

# Analysis on the Needham's Question The Impact of Political Rent-Seeking and Creative Destruction on Western Economics

Jiacheng Xue<sup>1,\*</sup>

<sup>1</sup>University of Alberta, School of Business, Edmonton, AB, Canada, T5K 2E5

\*Corresponding author. Email: Jxue2@ualberta.ca

## ABSTRACT

Needham's Question is probably the most critical discussion in the 20th century, regarding why western economies exceeded Eastern countries in terms of macroeconomics. This report will analyze this discussion from both macroeconomic and microeconomic perspectives. Firstly, Western economies were the first (ever, in all of history) to escape the Malthusian equilibrium trap. Also, Western economies were the first to adopt and stick with free-market economics and creative destruction - sustaining financial systems. Thirdly, Western economies were the first in which a scientific mindset became widespread? Finally, Western economies developed social norms that encourage trust in strangers and trustworthy behavior by strangers.

**Keywords:** *Malthusian equilibrium trap, Innovation, Middle-income traps, scientific mindset*

## 1. INTRODUCTION

China, as the most representative eastern country, is known for humorous traditional technologies. Example of these invention includes the Magnetic compass, paper, gunpowder. However, western countries get rich first. Needham has come up with a historical economic question. Why did not china get rich first? Needham studied China, but similar cases can be made that India, the Islamic World, ... made many key technological discoveries. But none of them applied these innovations in the largescale industry. Western countries firstly get rid of the Malthusian poverty traps and escape from the middle-income trap. Political Rent-seeking, as the most notable topic in economic development, has placed a profound impact on corporate governance and creative destruction. This report will demonstrate how political destruction is interactive with innovation and leads national economies to a middle-income trap. Luckily, western countries successfully escaped from the restriction of political corruption and achieved economic prosperity.

## 2. MATHUSIAN EQUILIBRIUM TRAPS

The most notable response is that Western countries firstly get rid of middle-income countries and escape

from Malthusian economic traps [1]. Malthusian traps indicated that most people are always almost starving. More food means more children survive and more adults live to be "always almost starving". A continual struggle for food favors the "fittest". The policy recommendation is "Do not help the poor because this only creates poorer and increases the number of people who are always almost starving" This is perfectly aligned with Charles Darwin's applied Malthus's theory to animals.in his "Theory of Evolution" However, the Malthusian equilibrium assumption was utterly wrong and the truth was statistically proved. Firstly, Output, Not Population, Grew Exponentially. We are used GDP, dividends, cash flows, etc. growing at e.g. 2% or 6%. When something grows by X% per year, this IS exponential growth. Exponential output growth is so commonplace now that we miss its importance. Starting in the 1700s, England's output per worker grew exponentially. One by one, other Western economies and then East Asian economies also started growing exponentially. Secondly, Women stop having so many babies after income levels rise "enough".

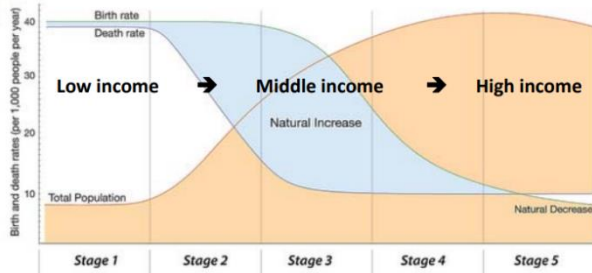


Figure 1 Malthusian Equilibrium Traps

As is shown in Figure 1, sufficiently higher incomes slow “baby production”: Women’s education levels jump as countries reach middle-income levels (about where China is now) & more educated women have fewer babies. The actual age distribution shows China’s “demographic dividend”: very few old people relatively few young people (One Child Policy) but lots.

In short, western countries were the first to reach what we now call middle-income levels & have a demographic transition. Women have fewer children once countries reach middle-income levels. In most cases, rising to middle-income levels generated enough tax revenue for governments to fund schools.

### 3. SCHUMPETER’S CREATIVE DESTRUCTION

According to Schumpeter, there are two kinds of competition in free-market economies. The first is regarding the competition to steal other firms’ customers by cutting prices. This kind of competition does drive economic profits & NPVs to zero. [2] Secondly, Competition to steal other firms’ customers by innovating. Neither Smith nor Marx understood the full importance of innovation. A firm with an innovative new product that is clearly better than its rivals’ old products can steal its customers without lowering its prices. The innovator might even be able to steal customers & charge a higher price for its new product. This kind of competition does not drive economic profits or NPVs to 0.  $NPV > 0$  investments are generally investments in innovation.

In short, Innovation is a process of creative destruction. Creative winner firms win big & their founders get very rich. Innovative firms often steal other firms’ customers in droves. Innovative firms need vast amounts of capital to satisfy droves of new customers. Uncreative (or unsuccessfully creative) firms are partially or totally destroyed. Their customers abandon them, their sales plummet; they must downsize or go bankrupt.



Figure 2 Schumpeter Circular Flow

According to Figure 2, Schumpeter saw the social purpose of the financial system as putting capital in the hands of creative people who can use it productively. Schumpeter argued that a circular flow of capital (from capitalists to innovators back to capitalists) fuels economic growth in free-market economies by replenishing the supply of  $NPV > 0$  project. Each circular flow rotation makes the economy richer because more wealth finance more innovation (in the new cycle). [3]

### 4. GENERAL TRUST IN STRANGERS & FINANCE

Dictator Game (DG) subjects are “nicer” where people get more of their calories via markets, more ‘selfish’ where people hunt, gather, or grow their own food. Do markets make people nicer, more empathic, gentler. [4] More religious people are also “nicer” in ultimatum games. Some evolutionary economics suggests that religion may exist to make people more trustworthy so markets can work better. Archeology (and maps of very old cities) shows that markets are often located adjacent to major temples, shrines, cathedrals, etc. the nearby presence of the divine power cause people to behave more nicely and therefore let markets function better [5] Finance is a bigger deal where formal legal institutions work better (court cases as speedier,

### 5. POLITICAL RENT-SEEKING AND INNOVATION

The bribes politicians and government bureaucrats accept for distorting public policy are remarkably trivial compared to the benefits the rent-seeking business obtains. [6] Different economies have different institutions. Efficient institutions result in innovation having a higher private return than political rent-seeking. Inefficient institutions result in innovation having a lower private return than political rent-seeking. Innovation has positive spillovers, political rent-seeking has negative spillovers. Innovation therefore always has a higher public return than political rent-seeking. Hence, if we Compare the private returns to innovation and to political rent-seeking in different countries. countries whose institutions make the private return to innovation higher

than the private return to political rent-seeking grow faster [7]. We can conclude that, according to Wagner’s law, higher-income people demand more public goods & services. Higher-income people demand better infrastructure (roads, bridges, highways, snow removal, law enforcement, courts, airports, armed forces, national parks, government-funded research institutes, foreign aid. [8] The government gets bigger easily, gets smaller

only with difficulty. Corruption Stops Schumpeter’s “Circular Flow”. Getting circular flow going requires institutions that make all this work predatory (roving bandit) government officials extract bribes too energetically, entrepreneurs don’t have an NPV left and the circular flow does not circulate. If investors or entrepreneurs think institutions are predatory, the economy stagnates.

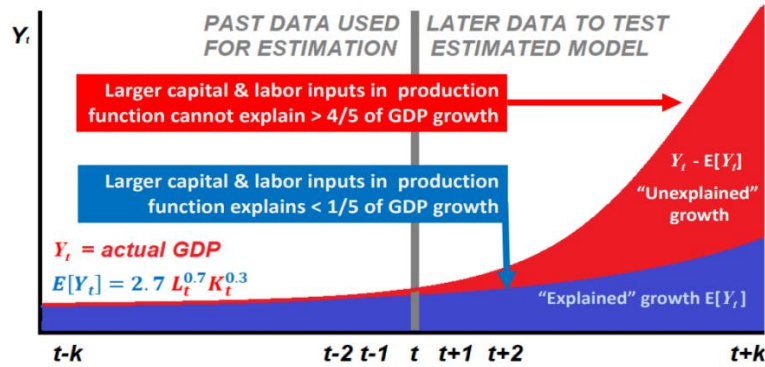


Figure 3 Solow Residual as a measure of Creative Destruction

According to Robert, Production functions chronically underestimate actual growth in all high-income economies [9].

Solow Residual is probably the most accurate measure of creative destruction in terms of corporate governance. In most cases, the increment in national productivity is explained by a production function that measures increasing capital investment. However, such a production function can not explain overall national productivity growth. The 4/5 of economic growth in developed economies is not explained by “factor accumulation” (i.e. more K&L going into the production function that was estimated using the earlier period’s data) is called the Solow Residual. In corporate governance, Solow residual each year is the sum of NPV positive investment related to innovation. By contrast, political rent-seeking is another way of enhancing NPV positive projects within an organization. However, such a strategy will drag the whole economy into middle-income traps [10]. According to Randall Morck, Schumpeter’s circular flow indicates the process in which capitalists invest funds to creative innovators who are able to run corporate management effectively.

6. CONCLUSION

Western economies were the first to escape the Malthusian equilibrium trap. Western economies were the first to adopt and stick with free-market economics and creative destruction-sustaining financial systems. Western economies were the first in which a scientific mindset became widespread. Western economies developed social norms that encourage trust in strangers and trustworthy behavior by strangers. Finally, Western

economies found ways of identifying & financing of NPV > 0 innovation.

ACKNOWLEDGMENT

I would like to express my deep and sincere gratitude to my research supervisor, Dr. Sengupta Kishore, Professor and Head, advisor on several projects with the US Government Department of Defense and NASA, University of Cambridge. His passion, encouragement, sincerity, and motivation have deeply inspired me. He has taught me the methodology to carry out the research and to present the research works as clearly as possible. In addition, I do sincerely appreciate my instructor Prof Randall Morck from Harvard University, who taught me the methodology for using advanced topics in macroeconomics in creative destruction analysis. I am extremely grateful for what he has offered me. Finally, I am extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and preparing me for my future.

REFERENCES

[1] Malthus, Thomas. An Essay on the Principle of Population, 2000, pp.170.  
 [2] Schumpeter, Joseph. Theorie der Wirtschaftlichen Entwicklung, 2001, pp.384.  
 [3] King, Robert G & Ross Levine. Finance & Growth: Schumpeter Might Be Right. Quarterly Journal of Economics. 1993, 108(3) 717 - 738.  
 [4] Henrich et al. Markets, Religion, Community Size & the Evolution of Fairness and Punishment. Science 2010, 19: 1480-84.

- [5] Brañas-Garza, Pablo, Antonio M. Espín & Shoshana Neuman. Religious pro-sociality? Experimental evidence from a sample of 766 Spaniards. *PloS1* 9(8):e104685, 2014.
- [6] Murphy, Kevin M., Andrei Shleifer, and Robert Vishny. The Allocation of Talent: Implications for Growth. *Quarterly*, 1991.
- [7] Buchanan, James. An Economic Theory of Clubs. *Economica* 32: 1-14.
- [8] Sima Yunjie, *Sociology of Culture*, China Social Sciences Press, 2001.  
[https://en.wikipedia.org/wiki/China\\_Social\\_Sciences\\_Press](https://en.wikipedia.org/wiki/China_Social_Sciences_Press).
- [9] Baumol, William J. 1990. Entrepreneurship: Productive, Unproductive & Destructive. *Journal of Political Economy* 98 893-921.
- [10] Solow, Robert. A contribution to the theory of economic growth. *Quarterly Journal of Economics* 1956: 70 (1) pp.65 - 94.
- [11] Randall Morck. Technical change & the aggregate production function. *Review of Economics & Statistics*, 1957: 39(3), pp.312 - 20.