China, Middle-Income Trap and The Fourth Industrial Revolution

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The Problem

- In 2012 China has become a middle income country after its per capita GDP exceeded 5,000 U.S. dollars. Today, it is almost 7,000 U.S..

- Many countries, after reaching this level of income, have entered into a process of economic stagnation and failed to meet the development pattern of the advanced countries;

- Many of the Latin Americans countries are among the economies that have failed; And, the Asian Tigers are among the few who were successful.
The Questions

- Will China escape from the middle-income trap?
- Is the Fourth Industrial Revolution a threat or an opportunity for the Chinese strategy?
- How will the “Made in China 2025” Project help China to overcome this problem?
The middle-income trap is the situation in which a country’s growth slows after reaching middle income levels.

According to World Bank estimates, only 13 of 101 middle income economies in 1960 had become high-income economies by 2008.

Growth slowdowns can often be attributed to the disappearance of factors that generate high growth during an initial phase of rapid development.
Country Income Groups

- Low income: $1,005 or less
- Lower middle income: $1,006-$3,975
- Upper middle income: $3,976-$12,275
- High income: nonOECD: $12,276 or more
- High income: OECD: $12,275 or more

Year: July 2011
Source: The World Bank Group
Many Latin American countries today are caught in a middle-income trap. On the one hand, they can no longer compete with low-wage countries in standardized products. On the other, they cannot compete with countries with greater capabilities in more technology-intensive goods and services. The reason: many governments have never developed the policies and institutional environment to make the leap to high-tech or industrial economic development—what is often referred to as industrial policy. (Eva Paus, America’s quartely, winter 2011)
China’s New Normal

- Exhaustion of the export-based model (2008)
- Exhaustion of the investment-based model (2013)
- Slowing GDP growth rate to 6.5% per year;
- Strong wage increase: China's industrial wages are already higher than Brazil's and Mexico's;
- The domestic market as an engine for development
- To boost “One Belt, One Road Initiative” to export overcapacity in engineering and infrastructure.
China’s trade-to-GDP ratio has decreased

Source: Word Bank, 2017
China has become too expensive to low-end manufacturing
We still have to fully understand the speed and breadth of this new revolution. Consider the unlimited possibilities of having billions of people connected by mobile devices, giving rise to unprecedented processing power, storage capabilities and knowledge access. Or think about the staggering confluence of emerging technology breakthroughs, covering wide-ranging fields such as artificial intelligence (AI), robotics, the internet of things (IoT), autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing, to name a few. (Klaus Schwab, 2016)
By enabling “smart factories”, the fourth industrial revolution creates a world in which virtual and physical systems of manufacturing globally cooperate with each other in a flexible way.
Artificial Intelligence (AI) and self-driving cars

New Materials: Graphene
Digital Technologies: SIRI
Digital Technologies:
WATSON Cognitive Computing

IBM Watson
Data Storage
Digital Technologies: Internet of Things

[Diagram illustrating various connected devices such as a car, smart home, light bulb, microwave, washing machine, coffee maker, Wi-Fi symbol, smartphone, and a globe, all linked together with a central cloud labeled "INTERNET OF THINGS"]
Biotechnologies: 3D bioprinting

Biotechnologies: Biomimicry

The kingfisher's beak became the model for the nose cone of Japan's 500 Series Shinkansen bullet train.
"Rather than adopting large-scale stimulus as most western nations did, we have been pushing forward mass entrepreneurship and innovation to fuel the real economy, and prompting steady growth by restructuring and transformation of capacities."

(Cong Liang, National Development and Reform Commission, Xinhua, 2017-07-27)
With innovation at the core of the new development strategy, China, once seen as an imitator churning out mountains of cheap, low-quality goods, has become a source of creative products and ideas. From its quantum satellite to shared bicycles and mobile wallets, Chinese technology has drawn global attention.

"Innovation has played a bigger role in leading and boosting economic and social development," said Li Yunlong, a professor at the Party School of the Central Committee of the Communist Party of China.

(http://news.xinhuanet.com/english/2017-08/07/c_136506575.htm)
The State Council issued “Made in China 2025” plan on May 19, the country’s first ten-year action plan focusing on promoting manufacturing. The plan proposed a “three step” strategy of transforming China into a leading manufacturing power. Nine tasks have been identified as priorities: improving manufacturing innovation, integrating technology and industry, strengthening the industrial base, fostering Chinese brands, enforcing green manufacturing, promoting breakthroughs in ten key sectors, advancing restructuring of the manufacturing sector, promoting service-oriented manufacturing and manufacturing-related service industries, and internationalizing manufacturing.
‘Made in China 2025’ ten key sectors

1. New information technology
2. High-end numerically controlled machine tools and robots
3. Aerospace equipment
4. Ocean engineering equipment and high-end vessels
5. High-end rail transportation equipment
6. Energy-saving cars and new energy cars
7. Electrical equipment
8. Farming machines
9. New materials, such as polymers.
10. Bio-medicine and high-end medical equipment.
China Escaping from the Middle-Income Trap

High Technologies, Design and World Class Brands
Foxconn replaces '60,000 factory workers with robots'

China's Midea receives U.S. green light for Kuka takeover
China's Quantum Communication Satellite

China Launches World's 1st Quantum Communication Satellite
China’s First Homegrown Commercial Jet
China aims to build world’s first exascale supercomputer prototype by end of 2017
798 Art Zone or Dashanzi Art District: Center for Arts, Design and R&D
Beijing's 798 Art District gets a design store
Beijing 798 Art Zone: AUDI Research & Development-Center in Beijing)
Chinese Brand Names
Thank you for attention!

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