?



# QUESTIONS FOR ANALYSIS

- Most of the associated empirical literature focuses on:
  - the relationship between income inequality and growth
  - the implications of growth for inequality
    - Kuznets on income
    - Piketty on wealth
- The focus on interactions between the distribution of wealth and growth reflects an classical concern:

*The capacity to buy means capacity to produce, Nurkse (1953, p.9)*
- Contributes to the literature on imperfect capital markets
  - e.g. Aghion and Bolton (1997), Galor and Zeira (1993)
- Closely related to other Hubs of RM:
  - *Does inequality undermine macroeconomic performance?*
  - *How can we improve macroeconomic models for policy?*



# ANALYTICAL APPROACH

Builds upon an existing model framework parameterised for the UK

- LINDA – Lifetime INcome Distributional Analysis model
  - A framework for structural dynamic microsimulation modelling:

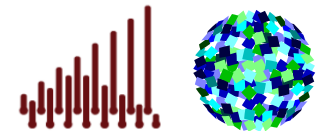
Modelling: Stylised analytical description of reality

Microsimulation: Projecting the circumstances of individual adults

Dynamic: Projecting adults through time

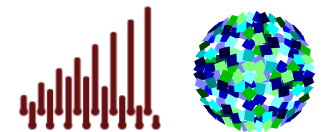
Structural: Labour and savings decisions based on lifecycle framework

Framework: Designed to facilitate adaptation to alternative contexts



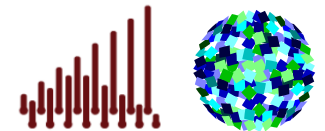
# ANALYTICAL APPROACH

- Proposed research questions will be explored via comparative statics projections generated by an adapted form of LINDA
- Adaptations:
  - Introduce Agent-Based methods for projecting savings and labour supply decisions
  - Introduce demand-side macro-economic feed-back effects



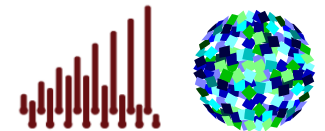
# INTEGRATION OF AGENT BASED METHODS

- Most ABMs use heuristics to project consumption/labour decisions
  - Benefit is low computational burden and flexibility
    - can be robust if well-chosen (van de Ven, 2018)
  - Cost is that it is difficult to know the extent to which the heuristic will fail to reflect changes in incentives
    - Restatement of Lucas Critique
    - Problem exaggerated where there are a broad range of reforms of interest
- Lifecycle framework has almost opposite costs/benefits
- Idea is to use AB methods to obtain a hybrid between these two extremes.
  - We have some ideas about how this might be done...



# EXISTING MODEL FRAMEWORK

- Model generates panel data for a simulated population
- Evolving cross-section projected forward through time
  - Starting point is the WAS cross-section
- Partial equilibrium
  - Wages and prices exogenously given
- Developed for use by non-specialists
  - HM Treasury, JRF
- Model is freely available for download from [www.simdynamics.org](http://www.simdynamics.org)



# EXISTING MODEL FRAMEWORK

- Accommodated characteristics:

*Decisions concerning labour supply, savings and investments are projected as though they are made to maximise expected lifetime utility, subject to a budget constraint*

- retirement<sup>\*</sup> - time of death

\* denotes non-stochastic characteristics

status

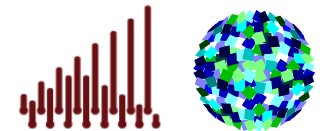
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# EXISTING MODEL FRAMEWORK

- Objective function:

$$V_t(w_{i,t}, h_{i,t}) = \max_{c_{i,t}, l_{i,t}} E_t \left[ \sum_{j=t}^T \delta^{j-t} \phi_{j-t,t} u(c_{i,j}, l_{i,j}) \right]^{\frac{1}{1-1/\gamma}}$$

$$= \max_{c_{i,t}, l_{i,t}} \left\{ u(c_{i,t}, l_{i,t})^{1-1/\gamma} + E_t \left[ \delta \phi_{1,t} V_{t+1}(w_{i,t+1}, h_{i,t+1})^{1-1/\gamma} \right] \right\}^{\frac{1}{1-1/\gamma}}$$

- where:

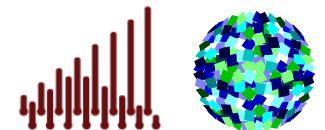
$$u(c_{i,t}, l_{i,t}) = \left( c_{i,t}^{1-1/\rho} + \alpha^{1/\rho} l_{i,t}^{1-1/\rho} \right)^{\frac{1}{1-1/\rho}}$$

- intertemporal budget constraint (the entire lifetime)

$$w_{t+1} = w_t + \tau(rw_t + h_t(1-l_t)) - c_t$$

- wage potential (the working lifetime)

$$\log h_{t+1} = \beta \log h_t + \lambda(1-l_t) + \varepsilon_t$$



# WHAT NEXT?

- Topics of key (personal) interest
  - Interactions between inequality and growth
    - Interactions between the distribution of wealth and the macro-economy
  - Descriptions for behaviour
- Developmental focus
  - Behavioural alternatives
    - Agent Based methods
  - Macro-economic endogeneity
    - Government and Production sectors

