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Managing the “Post Miracle” Economy in China: Crisis of Growth Model and Policy Responses

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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, capital accumulation regime with Chinese characteristics, 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 supplemented with industrial economics tools. 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 progressively decoupled the financial system from China’s local, dominant, accumulation regime, and directing finance into a technological accumulation regime. Ironically, Chinese central government’s anti-crisis monetary and fiscal policy in 2008/09 first 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. We here put the hypothesis that, beyond a grand epochal move, the belt and Road Initiative is an attempt to domestically recouple backward to coastal provinces, trade and investment to modernization and economic diversification and upgrading of provinces. Each of these stages has had specific policy implications and the Chinese central government has to face the challenge of shifting to a new accumulation regime in the long run the current growth model of China is composed of different capital accumulation regimes such as export, domestic infrastructure investment, then financial market liberalization, and recently E-commerce platform economy, all based on manufacturing economy built up since 40 years. This model is ending and China needs to upgrade its manufacturing economy to an innovation level, and build up new capital accumulation regime on it.

Key words: middle-income trap, macroeconomic policy, regime of accumulation, development, technological catching-up, China.

JEL Classification E02, E32, P21, P16

1. Introduction

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 falling 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; the canonic specialized insertion into value chains of (American) globalisation, and the building up of many infrastructure facilities, etc.. One of the most important elements was that 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. Importantly, the policy of offsetting foreign currency gained through trade to domestic monetary emission of RMB led to an important bank support to the economy.

The year 2012 has been well known in China for the ascendance of its new political leaders. By now, the economic importance of year 2012 in China is becoming more evident: in 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 drew a splitting line in the recent Chinese growth history: before it, the country's high-speed growth era was over; after it, “the end of the China's economic miracle” just began (Pei, M., 2012). However, by the year of 2014, the Chinese government confidently believed that its economy soon should and would enter into the new stage of so-called “innovation-driven development”. The term “innovation-driven” was popularized by Michael Porter, a Harvard strategic management scholar, with his book *The Competitive Advantage of Nations*, in which a nation's economic development was described 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, supporting 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.

According to Porter, successful economic development is a process of successive upgrading and a developing country's business environment has to evolve accordingly to support and encourage increasingly sophisticated and productive ways of competing by firms. At this stage in our paper we wish to argue that, observing leading world economies post-crisis one can obviously argue against the sequentiality of these stages. Namely, the US are currently aghast at Innovation-driven pretense of China, and in a more self-centered manner at any rate want themselves to be an innovation-driven economy as long as wealth-driven. At the end of the Obama's presidency, his Trade Secretary Mrs Pritzker expressed concern over the fact that Chinese subsidised/state-driven and long-term-focused catching-up had discouraged American capitalism - short-term driven and quarter-profit obsessed as it is - to invest and thus led it to under-innovate, ensuing a global under-innovation drive. The IMF conversely released figures stating the opposite: Chinese competition acted as a stinging needle to further competition to innovate.

No surprise, this confrontation has been sustained by a broader academic debate over the years, between those who argue, like Paul Krugman (1994), that "countries do not compete with each other the way corporations do", and others, like Paul Samuelson (2004), arguing instead that "invention abroad (...) gives to China some of the comparative advantage that had belonged to the United States (and) can induce for the United States permanent lost per capita real income". This is with these framework qualifications and this larger political economy relevance each in mind that we shall approach China.

30 years after the publication of this national competitiveness theory, China found that its 35-year growth trajectory happened to conform to the development from factor-driven to investment-driven economy: the country did experience the Factor-Driven Stage (from 1980s to 2006), has been going through the Investment-Driven Stage (from 2007 till now), and is heading for the Innovation-Driven Stage. After all, the Innovation-Driven State has been aspired and desired by the Chinese government since years, and it has elaborated series of policy frameworks, such as National Mid- and Long-term Science and Technology Development Plan, Made in China 2025, National Innovation-driven Development Strategy, and the supply-side reform in broad sense, to achieve it soon. Nevertheless, this linear process seemed to be interrupted by a financial turbulence in 2015.

2. The Chinese Stock Market Crash in 2015

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”, benefits release from accumulated institutional changes, new leadership, 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 it was not a “normal” burst of bubbles of emerging technologies and industries, but simply and purely a financial manipulation taking use of investors’ wishful thinking. After accusing foreign banks’ hostile speculations in market, Chinese government finally admitted that within its own system, there existed some insider “evils” and financial giant “crocodiles”. In 2016, some millionaires, the Chairman of China Assurance Supervision Committee, and the Assistant to Chairman of China Banking Supervision Committee were arrested. The Chairman of China Securities Supervision Committee stepped down as well.

What happened to the Chinese economy? If there had been no government strong intervention by force, would the market crash have become the Chinese version of 2008 financial crisis? Anyhow, financial crisis was avoided, or is forbidden by Chinese government, but does the 2015 summer financial disturbance represent a more profound crisis in the Chinese economy, which will endure for a long term?

By crisis, economists distinguish between two types: cyclical and structural. Cyclical or technology-based crises can be very perturbing, and are often due to an external event or shift of techno-economic paradigm. Techno-economic paradigm, according to the Neo-Schumpeterian macroeconomics, is a combination of interrelated product and process, technical, organizational and managerial innovations, capable of 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. 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.¹ Cyclical crisis 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 of financial crisis: At the end phase of each techno-economic paradigm, production capital,

¹ In theory, 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. (C.f., Perez, C., 2002; Freeman, C. and C. Perez, 1988; Perez, C. and L. Soete, 1988).

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). According to this theory, 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.

Different from cyclical crisis, structural crisis is due to the problems of mode of regulation and even of the fundamental accumulation regime in an economy. According to the French Regulation Theory (Boyer, R. and Y. Saillard, 2001; Boyer, R. 2011), “accumulation regime” is the way 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. An accumulation regime is often supported by its corresponding “mode of regulation”, which is a set of institutional laws, norms, forms of State, policy paradigms, and other practices that provide context for operating the accumulation regime. Typically, it is said that a mode of regulation comprises institutional forms related to money, market competition (or market organisation), wage-labor combination, State-society interaction, and relation to international economy. Structural crisis happens when the mode of regulation doesn’t match well the accumulation anymore or when the accumulation regime is

on longer effective facing long term diminishing return of capital due to maturity of techno-economic paradigm².

The 2008 crisis was regarded as the result of an over-developed finance-dominated accumulation regime in Western economies. Thus, to overcome the structural crisis, 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 accumulation regime. Then, how about China? Does the 2015 stock market crash signal a cyclical financial crisis due to techno-economic paradigm shift, or an enduring structural crisis due to misalignment of accumulation regime? The following analysis reveals it is both, and unfortunately, more structural than cyclical. In 2015, some financial capital was speculated in name of innovation. But China was in fact suffering from the severe decoupling between financial capital and production capital in the end period of its already mature paradigm. It faced a risk of chiefly being trapped into a financial-dominant accumulation regime at home while being price taker on international markets –with a less marked burden though on the latter element-, a kind of “middle-income trap” faced by developing countries.

3. “Middle-income Trap” with Chinese Characteristics: Rise and Fall of its Growth Regimes

The so-called “middle-income trap” refers to the fact that after enjoying a period of strong growth, many low-income countries have developed rapidly into middle-income status, but far fewer have gone onto high-income status. For example, growth of emerging countries slows by 2 points a year when their per capita income reaches about \$17,000. Most economies in Latin America and the Middle East reached middle-income status as early as the 1960s and 1970s, but have remained there ever since. The factors and advantages that propelled high growth in these countries during their rapid development phases—low-cost labor, sectoral reallocation and easy technology adoption—eventually exhausted and disappeared when they reached middle- and upper-middle-income levels. If countries cannot increase productivity through innovation (rather than continuing to rely on foreign technology) as new sources of growth, they find themselves trapped. This needs being contrasted with marked technological catch-up in some sectors and companies though. Let us start with macro-economics.

As for Chinese industrial productivity growth, it had been 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

² 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 an accumulation regime characterized by mass production without mass consumption to a regime incorporating both mass production and mass consumption. The crisis in 1971 represented the end of Fordist accumulation regime which relied simultaneously on mass production and mass consumption.

high enough to induce high physical investment. Entrepreneurial expectations of rapid economic growth were crucial for investing in real economy during 1980s to 2008 (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 (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.

With such a decentralized economic regulation system and industry focused policies, 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 adopted by different types of firms. The formation of such an export-oriented accumulation regime can be summarized 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, land and loan access and in best case built up low-cost advantage for export manufacturing (with some bad loans the system had to and managed to solve but at the cost of political energy);
3. The export to international markets and foreign direct investment in China brought in large amount of foreign exchange with a correlative ousting effect on local consumption though somewhat mitigated with an expansive monetary policy;
4. The Chinese foreign exchange regime increased both Central government's foreign reserves and domestic money supply while preparing to accruing the role of Central SOEs to provincial SOEs and of SOEs to so-called private companies; exporting private companies at micro-level ultimately funded the return of the state at macro-level – under this era this could get noticed already into some "pilot" sectors as mining and mineral resources sector ; the "liberalisation" of his period prepared for the centralisation of the later one, it can be argued (see *infra*).
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.

It should be noted that at that moment, the Chinese techno-economic paradigm was very much based on the strengths of its industrial system - its real economy, which learnt and

used globally diffused and standardized manufacturing technologies. Industrialization is due to the fact that the necessary technical knowledge for mass production of most of the products has been simplified and has become common knowledge. In 2001, China joined the WTO and business confidence was pushed high. Returns on capital improved and a lot of “hot money” flooded in the country. Transfer mechanisms of this common knowledge is however seldom analysed or at any rate “joint ventures” role is over stated while the upstream of the value chains is neglected: companies have learnt either through their clients or their suppliers³. An industrial system primarily based on export-oriented manufacturing had been built up, but also used toward the building of local markets by provincial authorities, characterized by numerous incremental innovations and progressively upgraded towards higher level until the breakout of 2008 crisis. Through this capital accumulation circle, a kind of development dynamics of relationship between markets, firms and State was established, with the local governments residing at its core, especially developing its technology management skills through the regulation of local demand. The Chinese “low cost common knowledge mass production industrialization process” reached its climax in 2008, the year Olympic Games was held in Beijing.⁴

Intrinsically, and beyond the bulk of the industry, the Chinese industrial system would have the tendency to evolve further to capture higher added value activities. From 2000 to 2007, hundreds of local 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 (re)investment in fixed assets, in closing the knowledge gap in science and technology, in closing the experience and skills gap, and in 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 gradually been exhausted. More than 10% of population was above the age of 65 and the labor population decreased by 2 to 3 million each year. 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 GDP growth rate slowing down, the Chinese central government turned to more proactive fiscal and monetary policies: its anti-crisis package in 2009 included a government budget

³ Arvanitis and ZHAO (2014) or their suppliers (Richet & Ruet 2008, Balcet & Ruet 2012).

⁴ 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.

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 Chinese economic development from the hands of local governments, a change of mode of regulation.

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 adopted a prudential attitude to control money supply to certain level. 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. By the end of 2000, 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. 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 vastly invested in infrastructural network of motorways, service stations, airports, and oil distribution systems, enabling 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. The 2008 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 twice 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 large 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 rapidly 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 2014⁵. 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 measure and the consequent series of policies of Chinese central government crafted a new regime of accumulation, where a substantial part of profits were made through financial channels and speculation, rather than through trade and commodity production. In 2015, the added value of China's tertiary sector accounted for more than 50% of GDP, while the proportion of financial growth in GDP since 2015 had reached 8.3%.

⁵ 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

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 estate properties and shadow banking. A new circle of accumulation had emerged before the techno-economic paradigm achieves to have substantial transformation based on new technologies:

1. Externally, the decrease of export market needs due to world crisis slowed down the average catch-up steps of Chinese manufacturing sectors in global value chain inducing to more competitive pressure towards the survival upgrading of companies ;
2. Chinese central government reinforced its expansionary fiscal and monetary policy to inject excessive/massive liquidity in the economy thus leading to severe over-capacities;
3. Manufacturing sectors in turn became less and less attractive for investment, due to rising labor costs, insufficient domestic consumption demand, overcapacity, and diminishing profitability, leading floor to long unaddressed consolidation needs;
4. Thus money supply flooded and accumulated in property markets, then stock markets, and later on (2015) foreign exchange markets, creating several rounds of inflation of assets prices, financial instability, and permanent bad loans;
5. The Chinese central government had to allocate more attention 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 regulation, it can be roughly said that China's factor-driving development was primarily led by local governments with the permission and pragmatic encouragement (as political centralisation was then out of reach) of central government who later, on the other hand, played a much more prominent role in pushing the economy into investment-driven stage. With China's growth story becoming a miracle, the central government even expected the economy would soon rush into innovation-driven stage. At this juncture we wish to state an hypothesis, not central to the demonstration in this article, that the government had in mind a mix of visions: the global style Porter's paradigm was heavily projected back at China through the 'miracle vision' the world saw China in; the continuity with the science and technology paradigm propelled by Deng Xiaoping (see Ruet 2019, Lanckriet & Ruet 2019); and finally a solid dose of anchoring into the real issues of industrial modernisation partly allowed, partly slowed down by overcapacities -depending on the technologies used for these additional capacities-, opportunistically used by the regime to clinch local political equilibriums. Altogether a mix of serious central attempt (with real local difficulties) at reducing the overcapacity combined with innovation gradually emerged.

Back to our main argument, while the Chinese industrial system has built up basic capabilities, it is still in the stage in catch-up, neither operates at the world technological frontier nor can continue to profit from low, unskilled wages in the past. The 2008 world crisis and external demand shocks, just as Porter warned for investment-driven stage, interrupted this vision.

Without a renewed manufacturing economy as a solid base, 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 aiming at speculating the "value-based" assets rather than being channeled to industrial sectors for forming "knowledge-based" assets, creating the decoupling of real economy from virtual economy.

For China, the so-called "middle-income trap" was caused partially by the fact that the country's established techno-economic paradigm which started 35 years ago and generated the "China miracle" has entered to its end phase of life-cycle in terms of creating technological breakthrough and been exhausted in terms of generating high profits. But being trapped is more because financialization has progressively substituted industrialization as main accumulation regime of the economy before entering into innovation-driven stage: it speculates derivatives, bubbles of assets, and even less legitimate schemes, builds extraordinary paper mountains of wealth, and increases leverages through shadow banking, local debts, and bank NPL. Lacking an appropriate accumulation regime based on a new robust manufacturing economy, Chinese growth is macro-economically entering into a long cycle of slowing down (Table 1).

Table 1 shows that contrary to a free-market economy where economic situations constrain government and policy, the different development stages in China were crafted by different dominant modes of macroeconomic regulation of its government, especially the Central government. Before its investment-driven stage entering into a dead end, the Chinese government had envisaged to bring the growth model to a new innovation-driven level. The financial crisis of 2008 forced the Chinese central government face to a set of multiple goals: it promised to keep high growth track in the short run, at the same time wanted to restructure the economy in the long run; it could not abandon the export-led industrialization regime of accumulation, but it also saw the big potential of domestic market; it would like to transform the economy to more service-focused sectors, meanwhile it had to upgrade the manufacturing firms with new technologies. Among all these goals, keeping the growth miracle from hard landing in the short term became the priority, and fiscal and monetary policies were main weapons. It resulted that the central government's macro policies were above all hijacked by property and other assets bubbles, and became path-dependent in using quantitative easing and fiscal stimulation to save the economy from the edge of peril during 2008 to 2013. The first strategy was labeled as "economic rebalancing", concentrating on demand side, before the focus was later turned to supply side.

Table 1. The Chinese Mechanism of “Middle-income Trap” Risk

Development Stage	Mode of Regulation	Accumulation Regime	Techno-economic Paradigm
Factor-driven stage (Before 2008)	<ul style="list-style-type: none"> ● Localized industrial policies ● Contractionary macroeconomic policy ● Export-promotion policy ● 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"> ● Industrialization through export-oriented manufacturing ; ● Industrial firms took use of China’s surplus labor from rural areas and built up low-cost advantage; ● Export to international markets, foreign direct investment in China, brought in large amount of foreign exchange; ● Foreign exchange regime increased simultaneously national reserves & monetary supply; ● Governments invested heavily in infrastructure and land development to support manufacturing; 	<ul style="list-style-type: none"> ● Industrial system based on imported or transferred technologies from abroad; ● Specialized in process manufacturing and assembly line production; ● Formulation a techno-economic paradigm with industrial system as its core part and relevant social system depressed; ● Early and growth phases of the techno-industrial life cycle.
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 re-launching package ● Macroeconomic rebalancing (2008-2014) ● Supply-side Structural Reform (2014- present) 	<ul style="list-style-type: none"> ● Decrease of exports slowed down the catch-up of manufacturing sectors in global value chain ; ● Reaction with expansionary fiscal and monetary policy, with liquidity injection in the economy; ● Industrial system became unattractive for investment, due to rising labor costs, insufficient domestic consumption, overcapacity, diminishing profitability; ● Excessive money supply accumulated in property markets, then stock markets, and foreign exchange markets, creating rounds of inflation of assets prices, financial instability, permanent bad loans; ● Central government had to spend more resources on fiscal and monetary policies to handle the newly-added problems of financial system, leaving aside its industrial system which had been decoupled from the financial realm but faced of the persisting problem of sustaining and upgrading. 	<ul style="list-style-type: none"> ● Globally diffused and standardized manufacturing technologies; ● The necessary technical knowledge for mass production of most of the products are simplified and become common knowledge; ● Evolution of engineering knowledge and process improvement around new products; ● Entering the mature or even end phase of the techno-industrial life cycle; ● Emergence of internet-based technical systems such as sharing business, e-commerce, and platform models, but not yet form a dominant new paradigm to replace the existing one.

4. Economic Policies Sustaining the Current Growth Model of China

As for the future, the Chinese accumulation regimes have three possible scenarii. One is the continuation of the current tendency of being trapped, i.e., a finance- and assets-led regime. Profit making is mainly through rent-generating capital operation and accumulation such as investment in stock market, foreign exchanges, and bubbled real estate. Macroeconomy can be in stagflation and it is what the Chinese government is fighting to avoid. The second possibility is that China successfully transforms its industrial sectors and upgrades to advanced manufacturing in becoming flexibly specialized in innovative technologies both for new process, products, components, and systems. In this case, Chinese dominant regime of accumulation is still manufacturing-led, but similar to the high-quality real economy in Germany. It is what the Chinese government wants to have. However, in viewing the rapid development of e-commerce and internet-based payment system in China, a third regime seems more possible. This emerging regime is digital platform-led, with the fast expansion of China’s service economy, especially e-commerce along with low-end strategies of manufacturing rationalization or no restructuring at all. In integrating customer interfaces, production and supply chains under the intelligent manufacturing paradigm, China's whole manufacturing industry, and even the foreign manufacturing sectors are becoming a supporting part of the Chinese e-commerce service system composed of digital platforms, trade, logistics, distribution, shopping, and final consumption, etc. China’s service sectors have accounted for more than 50% in GDP and it will continue to grow bigger in the future. Manufacturing will no longer be the sole focus of accumulation regime which will turn to service, especially internet-based service sectors, and both can actually combine in a variety of ways according to the real situation of each province.

China’s central policy-makers had been aware of the need to shift to a new growth model. That was the reason why when the re-launching policy was released in 2008, the central government also emphasized 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. Figure 1 summarizes China’s main macroeconomic and industrial-level policies after 2008.

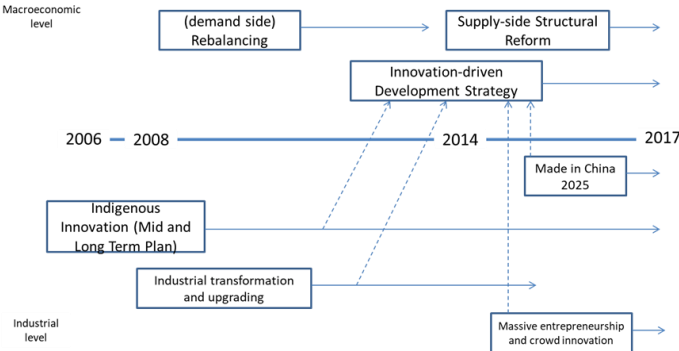


Figure 1. Timeline of Domestic Economic Policies of Chinese Government

4.1 Short-Term Policies: from Rebalancing to Supply-side Structural Reform

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.⁶ 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

⁶ Social Science Survey Center of Peking University (2014), China People Livelihood Development Report, Beijing, China.

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, which required long-term treatment.

Both demand-side and supply-side short-term policies might hold temporarily Chinese economy from falling into the “middle-income trap” caused by its recent finance-led accumulation regime. However, China’s high growth based on extensive accumulation of industrial profits and high rates of exports and investments is on longer sustainable in the long run and has intensified social and environmental problems. Structural factors in the form of less-favorable demographics and a higher cost of labor imply a lower potential growth rate. At the same time, the growth of total factor productivity, which often accounted for 20% or more to GDP growth before 2008, has turned persistently negative since 2009 (Wei, Shag-Jin, Zhuan Xie, and Xiaobo Zhang, 2017). To handle this long-term structural risk, Chinese central government ENCOMPASSING ALL OTHERS is about international development, centered on the One Belt One Road Initiative (BRI), which is in fact an effort to sustain the Chinese export-oriented and finance-leveraged accumulation regime by extending its geographic scope and replicating its basic model abroad, especially in infrastructure building, surplus production capacity using, and cleaning domestic stocks. The other long-term strategy was to renew the industries with emerging technologies through innovation-driven development exemplified by the master plan of Made in China 2025, in hoping shifting to a new techno-economic paradigm. With both Made in China 2025 and One Belt One Road Initiative, whether China is able to escape from the middle-income trap in the long run is still a question

4.2 “One-Belt-One-Road” Initiative

China’s response to the global financial crisis of 2008 with massive domestic investment had entrenched the problems of overcapacity and a growing economic and political reliance on unsustainable internal development. From a domestic policy perspective, if the innovation-driven development strategy is to lay new foundation for future growth, the Belt and Road Initiative (BRI) would be a long-term international policy strategy to address China’s growth slowdown. As a Chinese version of globalization plan, the "One Belt, One Road" concept was revealed in 2015, promising massive investment across geographies on global industry and infrastructure with an estimated total amount of \$890 billion or more along “six international economic corridors (Silk Road Economic Belt)” in Eurasian continent and “two routes for the Maritime Silk Road”. Through "One Belt, One Road", China plans to foster a strengthening of relations with relevant countries in five areas: policy, finance, trade, infrastructure, and people-to-people exchanges. Therefore, under the banner of BRI geopolitical strategy, there are three main interwoven economic arms: industrial capacity exportation, infrastructure investment and building, and long-term financial support. The BRI projects in these three areas are neither the sort of aid project by international financial institutions such as the World Bank and the IMF traditionally associated with the Washington Consensus, nor the sort of joint development project expected by Chinese government. By nature, what the BRI projects illustrate is the geographic expansion and effort to sustain the Chinese domestic manufacturing-led and the recent finance-led regime of accumulation abroad. reflects the overall accumulation model of China.

In terms of mode of production, exporting surplus capacity is the international extension of Chinese industrial investment model of mass production and consumption. Massive foreign investment directed towards China has led to some concentration of industrial capacity, knowledge and jobs into the “factory of the world”, and accumulation of industrial-capacity related investment within China. Through BRI, China now has established 82 trade and industrial parks with 130 countries and international organizations. In South East Asia, Middle Asia, and Africa, the BRI industrial parks manufacture and sell goods locally, in replicating the basic model of industrial parks within China. Developing countries now provide China ample space for extensive exploitation of labor and natural resources, and the basic institutional safeguards of the wage relation are weak in these countries, just like China before 2010s. In general, the accumulation regime has not been genuinely driven by capital intensification (through new production technologies or products, or through upgrading of supply chains), but by geographic expansion and restructuring on the basis of existing production models, a large-scale geographic duplication of China’s existing mass production regime (Lüthje, B., 2019 forthcoming). Meanwhile, many Chinese industrial sectors, including “old” industries like steel, metallurgy or fertilizers begun to show an increasing fine-tuning between modernization/closing old production capacities and, spreading technological advantages abroad through the strategic use of BRI. But the generalized forms of capital-intensive accumulation in BRI projects remains restricted (Richet, Xavier, Joël Ruet, Xieshu Wang, 2017).

The rapid expansion of BRI industrial parks has been massively supported and in part subsidized by China's increasing investments into the joint exploration, production and construction of infrastructure such as pipelines, power facilities, rail-roads, urban areas, ports and water utilities. Armed with the big State-owned enterprises in construction, shipping, and energy, China has now the strongest capacity of investing and building infrastructure in the world. From the beginning, China has placed emphasis on the construction of ports in order to move forward the BRI. By 2017, China has invested 1,000 billion Yuan in 93 ports in 65 countries along the BRI areas. Only in Europe, China has already involved in construction and investment of ports in Piraeus, Rotterdam (capital investment of 35%), Antwerp (capital investment of 20%), and Hamburg. The projects were executed by Chinese central-government-run enterprises, often using Chinese equipment, and with financial support from State-backed lending. A report of CSIS has found that for the 69 Chinese policy banks and state-run funds funded projects in 69 Eurasian countries, 89% of contractors were Chinese companies. Indeed, China has established a strong financial system for BRI. The Asian Infrastructure Investment Bank (AIIB), the China-led international financial institution, plays an important role in a large amount of funds. China's state-owned banks, including the policy banks such as China Export-Import Bank and China Development Bank, always take the initiative in financing BRI projects. The already existing ASEAN Foundation, Eurasia Foundation, and CEE Foundation have also financed projects pertaining to BRI, including the New Silk Road Fund.

China's domestic record of economic expansion and the creation of domestic infrastructure and overcapacity are so unparalleled that the economy needs to deliver continuing infrastructure and other forms of domestic investment through BRI (Beeson, M., 2018). The financing and building of BRI infrastructure projects reflect the same mode of regulation as China's domestic regime of investing in large-scale infrastructure projects: State-owned banks gave credits to local governments, who develop lands and infrastructure through the arms of State-owned firms. Local debts are thus accumulated with implicit endorsement of central government who becomes ultimate creditor. In BRI investment, host countries instead of Chinese local governments, often become debtors. The Center for Global Development, a think-tank, published a paper naming eight countries at high risk of debt distress thanks to BRI-related lending. To some extent, China's huge geostrategic lending over BRI projects represents the supremacy of its State finance-led regime of accumulation over the manufacturing-led growth model. What China has accumulated through BRI is the power over assets of infrastructure around countries that rely on China's effective manufacturing and construction capacities.

5 Long-Term Strategy for Building a New Manufacturing Economy in China

Almost the same time when the supply-side reform was nominated as macroeconomic strategy under China's "new normal state", innovation-driven development was re-emphasized as another important strategy in parallel. After all, the macroeconomic measures, neither the demand side nor the supply side, seemed to bring the economy back to a healthy

growth track. So the innovation-driven strategy was more on industrial level. The government believed that innovation could help not only restructuring and transforming the economy, avoiding the “middle income trap”, but also solving other challenges from green growth to an ageing society.

In fact, the Chinese innovation-driven development strategy 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, etc⁷. 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 master-plan “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 understood as a macro driving force for China is still a prospection than a reality.

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

⁷ DETAILED IN RUET 2016 & LANCKRIET & RUET 2019

Finance, and National Development & Reform Commission. 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. 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. But unlike other critical macroeconomic policy instruments that are centrally controlled and have immediate nation-wide effects, the implementation of national innovation policy relied very much on the cooperation of local governments and the many thousands of local enterprises. 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.

By nature, innovation policy is different from fiscal and monetary policies which can normally have anticipated and immediate consequences at macro level. Innovation is the result of a complex interplay of factors and actors in a long process of chained activities in production, diffusion and use of new and economically useful knowledge. However, on the other hand it could be argued that there is a meso-economic renewal, through the industry itself. The movement was launched with new energies, that are not just a commodity replacing another, but a whole combination of skills and companies that further connect and specifically develop each zone, country or region (Lanckriet & Ruet, 2019). “The” solar industry includes a far stretched range of actors focusing on a range of aspects from grid optimisation like in France to completely new feeding mechanisms for new car/mobility industries like in urban China, or feeding services like semi-informal renting of mobile charging or cooling devices like in Africa.

More generally, each “old” industries like steel, metallurgy or fertilizers do show an increasing fine-tuning between modernisation/closing old production capacities and, have a potential for reform along spreading technological advantages along the BRI.

The point here is not the technological advancement, it is the intricacy of the techno-skills combination. In this new world of industry, “competitiveness” may not be addressed through the statics of costs but through the dynamic resilience of these ecosystems, their versatility into incremental innovation through a constant recombination of techno-skills. In short, rather than specialisation, what matters is the complexification/diversification of a national industrial base and its resilience, as argued in Ruet (2016), “Des capitalismes non alignés”.

The Chinese industrial policy for 2025 clearly focuses on sectoral innovations, since MIC2025 is supposed to arise through inter-sectoral coordination, including at the regional

(intra- and inter-Chinese provinces) level. The BRI-“reloaded” (the recalibration of the project after those initial years when the policy was tested very pragmatically and somewhat arbitrarily around countries friendly to China which relied on Beijing’s foreign reserves), has recently started being implemented around a clearer vision: more ambitious profitability criteria but also impacting outcomes on diversifying the industry of those Chinese provinces near the neighbouring countries in the BRI.

BRI investment is to feed the long-term technology deployment around China, from innovation down to the rise of environmentally fit production units; many industrial sectors, including “old” industries like steel, metallurgy or fertilizers do show an increasing fine-tuning between modernisation/closing old production capacities and, spreading technological advantages abroad through the strategic use of BRI.

6. Conclusion

Since the end of 1990s, the directing and controlling power over Chinese 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 oriented type to a finance-led one, as well as from resource/entrants towards technological contents driven. 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. In 2015, the temporary financial crash signaled that China was suffering from the severe decoupling between financial capital and production capital and the end period of its already mature paradigm just begun: there was a real risk of falling into the “middle-income trap”.

As a matter of fact, China’s growth model is under-going profound structural crisis. Chinese government’s economic policy and strategy can be understood as short-term and long-term reactions to this “new normal state”. For the short run, the focus of macroeconomic management has shifted from demand side to supply side, both without significant effectiveness. For the long run, 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. If the innovation-driven development strategy is somehow for upgrading its manufacturing-led regime of accumulation to a new level, the Belt-and-Road Initiative is exporting its current mode of production and the financed infrastructure regime of capital accumulation to other developing countries.

References

- Arvanitis, Rigas & ZHAO Wei (2014), L' « atelier du monde » peut-il évoluer ? Le cheminement des entreprises chinoises de l'émergence à l'innovation, *Marché et organisations*, 2014/2 (N° 21)
- Balcet, Giovanni & Joël Ruet (2012), From Joint Ventures to National Champions or Global Players? Alliances and Technological Catching-up in Chinese and Indian Automotive Industries, *European Review of Industrial Economics*, n°3
- Banett, Seven, Alla Myrvoda, and Malhar Nabat (2012) Sino-Spending, *Finance and Development* 49, no. 3: 28-30.
- Beeson, Mark (2018) Geoeconomics with Chinese characteristics: the BRI and China's evolving grand strategy, *Economic and Political Studies*, Volume 6, 2018 - Issue 3.
- Boyer, Robert. (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, Christopher. and Clara 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.
- Lanckriet, Edouard & Joël Ruet (2019), La longue marche des nouvelles technologies dites « environnementales » de la Chine: capitalisme d'État, avantages comparatifs construits et émergence d'une industrie, *Gérer et comprendre* 2019/2 (N° 136), pp.3-14
- Lüthje, Boy. (2019) 'Regimes of Accumulation and Modes of Regulation in China's Emergent Capitalism' in R. Boyer (ed.) *China Analyzed by Regulation Theory* (Beijing: China Social Science Press).
- 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, Clara. (2002). *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Global Ages*, Cheltenham, Elgar.
- Perez, Clara. and Luc 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.

Richet, Xavier & Joël Ruet (2008), The Chinese and Indian Automobile Industry in Perspective: Technology Appropriation, Catching-up and Development, pp. 447-465, *Transition Studies Review*. Volume 15 n°3, Springer: Wien, Autumn 2008.

Richet, Xavier, Joël Ruet, Xieshu Wang (2017) New Belts and Roads: Redrawing EU-China Relations, in Alessia Amighini (ed.) *China's Belt and Road: a Game Changer?* Milano: Edizioni Epoké – ISPI, pp. 97-119.

Ruet Joël (2016). Des Capitalismes Non Alignés : Les Pays Émergents, ou la Nouvelle Relation Industrielle Du Monde ; Raisons d'Agir, Paris, 224 p.

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

Rumi, Aoyama (2016) “One Belt, One Road”: China's New Global Strategy, *Journal of Contemporary East Asia Studies*, 5:2, 3-22, DOI: 10.1080/24761028.2016.11869094

Wei, Shag-Jin, Zhuan Xie, and Xiaobo Zhang (2017) From “Made in China” to “Innovated in China”: Necessity, Prospect, and Challenges, *Journal of Economic Perspectives*, Vol. 31, Number 1, Winter 2017, pp.49-70.

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

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