IT, Corporate Payouts and the Growing Inequality in Managerial Compensation

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Aim

Why have corporate payouts increased?

Why has managerial compensation increased?

Why has inequality in managerial compensation increased?

Basic Idea

1. Risk neutral firms provide compensation to risk averse managers
2. Limited commitment on the part of managers
3. When outside option is low, high degree of risk-sharing is sustained
4. When outside option is high, constraint binds and managers compensation is increaseing in firm size
5. So two effects are needed: (1) outside option increases; and (2) firm sizes increase: trick link outside option to size of firm

Environment and Technology

- Measure 1 of *managers*
- Managers are matched to an owner to form an *establishment*: sunk cost S_t
- Establishment production function:

$$y_t = z_t \left(A_t\right)^{1-\nu} F\left(k_t, l_t\right)^{\nu}$$

- ν : span of control of the manager
- Establishments accumulate organizational capital, A_t

$$\log A_{t+1} = \log A_t + \log \varepsilon_{t+1}$$

- A_t initialized at θ_t : frontier

$$\theta_t = \left(1 + g_\theta\right) \theta_{t-1}$$

- z_t : general purpose techology

$$z_t = \left(1 + g_z\right) z_{t-1}$$

Contract Between Manager and Owner

- Full diversified, representative owner:

$$E_0 \sum_{t=0}^{\infty} e^{-\sum_{s=0}^{t} r_s} \pi_t$$

$$\pi_t = y_t - W_t l_t - R_t k_t - c_t$$

- Given (A_t, v_t), owner offers manager a contract $\{c_t, v_{t+1}(A_{t+1})\}$ to maximize profits

$$V_t(A_t, v_t) = \max_{c_t, v_{t+1}(\cdot)} \left[\pi_t + e^{-r_t} E \max\{V(A_{t+1}, v_{t+1}), 0\} \right]$$

subject to:

Participation: $v_{t+1}(A_{t+1}) \geq \omega_{t+1}(A_{t+1})$

Promise Keeping: $v_t = u(c_t) + e^{-\rho_m} E\left[\beta_{t+1}(v_t, A_{t+1}) v_{t+1}(A_{t+1}) \right] + e^{-\rho_m} E\left[(1 - \beta_{t+1}(v_t, A_{t+1})) \omega_{t+1}(A_{t+1}) \right]$

where

$\beta_t = 1$ if optimal to continue match

$\beta_t = 0$ if optimal to disolve match

Equilibrium

A price vector $\{W_t, R_t, r_t\}$, an allocation vector $\{k_t, l_t, c_t, \beta_t\}$, an outside option process $\{\omega_t\}$ and a sequence of distributions such that market clearing and optimality hold.

Outside Option

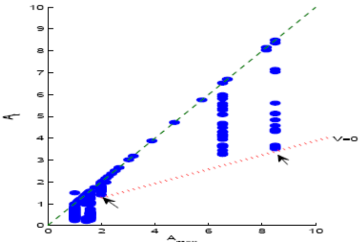
$$V_t\left(\max\left\{\phi A_t, \theta_t\right\}, \omega_t\left(A_t\right)\right) = S_t$$

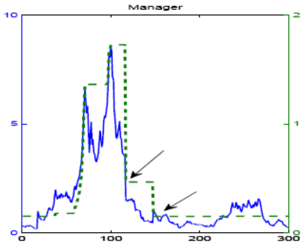
Positive Expected Net Payouts:

- Free entry implies expected NPV of start-up is zero
- But total payouts are positive because owners discount rate is positive: 2 reasons:
  1. Backloading: initial payout is $\{-S_t\}$, managers are risk averse
  2. Selection: only firms with fast OC growth (high ε) survive

Optimal Wage Contract

- Compensation is constant when participation constraint does not bind: $c_t\left(\frac{A_t^{\max}}{\theta_t}\right)$
- $\phi A_t^{\max} < \theta_t$ is an insensitivity region: consumption is constant in this region. ie for small firms compensation does not change with $A_t^{\max}$
- $\phi A_t^{\max} \geq \theta$, participation constraint binds. Limited commitment leads to downward rigidity





The IT Revolution

- An increase in disembodied productivity growth: $g_z \uparrow$, holding overall growth fixed
- Implies decrease in rate of depreciation of organizational capital: $g_\theta \downarrow$
- Increases backloading effect, incentive constraint binds more often

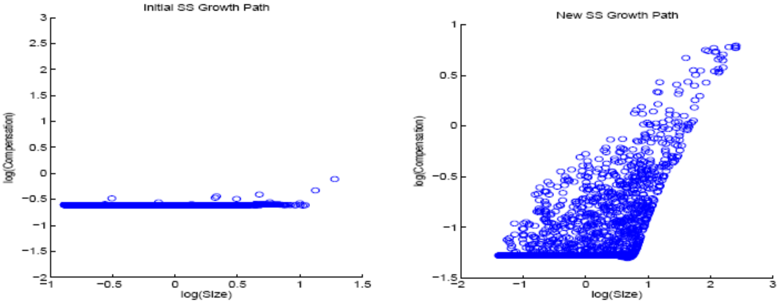
Lower g_θ has two distinct effects:

1. Increases the rate that A_t grows, relative to θ_t, even without shocks
2. More probability mass on high $A_t^{\max}$ relative to θ_t

- Establishments accumulate more organizationcal capital and are longer lived $\longrightarrow$ less mass in insensitivty region plus constraint binds more oftern

The IT Revolution:

$\phi = 0.5$



The IT Revolution:

$\phi = 0.75$