Limits to Success-Breeds-Success Dynamics

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Credits

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Success-Breeds-Success

The general proposition that success – very broadly conceived – exhibits positive feedback

Success \rightarrow Success

In some contexts known as:

• “Cumulative Advantage”
• “Preferential attachment”
1001 reasons why past success is correlated with future success

- Talent
- Money
- Ties to important people
- Credentials
- ...

So correlations between past and future success cannot demonstrate success-breeds-success
Generic Field Experimental Design

Individuals in some naturally occurring success system

Random assignment

Experimental condition

Control condition
Four Forms of Success

- Signatures
  - Change.org

- Awards
  - Wikipedia.org

- Endorsements
  - Epinions.com

- Funding
  - Kickstarter.com
Results

\[ \chi^2 = 19.4 \quad \chi^2 = 9.54 \quad \chi^2 = 4.72 \quad \chi^2 = 4.05 \]
\[ p = .000 \quad p = .002 \quad p = .030 \quad p = .044 \]

So What?

Success-Breeds-Success $\rightarrow$ Increasing Inequality

Equivalent individuals may gradually develop drastically different degrees of success

“Matthew Effect” (Merton 1968)

“The rich get richer while the poor get poorer”
Did Inequality Actually Grow?

Need measure of inequality to answer that:

\[ I = \frac{\text{Success treatment} - \text{success control}}{\text{Success treatment} + \text{success control}} \]

= Gini coefficient, coefficient of variation
Inequality

\[ I = 0.490 \]

\[ I = 0.383 \]

\[ I = 0.133 \]

\[ I = 0.132 \]

\[ I = 0.121 \]

\[ I = 0.100 \]

\[ I = 0.216 \]

\[ I = 0.143 \]
What Explains Lack of Growth?

• Explanation 1: Homogeneous feedback effect

Contagious Poisson model: \[ \lambda = \alpha + \beta x \]

\( \lambda \) = rate of success; \( x \) = \# successes so far

Var(\( \beta \)) = 0: constant inequality
Var(\( \beta \)) > 0: increasing inequality

(Allison 1980)
What Explains Lack of Growth?

• Explanation 2: Decreasing marginal returns

Adjusted model: \( \lambda = \alpha + \beta x^\gamma \)

\( \lambda \) = rate of success; \( x \) = # successes so far

\( \gamma < 1: \) decreasing inequality
\( \gamma > 1: \) increasing inequality
Decreasing vs. Increasing Returns

$\gamma = 0.5$

$I = 0.441$

$\gamma = 1.5$

$I = 0.745$

$I = 0.997$
How to Test Marginal Returns?

• Compare returns on 1 success with returns on a larger number of successes

• 2 differentials requires 3 experimental conditions
New Experiment

Individuals in some naturally occurring success system

Random assignment

Treatment 4

Treatment 1

Control
Marginal Returns of Success

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Conclusions

• Despite success-breeds-success, losers narrow the gap with winners

• Cumulative advantage applies mainly to “haves and have-nots”, less so to “haves and have-lots”
Implication

Suggests a more modest role for cumulative advantage in explaining success inequalities
Thank you