I build a two-sector dynamic general equilibrium model with the three-state search-and-matching framework:

- Hiring (H) sector has monopolistically competitive firms hiring workers from the labor market to produce.
- Self-employed (S) sector has monopolistically competitive solopreneurs using H sector goods as intermediate goods to produce.

As shown in the value of employment below, a worker now has an option to become self-employed:

\[
W_t = w_t + E_t \beta_{t+1} \left[ (1 - \delta_d) (1 - \lambda) W_{t+1} 
+ (1 - (1 - \lambda) (1 - \lambda)) \max \left\{ \frac{U_{S,t+1}}{U_{H,t+1}} - (f_S + S_{t+1}) \right\} \right]
\]

If you become unemployed due to firing or firm shutting down... keep searching or pay entry cost and become self-employed.

The value of being self-employed is determined by the expected future stream of profits \( (d_{t+1}) \) and the probability of shutting down \( (\delta_S) \):

\[
S_t = d_{t+1} + E_t \beta_{t+1} (1 - \delta_S) S_{t+1} + \delta_S (1 - \delta_d) W_{t+1} 
+ [1 - \delta_S (1 - \delta_d)] W_{t+1} \max \left\{ U_{S,t+1}, -f_S + S_{t+1} \right\}
\]

Profits for the self-employed \( d_{t+1} \) and the probability of shutting down \( \delta_S \) depend on the price of the intermediate goods \( P_{H,t} \) and the demand from the household, as a result of them maximizing the consumption of the final goods basket \( C_t \) (which includes goods produced in both sectors), subject to the budget constraint where the profits from self-employment are a part of the household income \( \equiv c_{H,t} + d_{S,t} + d_{E,t} + u_t (1 - L) \).

### Determinants of Inefficiency

Comparison of the decentralized model above to that of a centralized economy with a benevolent social planner choosing the first-best allocation allows us to find where the sources of inefficiency are at. Three additional factors from self-employment exist in the inefficiency wedges (i.e., differences in the allocation between the decentralized and the planner economies) along the job creation and the product creation margins:

- The self-employed do NOT take into account that the unemployment pool shrinks when they start one's own business
- The self-employed also do NOT consider the impact on the final goods consumption when using hiring sector goods as intermediates to produce goods in the self-employment sector
- When posting vacancies, firms do NOT consider the present discounted value of self-employment that could have been created by the matched worker

This implies that self-employment still exists even if we assume no distortions – i.e., no unemployment benefits, regulation costs, and monopoly power.

### Main Findings

- **Self-employment exists regardless of regulations** due to workers choosing into SE instead of staying in the labor market for wage-paying jobs with uncertainty.
- The additional occupational choice makes workers switch among employment, unemployment, and SE more, leading to more volatility in the business cycle.
- While structural reforms often promote more firm entry, **what type of firms they target matters** (firms that create jobs and grow vs. self-employment that stays small) as it will bring different results in promoting economic growth.