Comments on “The Democratization of US Research and Development after 1980”
by Hunt and Nakamura

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January 7, 2007
Remarkable empirical evidence:
- Prior to 1980, large firms had higher R&D intensity (R&D/operating expenses);
- Ever since, small firms caught up and surpassed large firms.
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- Empirical tests on a R&D model with falling entry barriers.
The model

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- Two stages of game:
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  - Second stage: Whoever succeeds in R&D takes over the market and becomes a monopoly.
- Two different calculations:
  - Incumbent: new profit vs. cannibalization plus R&D costs.
  - Entrant: new profit vs. marketing costs plus R&D costs.
Findings and empirical tests

- Model implications:
  As the exogenous sunk costs (marketing capital) fall, the entrant invests more in R&D and its market value increases, while the incumbent reacts with more R&D but its market value falls.
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- Empirical tests:
  - Identify incumbent firms and non-incumbent firms.
  - Estimate R&D reaction functions using annual Compustat data, including proxy of marketing capital and R&D price.
  - Estimate market value of incumbent and non-incumbents.
Some issues

- The R&D reaction regressions:

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\frac{R&D_{it}}{OpExp_{it}} = \alpha_0 + \alpha_1 \left( \frac{R&D}{OpExp} \right)_{t-1} + \alpha_2 * \text{Comp}_{t-1} * \left( \frac{R&D}{OpExp} \right)_{t-1} + u_i + v_t + \epsilon_{it}
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- Alternative hypotheses.
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- Alternative hypotheses.

- The market value regressions.
Some suggestions

- Generalize the model:
  - Heterogenous incumbents and entrants.
  - Various competition in the second stage.
  - Other endogenous variables.

- Empirical work:
  - Additional industry-specific information.
  - Case studies.

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