

Managing the “Post-Miracle” Economy of China: Growth Model Crisis and Policy Implications

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Abstract:

With the significant slowing down of Chinese economy, the so-called Chinese “economic miracle” or “growth model” needs to be re-examined. Combining some theoretical perspectives of economic development stages, capitalist accumulation regime, and techno-economic paradigm, this paper tries to explain how the Chinese growth miracle fell to the edge of crisis after 2008. It argues that during 30 years, the “visible hand” of managing Chinese economy has progressively shifted from local governments’ initiative and experiments to central government’s macro policy. This fundamental change of how the economy is managed and controlled not only brought China’s growth from factor-driven to investment driven stage, but also decoupled progressively financial system from real economy which constitutes always China’s dominant accumulation regime. Ironically, Chinese central government’s anti-crisis monetary and fiscal policy in 2008/09 aggravated this long-term structural unbalance. In the “post-miracle” era, Chinese central government has tried and is trying three macroeconomic approaches to readdress the growth pattern: rebalancing, supply-side reform, and innovation-driven development. Each of these approaches has specific policy implications and the Chinese central government has to face the challenge of enduring crisis of accumulation regime in the long run.

Key words: growth model, macroeconomic policy, structural crisis, development, China.

JEL Classification E02, E32, P21, P16

1. Introduction

The year 2012 has been well known in China for the ascendance of new political leaders. Now, the year's economic importance in China became evident: by the end of that year, China became the second largest economy in the world by GDP size (nominal and PPP terms) just after the United States, but it recorded a GDP growth rate of 7.75%, apparently below its own average growth rate of 10% maintained over 30 years until 2011. Eventually, the year 2012 could mark a splitting mountain to the recent Chinese growth history: the country's high-speed growth era was over and "the end of the China's economic miracle" just began (Pei, M., 2012).

What is happening to the Chinese economy? How will it evolve? Can China find out a new growth model? To continue the China story in this miracle-ending or post-miracle period, the so-called Chinese "economic miracle" or "growth model" needs to be re-examined. With the help of some economic theories, more detailed analysis of the "China Miracle" reveals there were in fact two different development stages in its growth story over the past 35 years. Contrary to a free-market economy where economic situations constrain government and policy, the different development stages in the "China Miracle" were crafted by different dominant styles of macroeconomic management adopted by its government, especially the Central government. Now since its second development stage is entering into a dead end, the Chinese government is struggling to bring the growth model to a new level --- the innovation-driven economy. However, in practice a big headache of the Chinese government is to discover the appropriate ways, approaches and tools, or a new "growth regime" in more academic terms, to boost innovation, since this local knowledge of development is hard to find in existing textbooks or theories (Ruffier, J., 2010).

2. Understanding Structural Changes in Economic Development: Alternative Theories

The long run trajectory and recent changes of Chinese economy remains a fascinating field for political economists to raise many questions. For example, if China's rapid economic growth during 25 years was regarded as a "miracle", how to explain the slump down of its growth rate only after several years of 2008 crisis? Orthodox economic theories may give some answers but new perspectives need to be brought in to handle the complicated situation of China. This paper tries to use a "triple lens" made of three alternative theoretical approaches to depict a more complete picture of the structural changes in Chinese economy. The three approaches are: Michael Porter's theory on development stages (Porter, M., 1998), the Regulation Theory (Boyer, R. and Y. Saillard, 2001; Boyer, R., 2011), and the theory on techno-economic paradigm (Perez, C., 2002; Freeman, C. and C. Perez, 1988; Perez, C. and L. Soete, 1988).

2.1 Dividing Economic Development Stages by Competitive Advantages

In his book *The Competitive Advantage of Nations*, strategic management scholar Michael Porter described a nation's economic development as a sequence of stages, each with a different set of competitiveness characteristics and challenges. The first stage is the Factor-Driven Stage, in which national competitive advantage is based exclusively on endowments of labor and natural resources. This supports only relatively low wages. In the second stage, the Investment-Driven Stage, efficiency in producing standard products and services becomes the dominant source of national competitive advantage. Economies at this stage concentrate on manufacturing and on outsourced service exports. They achieve higher wages, but are susceptible to financial crises and external, sector-specific demand shocks. In the third stage, the Innovation-Driven Stage, the ability to produce innovative products and services at the global technology frontier using the most advanced methods becomes the dominant source of national competitive advantage. At this stage, industrial clusters become critical motors, not only in generating productivity, but also encouraging innovation at the world frontier. Institutions and incentives supporting innovation are also well developed, increasing the efficiency of cluster interaction. Companies compete with unique strategies that are often global in scope, and invest strongly in advanced skills, the latest technology, and innovative capacity. There is the fourth and last stage of development: the Wealth-Driven Stage, represented by some developed economies with high social welfare. But for a developing country aspiring to become a developed nation, it must transit from factor-driven and investment-driven economy to the innovation-driven economy. According to Porter, successful economic development is a process of successive upgrading and a nation's business environment has to evolve accordingly to support and encourage increasingly sophisticated and productive ways of competing by firms.

30 years after the publication of *The Competitive Advantage of Nations*, China seems to be proving Michael Porter's general framework of development. A detailed review of its 35-year growth history shows that China has experienced the Factor-Driven Stage (from 1980s to 2006) but seems to be trapped in the Investment-Driven Stage (from 2007 till now). Since several years, the Chinese government has been trying at least three approaches - rebalancing, supply-side reform, and so-called innovation-driven strategy development - to transform its economy into the desired Innovation-Driven Stage. Yet the successful upgrading is uncertain.

2.2 Explaining Structural Crisis of Growth Model: Accumulation Regime and Mode of Regulation

The French Regulation Theory or approach looks at capitalist economies as a function of social and institutional systems and seeks to show how society and State interact to normalize the capital relation and govern the conflictual and crisis-mediated course of capital accumulation. The theory discusses the transformation of social relations, which creates new economic and non-economic forms organized in structures and reproducing a determinate structure, the mode of reproduction. It has two central concepts, "accumulation regime" and "mode of regulation". The concept of accumulation regime allows theorists to analyze the way that production, circulation, consumption, and distribution organize and expand capital in a way that stabilizes the economy over time. For example, the accumulation regime of the

Fordist mode of production was composed of mass-producing, a proportionate share-out of value added, and a consequent stability in firm's profitability, with the plant used at full capacity and full employment. A mode of regulation is a set of institutional laws, norms, forms of State, policy paradigms, and other practices that provide the context for operating the accumulation regime. Typically, it is said that it comprises institutional forms related to money, market competition, wage-labor combination, State-society interaction, and relation to international economy. Generally speaking, a country's accumulation regime and its conducive and supportive environment formulated by modes of regulation constitute the specific growth model of the economy.

Regulation theorists analyzed the long run transformation of the United States, as well as many other societies in Europe, Latin America and Asia, in order to understand both the post war II growth model and its crisis. The theorizing has shown that economic crisis occurred when there was a tension between accumulation regime and mode of regulation. Regulation theory distinguishes between cyclical and structural crises. These crises are inseparable from the operation of capitalism. Cyclical or short term crises are often due to an external event; they can be very perturbing but cannot endanger the whole system of mode of regulation, and even less the mode of accumulation. Cyclical crises make it possible to cancel imbalances accumulated during the phase of expansion without major deterioration of institutional forms. Structural crises, on the contrary, are the crises of a mode of regulation and even of the fundamental accumulation regime. Economy in long term crisis is unable to avoid a downward spiral, institutional forms and the ways the state intervenes in the economy must be modified. It is impossible to continue long-term growth without major upheaval of institutional forms. The best example is the crisis of 1929, where the free play of market forces and competition did not lead to a renewed phase of expansion. The interwar period marks the passage from a mode of accumulation characterized by mass production without mass consumption to a mode incorporating both mass production and mass consumption. The crisis in 1971 represented the end of Fordist growth model which relied simultaneously on mass production and mass consumption. The crisis in 2008 was regarded as the result of finance-dominated accumulation regime in the Western developed economies.

Recently China and its specific institutional configuration of basic social relations have become the new frontier for the regulation approach, which raises already a series of questions such as: why the transition towards a domestic consumption-led regime has proven to be so difficult? What could be the consequence of adopted anti-crisis policy? Does the stock market crash of summer 2015 mean a major crisis due to the past structural limits?

2.3 Explaining Technology-based Financial Crisis: Industrial Capital versus Financial Capital

According to the Neo-Schumpeterian macroeconomics, each economy can be regarded as a specific techno-economic paradigm, which is a combination of interrelated product and process, technical, organizational and managerial innovations, embodying a quantum jump in potential productivity for all or most of the economy and opening up an unusually wide range of investment and profit opportunities. Such a paradigm implies a unique combination of

decisive technical and economic advantages. The formation of a techno-economic paradigm system requires mutual adaptation and matching of its three interrelated components: 1) industrial system or real economy, which contains an economy's science and technology capabilities, industrial structure, fixed assets, equipment, labor, labor costs, productivity, profitability, export trade, domestic market, the relative prices of the required inputs, the relative wage rates and the size and characteristics of the domestic market, etc.; 2) financial system, which contains capital market, real estate market, foreign reserves, exchange rate and interest rate, etc.; and 3) social system or social institutions, which contains legal, social and institutional framework, such as government regulations, standards, taxes, subsidies, tariffs, and other relevant policies or laws; trade-union organization and practices; the values of the local population in terms of willingness to accept or reject the innovation or its consequences, etc.. In history, the five techno-economic paradigms resulted from the diffusion of five waves of technological revolution that multiplied their impact across the economy and eventually modified the socio-institutional structures. Innovator-entrepreneur-type small firms entered the new rapidly expanding branches of the economy and in some cases initiated entirely new sectors of production; large firms concentrated in those branches of the economy where the key factor was produced and most intensively used, resulting in there being distinctly different branches acting as the engines of growth. Those mutually compatible principles and criteria developed in the process of using the new technologies, overcoming obstacles and finding more adequate procedures, routines and structures gradually internalized by engineers and managers, investors and bankers, sales and advertising people, entrepreneurs and consumers.

Deep structural change of technology and industrial system in the economy brings not only profound transformation of the institutional and social framework; it requires equally a surge of new investment through an appropriate combination of financial capital and production capital. Financial capital represents the criteria and behavior of those agents who possess wealth in the form of money or other paper assets. Their purpose is tied to having wealth in the form of money ('liquid' or quasi-liquid) and making it grow. By contrast, the term 'production capital' embodies the motives and behaviors of those agents who generate new wealth by producing goods or performing services (including transport, trade and other enabling activities). The purpose of production capital is to produce in order to be able to produce more. Their objective is to accumulate greater and greater profit-making capacity, by growing through investment in innovation and expansion. Financial capital is mobile by nature while production capital is basically tied to concrete products, both by installed equipment with specific operational capabilities and by linkages in networks of suppliers, customers or distributors in particular geographic locations. Financial capital can successfully invest in a firm or a project without much knowledge of what it does or how it does it. For production capital, knowledge about product, process and markets is the very foundation of potential success. Yet, though the notion of progress and innovation is associated with production capital, when it comes to radical change, incumbent production capital can become conservative and then it is the role of financial capital (whether from family, banks or 'angels') to enable the rise of the new entrepreneurs.

Based on the above distinction of financial and production capital, this theory tries to reveal the causal chains of financial crisis that have their origin in the role of technological life cycles in providing changing amounts and qualities of investment and profit opportunities. All along the different phases of the big-bang, frenzy-bust and renewal of a techno-economic paradigm, the relationship between financial and production capital changes with a similar pattern. At the end phase of each techno-economic paradigm, production capital, including the revolutionary industries, often becomes one object of manipulation and speculation; the decoupling between financial and production capital is almost complete. Nevertheless, a new paradigm emerges and opens vast opportunities for new products, processes and services. It is also the time of fast development of infrastructure of the new paradigm, which facilitates a host of other related innovations. Accordingly, during this period of irruption, financial capital generates a powerful magnet to attract investment into the new areas, hence accelerating the hold of the paradigm on what becomes the 'new economy'. In a world of capital gains, real estate bubbles and foreign adventures with money, all notion of the real value of anything is lost, when the decoupling between financial and production capital is extreme. Uncontrollable asset inflation sets in while debt mounts at a reckless rhythm; much of it to enter the casino. Thus grows the vast disproportion between paper wealth and real wealth, between real profits or dividends and capital gains. But the illusion cannot last forever and these tensions are bound to end in collapse. This can happen in a series of partial crises in one market after another, in one huge crash or a combination of both; however it happens, the bubble needs to burst. Normally, the truly major collapses located about two or three decades after the big-bang of each technological revolution. This type of collapse is directly connected with the shift of techno-economic paradigm. The painful process of implosion that marks the end of the frenzy phase brings paper values in line with real values and brings reluctant financial capital back to reality. What follows can be a time of reckoning and acceptance, when regulation of various sorts is put in place or generalized, in particular that which puts order in the behavior of financial capital and tends to re-establish the proper connections with production capital (Perez, C., 2002).

The 2000 *dot-com* fever-and- bust is regarded as such a crisis due to the emerging revolution of internet, while the 2008 crisis is rather the result of decoupling between financial and production capital in the end period of the current techno-economic paradigm. Equivalently, how to explain the financial disturbance since the summer of 2015 in China from the perspective of financial and production capital? Is it the “normal” burst of bubbles in emerging technologies and industries in China? Or is it simply the syndrome of the end of the Chinese techno-economic paradigm, which needs to have a long-term structural adjustment? Is China moving on the right way to work out a new techno-economic paradigm based on the coming technological revolution?

3. How Did the Chinese Growth Model Fall into Stagnation?

Today, there is little doubt that the ascendance of China to become the World Factory was due to successful mobilization of a particular set of inputs, or production factors: the unlimited

availability of supply of surplus labor from rural areas from 1980s to 2006; the low and rapidly failing costs of land and raw materials due to scale economy; the massive expansion of domestic market for consumer durables; the widely use or incorporation of standardized technologies in products and processes in manufacturing firms; and the building up of many infrastructure facilities. More importantly, China caught the opportunity of economic globalization in the end of 20th century and integrated its production capacity with the world's most advanced markets, which was symbolized by its accession to WTO in 2001. The share of foreign trade in China's GDP rose from 10% in 1978 to 33% in 1990, 49% in 2002, and 67% in 2006. China emerged as the most attractive geographic locus for export processing – basic assembly of products destined for abroad from components sourced from abroad – of global consumer products: electronics, office equipment, toys, furniture, footwear, apparel, and many others. In 2016, China's foreign trade reached 4.3 trillion Yuan and represented 13% of world share. 30-40% of China's foreign trade was for process-exporting. Although currency undervaluation played a role in keeping the products “made in China” generally competitive in price, it was the fast labor productivity as well as total factor productivity (TFP) growth that was a more important factor driving China's export success. The average annual labor productivity growth was 20.4% between 1995 and 2003, and 8.7% for the period 2000-2005.

At more concrete level, this Chinese industrial productivity growth was achieved by a large variety of firms: by 2008, roughly 30% of output was produced by foreign-invested firms, 45% by domestically-held private firms, and 25% by State-owned firms. Their typical plant-level organization was the continuous-flow assembly-line turning out massive quantities of identical products, with a separate and hierarchical managerial and administrative structure which required large numbers of low and middle skills in both the blue- and white-collar areas. The rate of return on capital was high throughout two decades and expected profitability was high enough to induce high physical investment. Entrepreneurial expectations of rapid economic growth were crucial for investing in real economy during this period (Zhao, W. and F., La Pira, 2013). At origin, this remarkable development of industrial firms and entrepreneurial activities was initiated or conditioned by Chinese local governments, rather than the Central Government's strategy or policy. In fact, China's factor-driven development stage was largely formulated by the so-called local State corporatism in China (Oi, J.C., 1992): the Central government gave freedom to key local governments to explore industrial development paths and let the successful experiments diffuse; the decentralization of decisions and making of industrial policies at the provincial level; a quasi-federal-type fiscal system which minimized central spending and induced local governments to maximize their revenues. In such a circumstance, Chinese local governments limited their excessive taxation and competed to attract firms by offering them to get around all regulatory hurdles, and by granting them local market power. Contrary to other developing countries, Chinese local governments were competent, hard-working and powerful, in the sense that they were “general managers” of local economic development. In the second half of the factor-driven development stage, to many local governments, foreign economic relations were more for the purpose of appropriation of frontier technologies than simple mercantilist objectives.

Thus, over the period of the 1980s-2006, a specific “accumulation regime” was progressively deployed in China, while its micro-institutional foundation was already laid down by the local governments, and its basic mode of production was governed by different types of firms. Its circle of accumulation can be described as follows:

1. Reform on former planned economic system, opening to outside world, and especially active local government policies led to continuous creation of new firms ;
2. These firms took use of China’s surplus labor from rural areas and built up low-cost advantage for export manufacturing;
3. The export to international markets and foreign direct investment in China brought in large amount of foreign exchange;
4. The Chinese foreign exchange regime increased both Central government’s foreign reserves and domestic money supply;
5. Fiscal decentralization, land revenues, and increased domestic credit encouraged local governments to invest in infrastructure development, which in turn attracted more private and foreign direct investment for export manufacturing.

Through this capital accumulation circle, a kind of development dynamics of relationship between markets, firms and State was established in China, with the local governments residing at its core. The Chinese industrialization process reached its climax in 2008, the year when Olympics Games was held in Beijing.¹ At that moment, the Chinese growth was emerging as a new techno-economic paradigm, based on the strengths of its industrial system - its real economy. Intrinsically, the Chinese industrial system had the tendency to evolve further to capture higher added value activities. From 2000 to 2007, hundreds of industrial clusters emerged in China’s most developed regions of export-focused manufacturing. The clusters were boosted by proactive local government policies, mainly in areas of technological progress and, to a less extent, in relevant institutional changes such as labor, education, medical care, social securities, etc. The local government of Guangdong Province, for example, started some industrial programs even in 2005 to transform its labor-intensive firms to capital- and technological-intensive firms. This industrial upgrading required continuous investment in fixed assets, in closing the knowledge gap in science and technology, in closing the experience and skills gap, and physical infrastructure. However, after 2006, China’s industrial system development was disrupted by two historical events. First, low cost surplus labor supply from rural areas had been exhausted. More than 10% of population was above the age of 65 and the labor population decreased of 2 to 3 million annually. Moreover, China stipulated a new Labor Contract Law at national level in 2007, which greatly reduced the employment flexibility in labor market and increased the minimum salaries of labor. The new Labor Contract Law dramatically raised the costs of manufacturing activities in China, which were even lower than in India before 2006. But it was the other event that had more direct and consequent impact on Chinese manufacturing industries: the financial crisis in 2008 suddenly reduced developed economies’ market demand of Chinese export. Facing the challenge of

¹ It is interesting to mention that the Olympics Games held in Asia seem to be related with the successful export-oriented development. In 1964, Tokyo hosted the Olympics that, typically, indicated that the host country is on the threshold of developed status. In 1972, Japan became the second largest economy in the world. In 1988, Seoul hosted Olympics when South Korea was about to become Asian’s industrial giant.

GDP growth rate slowing down, the Chinese central government turned to more proactive fiscal and monetary policies: its anti-crisis package included a government budget expenditure of 4 trillion Yuan backed up by bank credit support of 10 trillion Yuan. With such unprecedented liquidity injection, the central government took over the managing power of economic development in China from the hands of local governments.

But even before 2007, both central and local governments in China had become more and more GDP-ist. From 1978 to 2007, except during the period of 1997 Asian crisis, China's fiscal and monetary policies were contractionary by nature: their main objective was to cool down the fever of investment pulse and prevent the economy from hyperinflation. Fiscal policy was to control fiscal deficit and reduce fiscal expenditure; monetary policy was to reduce money supply. In the 1990s, compared with local governments, the central government was not so aggressive in terms of promoting GDP growth through massive industrialization. However, with the reform of taxation system after the mid-1990s, the central government's fiscal situation became stronger and stronger. The central government's total fiscal assets reached 23 billion Yuan, including 12 billion Yuan financial assets, 6 billion Yuan land revenues, and 5 billion Yuan assets of State-owned firms by the end of 2000. In 2001, China joined the WTO and business confidence was pushed high. Returns on capital improved and a lot of "hot money" flowed in the country. Progressively, the central government had more incentive and resources to assert macroeconomic control through expansionary policies, termed as "active fiscal policy and stable monetary policy". Since the financial system had always been the central government's management mechanism to restrain lending and reduce inflation in the past, it certainly became the core part of macroeconomic policies to achieve the goal. Thus, Chinese central government began to manage the so-called aggregate demand, by playing on a few monetary keys – government spending, the interest rate, the required reserves ratio, the exchange rate, and the volume of credit or the quantity of money in circulation – in order to maintain the GDP growth rate. At operational level, aggregate demand was decomposed into export, investment, and consumption, the three contributors to GDP growth. Export was primarily targeted as major driver of growth, which made China often criticized for manipulating its exchange rate for export promotion. Investment was another driver: both central and local governments invested vastly in infrastructural network of motorways, service stations, airports, and oil distribution systems, creating enormous demand for automobiles, consumer durables, synthetic materials and petroleum products. After 2003, Chinese economic growth counted more heavily on investment, which has increased from around 35% to around 40% of GDP, higher than comparable countries, such as Japan and South Korea, at the equivalent stage of development. An industrial system based on export-oriented manufacturing had been built up. This industrial system was characterized by numerous incremental innovations and upgraded progressively towards higher level until the breakout of 2008 crisis. The external crisis stimulated the Chinese central government to reinforce its controlling power over macroeconomic management and exploit fully its previous Keynesian fiscal and monetary policies to maintain the growth rate above 8% (Zhao, W. and F., La Pira, 2013). China's investment hit a peak level of 48% of GDP in 2011, two years after the re-launching package in 2009. In terms of fixed assets investment, from 2013 to 2016, China recorded 44.6 trillion Yuan, 51.2 trillion Yuan, 56.2 trillion Yuan, and 59.7

trillion Yuan, representing 75%, 79.5%, 81.6%, and 80.2% of GDP respectively. 40% of fixed assets investment was undertaken by governments and State-owned enterprises, and investment in infrastructure remained a growth rate of 17% to 20% since 2013. In fact, China's annual infrastructure investment was far greater than the US, Europe, and other emerging markets. It was two times bigger than in India, four times bigger than in Latin America.

As the Chinese growth was driven by investment after 2007, its investment was mainly financed by credit expansion. From 2008 to 2011, China released 28 trillion Yuan bank credits, more than half of the total credit amount during 1949 to 2011. Since then, money supply as measured by M2 had increased with an average rate of 16%, from 85.16 trillion Yuan in 2011, to 122.84 trillion Yuan in 2014, to 155 trillion Yuan in 2015. M2 is estimated to exceed 200 trillion Yuan in 2019. The increased M2 supply equaled the double value of China's GDP. The huge supply of money in domestic market was structurally due to the Chinese foreign exchange regime. In 2014 Chinese national foreign reserve reached 3.84 trillion US Dollars. The central bank had to issue new money to commercial banks in exchange for the foreign exchange deposited by exporters. Large amounts of bank credits were channeled to State-owned firms and big infrastructure projects, such as roads, railways, airports, power generation and buildings, which all involved land allocation and intermediate inputs. In 2015, for example, the Central Bank lowered interest rate and required reserve ratio for five times, and the National Commission of Development and Reform approved additional infrastructure projects of more than 2 trillion Yuan. Local officials also seized on the stimulus package and the huge expansion of bank lending to initiate their local projects as rapid as possible. Many local firms were created only for acting as financing platforms in order to enjoy greater access to bank loans and channel the financial resources to local property and infrastructure projects. Thus, the excess money supply flooded into Chinese property market and capital market, creating asset bubbles. In 2009, around half of the investment is in property. In 2015, 98.7% of the 11.72 trillion Yuan new credit flowed in property-related markets: mortgage loans, infrastructure projects, and real estate development, etc., making property-related credits have a share of 28% of the 100 trillion Yuan total credit. In 2016, the value of Chinese properties was 250% of its GDP. China's capital market value also reached 70 trillion Yuan in the same year. In 2015, Chinese Academy of Social Sciences reported that the total debts of China were 150.03 trillion Yuan, including 20 trillion debts of local governments. China's ratio of total debts over GDP had risen from 170% in 2008 to 235.7% in 2014². Some international companies such as McKinsey and Moody's estimated that China's debt/GDP ratio was over 250% in 2016.

The injection of huge liquidity quickly financialized the whole Chinese economy: rapid growing dominance of financial institutions and markets over industrial firms and employees. Monetary factors – deficits, capital, credit, taxes –rather than goods and services, had become the determinants of allocation of resources. The short-term counter-crisis macroeconomic policies of Chinese central government led to a new regime of accumulation,

² Li, Y. (2015) National Balance Sheet of China 2015: Leverage Adjustment and Risk Management (《中国国家资产负债表 2015: 杠杆调整与风险管理》), Chinese Academy of Social Sciences Report: Beijing

where a substantial part of profits were made through financial channels and speculation, rather than through trade and commodity production. The added value of China's tertiary sector accounted for more than 50% of GDP in 2015, while the proportion of financial growth in GDP since 2015 has reached 8.3%. McKinsey and Company even estimated that the banking sector contributed 80% of Chinese economy's profit in 2016. Meanwhile, the upgrading of Chinese real economy, where industrial firms were facing severe problems of declining export market and profitability, was overwhelmed by government spending in domestic infrastructure and bank lending to State-owned firms. Chinese economic gravity was deviated from export-manufacturing industries to monetary and finance-related sectors, including real properties and shadow banking. A new circle of accumulation has emerged before China achieves to transform to a new techno-economic paradigm:

1. Externally, the decrease of export market needs due to world crisis slowed down the catch-up steps of Chinese manufacturing sectors in global value chain ;
2. Chinese central government reinforced its expansionary fiscal and monetary policy to inject excessive liquidity in the economy;
3. Manufacturing sectors became less and less attractive for investment, due to rising labor costs, insufficient domestic consumption demand, overcapacity, and diminishing profitability;
4. Thus money supply flooded and accumulated in property markets, then stock markets, and recently foreign exchange markets, creating several rounds of inflation of assets prices, financial instability, and permanent bad loans;
5. The Chinese central government had to spend more energies and resources on fiscal and monetary policies to handle the newly-added problems of financial system, somehow leaving behind its industrial system which had been decoupled from China's financial realm but faced of the persisting problem of sustaining and upgrading.

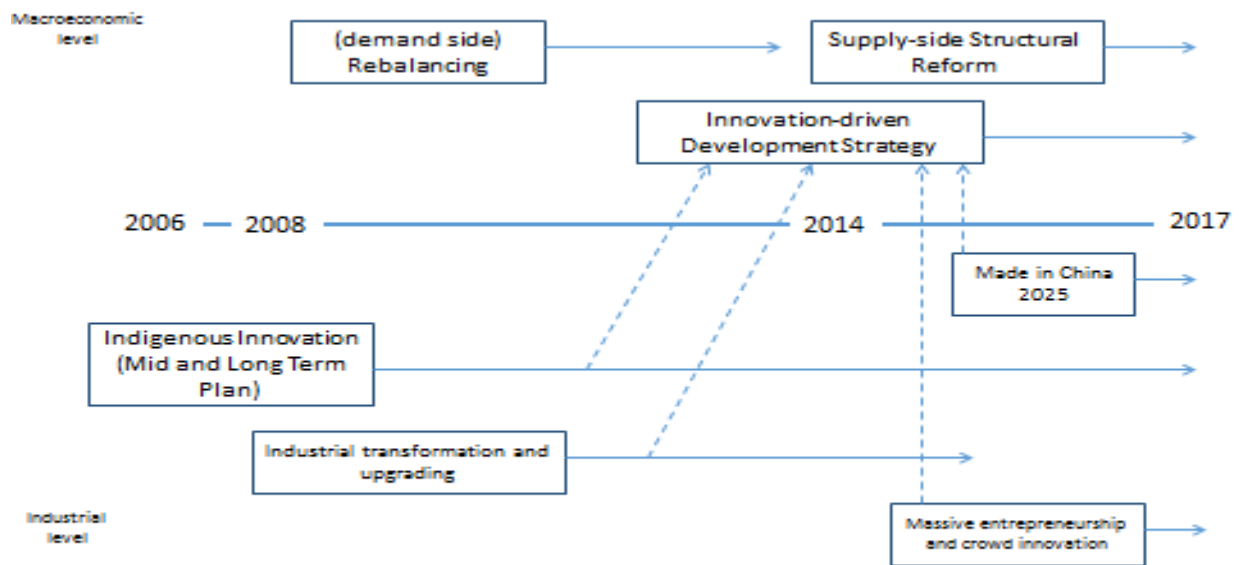
From a perspective of macroeconomic management, it can be roughly said that China's factor-driving development was primarily led by local governments with the permission and encouragement of central government who, on the other hand, played a much more prominent role in pushing the economy into investment-driven stage later. With China's growth story became a miracle, the central government even expected the economy would soon rush into innovation-driven stage. The 2008 world crisis and external demand shocks, just as Porter warned for investment-driven stage, interrupted this vision. Chinese government's reaction to the crisis, unfortunately, turned its development path from investment-driving to liquidity-injecting, and troubled itself to handle the derivative consequences. The injected liquidity is now circulating within the financial system rather than being channeled to industrial sectors, creating the decoupling of real economy from virtual economy. While the Chinese industrial system is still at the stage in development when it already has built up basic capabilities, but neither operates at the world technological frontier nor can continue to profit from low, unskilled wages in the past. What the Chinese economy really needs is upgrading its manufacturing sectors to a new techno-economic paradigm, not being trapped in domestic speculative bubbles of assets. Financial economy has replaced the industrial economy as the dominant regime of accumulation in China: it speculates derivatives and even less legitimate

schemes, builds extraordinary paper mountains of wealth, and increases leverages through shadow banking, local debts, and bank NPL. The central government's macro policies seem to be hijacked by property and other assets bubbles, and become path-dependent in using quantitative easing and fiscal stimulation to save the economy from the edge of peril in the short run. Thus, China's long march to innovation-driven economy is now being blocked by a new accumulation regime led by the problematic financial policy and system, which are themselves decoupled from the real economy: its ever competitive manufacturing system.

4. Rebalancing, Supply-side Reform, and Innovation-driven Development

After 2008, Chinese central government found itself as general manager of economy facing more and more multiple goals: it wanted to keep high growth rate, at the same time had to restructure the economy; it would like to see the manufacturing transform and upgrade, in hoping the service sector can boom as well; it cannot abandon the export-led industrialization, but it also saw the big potential of domestic market. Among all these goals, keeping the growth miracle from hard landing was the priority, and fiscal and monetary policies became main weapons. It resulted that China was dragged step by step into a speculation-led economy. Meanwhile, the central government also made some efforts to restructure the economy in the long run and tried to bring the economy back to a healthy growth track, even these strategies often remained just as slogans compared to the short-term policy measures. These structural strategies concentrated successively on demand side during 2008 to 2013, then on supply side since 2014, and recently re-emphasized on innovation dynamics originated from industrial level, after neither the demand side nor the supply side at macro level seemed to work so effectively (Figure 1).

Figure 1 Evolution of Structural Economic Strategies in China



Rebalancing the Chinese economy was already put in agenda even before the 2008 crisis. Macroeconomic imbalances in China implied that the country’s economic growth over 25 years had been based on super elevated levels of investment and over emphasis on export and systematic suppression of domestic consumption. Net exports are unlikely to provide China much cushion after 2008 and expansion of investment led to diminishing returns. China’s central government decided to rebalance the share of GDP contributed by consumption and investment, making in former Premier Wen’s words: “greater effort to enhance the role of domestic demand, especially final consumption”. The re-launch package was in accordance to such orientation to modify the demand side. To boost consumption growth in the context of a negative drag from declining investment, policy makers had to pursue a pre-consumption policy, rather than pursuing a purely export-driven growth strategy. Related to such a priority, China also promoted massively the development of service sectors, the logistics and distribution system to countryside, and urbanization.

Nevertheless, the performance of macroeconomic structural rebalancing was not as high as expected. Aggregate demand was kept high because of investment increase, not consumption; service sectors were developed, with a biased weight on financial service. In regard with domestic consumption, China was in fact not a typical export-led economy like South Korea, Taiwan and even Japan are or used to be. The extent to which GDP growth was driven by domestic consumption had been under-estimated. In 2016, consumption contributed 70% of GDP growth. The real final consumption expenditure grew at an average of 8.5% annually over the period of 2002-2012, and real household consumption an average of 9.5% annually since 2007 to 2011 (Banett, Seven, Alla Myrvoda, and Malhar Nabat, 2012). Rebalancing strategy led the Chinese consumption to grow strongly at around 8% annually after 2008, while the problem was that the growth in consumer spending had been slower than that of the overall economy and the increase in gross fixed investment, an average annual

growth of over 13% per annum. In 2014, the share of private consumption in GDP fell to around 35% from around 45-50%, and it stagnated.

The reasons why Chinese domestic consumption stagnated were more structural than technical. Shortage of pension funds, rising prices of healthcare, and the corresponding high saving rate of households due to weak social security protection, all had negative impact on domestic consumption. The recent anti-corruption movement also reduced final consumption related to officials. But the more profound reason was inequality of incomes in China. Social Science Survey Center of Peking University reported that in 2012, the Gini coefficient of net assets of Chinese households was 0.73, meaning the richest 1% households owned more than 1/3 of national net assets, while the bottom 25% households only owned 1% of national net assets.³ Boston Consulting Group estimated that in 2015, the 2 Million high net value families owned 41% of investable assets in the country. The overall Gini coefficient was 0.48. Though there was steady increase of disposable income, it was the decreasing growth rate of disposable income that led to the decreasing growth rate of domestic consumption.

By 2014, it was evident that the consumption was touching a ceiling and there was surplus of production capacity due to over-investment. Both Consumer Product Index and average profitability of industrial firms fell to 2%, and production capacity utilization rate fell to 70% in main industrial sectors. External economic situation had evolved from export demand reduction to exit of foreign direct investment in China, due to the “re-industrialization” of some developed economies, especially the USA. The Chinese government had to put aside the standard macroeconomic framework and face the more urgent and realistic problems from the supply side: the deceleration of economic growth since 2014, the considerable drop in industrial production since 2012, the major stock market slide in mid-2015, and the accumulation of over-capacity and over-indebtedness of firms. In the end of 2015, the central government formally launched the so-called supply-side structural reform, aiming to restructure the Chinese economy through deleting overcapacity, deleting storage, deleting leverage, reducing costs, and making up shortcomings (the ‘three deletions, one reduction, and one making-up’, in official terms). Different from the Western definition of supply-side economics, the Chinese supply-side reform does not put tax reduction in the central place. The current supply-side reform is more technical than structural, since it hardly touches the very tough institutions in the Chinese economic system, such as the SOE system, the banking system, the health and social welfare system, the education system, the housing system, and the rule of law in a market economy. For Chinese central government, there is marginal room to carry out further reform in these institutional areas because any of them is closely linked to China’s profound social and political system, and specific incumbent interested groups.

Almost the same time when the supply-side reform was nominated as macroeconomic management strategy under China’s “new normal state”, innovation-driven development was re-emphasized as another important strategy in parallel. The government believed that innovation could help not only with restructuring and transforming the economy but also with

³ Social Science Survey Center of Peking University (2014) China People Livelihood Development Report (北京大学中国社科调查中心《中国民生发展报告 2014》)

solving other challenges from green growth, to an ageing society and the “middle income trap”. Compared to supply-side reform, innovation-driven development strategy (IDS) is less relevant to China’s current social-institutional system, more on finding technical solutions within the industrial system. In fact, the Chinese IDS can be traced back to a series of strategic planning of science & technology development and manufacturing sector development at industrial level, mainly carried out by Ministry of Science & Technology, and Ministry of Industries and Information Technologies, etc. In 2006, Chinese government issued the Outline of Medium and Long Term Plan for National Science and Technology Development (2006-2020). To facilitate implementation of the Plan, government ministries have designed policies to help build an enterprise-centered national innovation system: tax incentives for innovative enterprises, prioritizing of domestic high-tech enterprises for government procurement, encouragement of assimilation and re-innovation based on imported technology, stronger protection of intellectual property rights, etc. Since 2007, Chinese government made a series of plans to transform and upgrade the manufacturing sectors, including promoting high-tech sector, advanced manufacturing sector, and modern service sector. It also set up an expert group in State Council to identify industrial ‘champions’ capable of concluding strategic partnerships with foreign multinationals. In 2015, the Chinese Premier Minister advocated to create “millions of entrepreneurs and massive innovations”, trying to inject new dynamics in China’s development. The same year China published its industrial masterplan “Made in China 2025”, targeting all high-tech industries that strongly contribute to economic growth: automotive, aviation, machinery, robotics, high-tech maritime and railway equipment, energy-saving vehicles, medical devices and information technology, etc. By upgrading the mostly backward industrial processes of manufacturing sector, the Chinese government hoped to enhance the competitiveness of its firms on domestic market and to propel their global expansion. In 2016, Chinese government issued the National Innovation-driven Development Strategy Outline, proposing a "three-step" strategic target: to become an innovative country by 2020, a forefront of innovation-oriented country by 2030, and world's top scientific and technological innovation powerhouse by 2050. By now, more and more relevant industrial policy, science & technology policy, foreign trade policy, financial policy and educational policy are clustered under the macroeconomic strategy umbrella “innovation-driven development”, with the aim to upgrade the Chinese economy to a new techno-economic paradigm. However, innovation-driven development stage for China is still a prospection than a reality. Table 1 summarizes this long trajectory of how China’s economic strategies and policies formulate its growth models in different stages of development.

Table 1 China’s Economic Policies and Growth Regimes

Development Stage	Macro Policy Strategy	Growth Regime
Factor-driven stage (Before 2008)	<ul style="list-style-type: none"> ● Localized industrial policies ● Contractionary macroeconomic policy ● Export-promotion policy 	<ul style="list-style-type: none"> ● Industrialization through export-oriented manufacturing ; ● Industrial firms took use of China’s surplus labor from rural areas and built up low-cost advantage;

	<ul style="list-style-type: none"> ● Technology-importation and transformation policy ● FDI attraction policy ● Decentralized fiscal system ● Loose regulation on labor (Labor Law revised in 2007) 	<ul style="list-style-type: none"> ● The export to international markets and foreign direct investment in China brought in large amount of foreign exchange; ● The Chinese foreign exchange regime increased simultaneously national foreign reserves and domestic currency supply; ● Governments invested heavily in infrastructure and land development to support manufacturing; ● Formulation a techno-economic paradigm with industrial system as its core part and relevant social system depressed.
Investment-driven stage (after 2008)	<ul style="list-style-type: none"> ● Centralized macroeconomic management system ● Manipulating macroeconomic variables such as trade, investment, and consumption ● Expansionary monetary and fiscal policies ● Economic relaunching package ● Macroeconomic rebalancing (2008-2014) ● Supply-side Structural Reform (2014- present) 	<ul style="list-style-type: none"> ● The decrease of export market slowed down the catch-up of manufacturing sectors in global value chain ; ● Government reacted by expansionary fiscal and monetary policy, and injected excessive liquidity in the economy; ● Industrial system had become unattractive for investment, due to rising labor costs, insufficient domestic consumption demand, overcapacity, and diminishing profitability; ● Excessive money supply flooded and accumulated in property markets, then stock markets, and recently foreign exchange markets, creating several rounds of inflation of assets prices, financial instability, and permanent bad loans; ● Central government had to spend more energies and resources on fiscal and monetary policies to handle the newly-added problems of financial system, somehow leaving aside its industrial system which had been decoupled from the financial realm but faced of the persisting problem of sustaining and upgrading.
“Desired” innovation-driven stage (after 2017?)	<p>Innovation policy or Chinese innovation-driven development strategy, including:</p> <ul style="list-style-type: none"> ● Mid and Long Term Science & Technology Plan Outline ● Industrial Transformation 	<p>The expected new growth regime will include:</p> <ul style="list-style-type: none"> ● World class exports; ● High skilled jobs; ● High-tech industries; ● High added-value activities; ● Industrial competitiveness based on strong science & technology development;

- & Upgrading Plan
- Massive Entrepreneurship and Crowd Innovation Strategy
- Made in China 2025
- Innovation-driven Development Strategy Outline
- Dynamics of entrepreneurship;
- ...

In terms of policy implementation of innovation-driven development strategy, the traditional way of Chinese central government relies very much on “top-level” design and centralized coordination. For example, to promote the implementation of Mid and Long Term Science and Technology Plan, at first the State Council proposed support policy incorporating 60 articles, then 79 detailed policy documents were proposed through inter-ministry cooperation involving 35 ministries including Ministry of Science & Technology, Ministry of Finance, and National Committee of Reform & Development. The policy documents later were diffused to local governments which worked out their corresponding implementation policy measures at different administrative levels. In this process, central government played a guiding role to direct the local governments to concentrate on specific key areas, while most of the concrete measures on how to upgrade with S&T progress and innovation, industrialize with core and key technologies, develop emerging industries, high-tech industries, and service sector are for local governments to elaborate, according to their local situation. Unlike other critical macroeconomic policy instruments that are centrally controlled and have immediate nation-wide effects, the implementation of national innovation policy rely very much on the cooperation of local governments and the many thousands of local enterprises. Innovation policy shall be local and decentralized by nature. The Chinese central government has adopted the approach of National Innovation System as the framework for its science and technology policy design. The follow-up plans such as National Plan for Innovation Capacity Building, National Plan for Strategic emerging industries, and National Plan for S&T Development were all based on such a framework. Local governments soon found the National Innovation System framework was too big, too vague, and difficult to be operationalized in concrete policies, even though they had to label their policy framework as “regional innovation system” in order to follow the central government’s guideline. In practice, the Chinese local governments are searching for appropriate innovation policy frameworks. Some local governments, especially those in relatively more advanced regions, are experimenting more localized innovation policy.

5. Conclusion

In 2015, when the Shanghai Stock Exchange Composite Index jumped from less than 3000 points in March to more than 5000 points in June, Chinese official press argued that the soaring bull market was supported by the so-called “reform bonus”, “policy bonus” and emergence of new industries based on technological revolution in China. However, the sudden crash of Shanghai Composite back to less than 3000 points in August proved that this

apparent technology-based bubble was simply and purely a financial manipulation taking use of investors' wishful thinking. In fact, at that moment, rather than enjoying the *fiesta* of financial bubble in the beginning of a new techno-economic paradigm, China was suffering from the severe decoupling between financial capital and production capital in the end period of its already mature paradigm in which it was trapped.

Somehow, this temporary financial crash in the end of China's current economic paradigm life cycle was a signal of the profound under-going structural crisis of China's growth model. Since the end of 1990s, the directing and controlling power over economy was progressively passed from local governments to central government. This shift of mode of regulation from decentralized industrial policies to centralized macro management not only accelerated the development of Chinese economy from factor-driven to investment-driven stage, but also deviated its accumulation regime from the production-export dominated type to the finance-dominated one. Macroeconomic policy of liquidity injection after 2008 resulted in decoupling between financial capital and production capital. Investment in China has been assimilated in financial assets and properties, rather than in innovative and industrial activities, therefore contributing little to the initially targeted industrial upgrading and restructuring.

China's central policy-makers have been aware of the need to shift to a new growth model. That was the reason why when the relaunching policy was released in 2008, the central government emphasized also the necessity of structurally rebalancing the macro economy to more domestic consumption. However, the danger of long-term crisis due to failure of finding a new accumulation regime to substitute the current one was largely underestimated. The policy of supply-side structural reform after 2014 has been rather short-term adjustments of mode of regulation to absorb the consequences created by previous expansionary fiscal and monetary policies. Regarding the long-term structural shift to new paradigm, Chinese central government has decided to attack the technical parts than the institutional parts which seem to be harder to change. As a matter of fact, China's national innovation-driven development strategy is integrated and upgraded from more operational ministry-level plans such as Mid- and Long Term Plan of Science and Technology Development, and the recent industrial plan of "Made in China 2025". Though the central government is relying more than ever on this national approach of innovation policy, it will soon find that the real challenge of managing the Chinese economy is how local government can implement innovation-driven strategies for the development of specific regions and industries, since innovation policy is by nature not an orthodox type of macroeconomic policy.

References

Banett, Seven, Alla Myrvoda, and Malhar Nabat (2012) Sino-Spending, *Finance and Development* 49, no. 3: 28-30.

Boyer, R. (2011). The Chinese Growth Regime and the World Economy. In R. Boyer, H. Uemura, & A. Isogai (Eds.), *Diversity and Transformations of Asian Capitalisms*. (pp. 184-

205). Chapter 10. Abingdon: Routledge. (Routledge Studies in the Modern World Economy; No. 96).).

Boyer Robert and Saillard Yves (2001) *Regulation Theory: The State of Art*, Routledge.

Freeman, C. and C. Perez (1988), Structural crises of adjustment, business cycles and investment behavior, in Dosi et al., *Technical Change and Economic Theory*, Pinter Publishers, London, N.Y., 1988, pp. 38-66.

Oi Jean C. (1992), "Fiscal Reform and the Economic Foundations of Local State Corporatism in China", *World Politics*, Vol. 45, N°1, October, pp. 99-126.

Pei, Mingxin. (2012) The End Of China's Economic Miracle, *Newsweek*, July 9th, 2012.
<https://www.newsweek.com/end-chinas-economic-miracle-65591>

Perez, C. (2002). *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Global Ages*, Cheltenham, Elgar.

Perez, C. and L. Soete (1988), Catching up in technology: entry barriers and windows of opportunity, in Dosi et al., *Technical Change and Economic Theory*, Pinter Publishers, London, N.Y., 1988, pp. 458-479.

Porter, Michael E. (1998). *The Competitive Advantage of Nations*, London: Macmillan Press Ltd.

Ruffier, Jean (2010) The Knowledge of Industrial Development, *Chinese Sociology and Anthropology*, Vol. 42 No. 3, Spring 2010, pp. 74-86.

Zhao, W. and La Pira, F. (2013) Chinese Entrepreneurship: Institutions, Ecosystems and Growth Limits, *Advances in Economics and Business*, No. 1, pp. 72 - 88. doi: 10.13189/aeb.2013.010204.