Elite quality

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Toy model:

The model has three agents: households, colleges and firms. Households invest in education in order to keep or improve their elite status. They do not necessarily want productive skills, only skills that allow their children to remain or enter the elite. The demand for education is a demand for elite skills. Colleges are not in the business of education, they aim at supplying skills to produce members of the elite. Therefore, in our model, education is elite formation. Firms are non-competitive and managed in accordance with stockholders preferences. Stockholders are elite members, who have preferences to hire managers from its own pool. Firms maximize elite interests rather than profits.

Households:

Consider an individual born at time t. Individuals live for two periods. He consumes C_{1t} in period t and C_{2t+1} in period t+1, and derives utility:

$$U(C_{1t}) + \beta U(C_{2t+1}),\ U'(.) > 0, U"(.) < 0 \ (1)$$

Where $\beta = \frac{1}{1+\rho}, \rho > 0$, is the discount rate.

In the first period of their lives, individuals allocate family wealth αY_t, where $\alpha \in (0,1]$, to consumption C_{1t} and to invest in their education E_t . Wealth is a simple way to define elite membership, the higher its wealth [high α], the more likely the family is part of the elite. The individual inherits natural abilities that combined with their social status is summarized by the parameter $\theta \in [\underline{\theta}, \overline{\theta}]$, which can be thought as elite status when θ is greater than an exogenous threshold. The first period budget constraint is:

$$C_{1t} + \frac{E_t}{\theta} = \alpha Y_t \ (2)$$

In the final period of their lives, individuals consume C_{2t+1} with the income earned based on their education $(1 + r_{t+1})\theta E_t$, where r_{t+1} is the stock market return . This yields the following budget constraint:

$$C_{2t+1} = (1 + r_{t+1})E_t \ (3)$$

The individual maximizes Eq.(1) subject to Eqs. (2) and (3). The first order condition is

$$U'\left(\alpha Y_t - \frac{E_t}{\theta}\right) = \beta U'((1 + r_{t+1})E_t) \ \ (4)$$

Equation (4) yields the demand for education. We rewrite it as:

$$E_t = F(\alpha Y_t, \theta, r_{t+1}) \ \ (5)$$

Note that the demand for education depends on family wealth, elite status and stock market return. It is important to stress that the demand for education has nothing to do with the ordinary definition of human capital.

Colleges

The business of Colleges is to provide skills to elite formation. Elite colleges set their tuition fees in accordance with their reputation R. The higher their reputation, the higher the tuition fee so as that: $R_t = \tau\alpha Y_t, \tau \in (0,1)$. A high tuition fee [high τ], selects members of the elite that has greater wealth.

Colleges spend resources providing education. These costs are increasing and convex. Therefore, Colleges net income is given by

$$\varphi_t = \tau\alpha Y_t - \frac{\delta}{2} {E_t}^2 \quad (6)$$

Using budget (2) into Eq.(5) and maximizing with respect to E_t yields the supply of education:

$$E_t = \frac{\tau\theta}{\delta} \quad (7)$$

Note that the supply of education increases with the tuition fee and elite status and decreases with the marginal cost of education. Again, education has nothing to do with human capital formation.

We can rewrite Eq.(7) to express the parameter θ as

$$\theta = \frac{\delta E_t}{\tau} \quad (8)$$

Firms

Stock market firms are few and have some degree of market control, i.e., they are not competitive. This leaves some room for incompetence and mismanagement. Stockholders are members of the elite, which allocate greater part of their wealth in stocks. Firms aim at satisfying stockholders preferences given by the parameter σ that may not be conducive to profit maximization. Firms hire college-educated personnel for managerial positions. A representative firm's profits is

$$\pi_t = \aleph(K_t, k_t) - rk_t - \sigma E_t k_t \quad (9)$$

Where $\aleph(K_t, k_t)$ is the part of the real profits that is decreasing in the industry-wide capital stock, K (which reflects competition), and is increasing in firm's own capital stock, k. Notice that the term that reflects stockholder preferences for a specific style of management $\sigma E_t k_t$ enters negatively and reduces total profits.

Profit maximization with respect to k yields

$$r_t = \aleph_{k_t}(K_t, k_t) - \sigma E_t \quad (10)$$

The rate of return of capital r_t (a proxy for the stock market return) depends on education and on the difference of its marginal benefit and cost.

Dynamics and Steady State Equilibrium

In order to find the model's equilibrium, substitute Eqs. (8) and (10) into Eq. (5):

$$E_t = F\left(\alpha Y_t, \frac{\delta}{\tau} E_t, \aleph_{k_t}(K_{t+1}, k_{t+1}) - \sigma E_{t+1}\right) \quad (11)$$

Equation (11) implies a relationship between E_t, E_{t+1} . It is a first difference equation that describes the dynamic behavior of education. It yields an education locus.

The properties of the education locus depend on the derivative:

$$\frac{dE_{t+1}}{dE_t} = \frac{\left(1 - F_2 \frac{\delta}{\tau}\right)}{F_3(-\sigma)} \quad (12)$$

Depicting Eq.(12) in a graph in the space E_t, E_{t+1} with a 45 degree line summarizes the dynamic and the steady state behavior of the model.

Given the steady state equilibrium of E, we substitute it into Eq.(10) to obtain the stock market return, and into Eq. (8) to obtain the equilibrium status level, i.e., elite quality.