THE UNIVERSITY OF MELBOURNE

Baseline Model: Setup

- Time is discrete and infinite.
- Generation t agents are young in period t and old (retired) in period $t+1$.
- There is an initial old generation (gen 0) when $t = 1$.
- Each generation is of size N.
- Only one good in the economy. Production sector is Cobb-Douglas and competitive.
- Young agents work and are paid a wage w_t. Of which, they consume and save for retirement.
- Old agents supply their savings as capital for production, get a return, and consume everything.

Baseline Model: Timing

- At the beginning of period t, generation t individuals are born and enter the workforce, while generation $t-1$ individuals retire.
- Firm demands labour from young workers and capital from old retirees.
- Young workers supply 1 unit of labour inelastically.
- Old retirees bring their savings from the previous period to invest in firms.
- Budget constraints of young and old individuals are given by

$$c_{yt} + a_{t+1} = l_{yt} w_t + \pi_t \quad \text{and} \quad c_{ot+1} = (1 + r_{t+1}) a_{t+1}.$$

- Inelastic labour supply implies $l_{yt} = 1$.
- The lifetime budget constraint can be written as:

$$c_{yt} + \frac{c_{ot+1}}{1 + r_{t+1}} = w_t + \pi_t$$