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strategies**

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On the (non-)sustainability of China's development strategies¹

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Abstract. This paper summarizes the main characteristics of the two major Chinese growth strategies since 1978, namely the Deng strategy (named after Deng Xiaoping) between 1978 and 2011 and the Xi strategy (named after Xi Jinping) since 2012/13. After a brief description of both strategies, I analyze in depth whether the respective reforms of the two strategies have caused sustainable or unsustainable growth and economic development. Furthermore, I derive some implications concerning the danger of a Chinese middle-income trap and propose some policy recommendations (also against the background of the Korean experience). I finally develop a growth-theoretic systematization of the arguments elaborated previously.

Keywords: China, sustainability, economic development, rebalancing

JEL Classification: F41, O10, O40, O53

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1 Introduction

In this paper I ask whether China's development strategies since 1978 have been and/or will be sustainable. I formulate and examine 11 hypotheses regarding this question:

1. There have been (at least) two development strategies in China since 1978/1990, which I call the "Deng strategy" (starting in 1978) and the "Xi strategy" (starting in 2011).
2. The Deng strategy was characterized by (i) stepwise regional development of the country (starting by developing the eastern while neglecting the western parts of China); (ii) prioritization of economic growth maximization (aiming for quick economic convergence to the Western frontier countries, like the US, while "neglecting" the effects on the social and ecological environment in China's boom regions); (iii) an export-led, industry/manufacturing-supporting growth path; and (iv) political "decentralization."
3. Since the mid-2000s the Deng strategy has been labeled as "unsustainable."
4. The hypothesis of the unsustainability of the Deng strategy was argumentatively well founded, albeit not empirically tested.
5. In contrast to the Deng strategy, the Xi strategy is characterized by the attempt to "rebalance" the whole system, specifically by (i) the attempt to integrate the western regions of China into the development strategy; (ii) the emphasis on improving the social and ecological standards within China; (iii) redirecting the economy towards a consumption- and service-led growth path; and (iv) the attempt to (re)stabilize the society by re-authorizing the political system (refocusing on central control).
6. It is uncertain whether the Xi strategy is or will be sustainable.
7. There is a danger for the Xi strategy of becoming stuck in a so-called "middle-income trap" (MIT). (Here the question of whether China is already in or even beyond the middle-income range (MIR) can be seen as being unsettled.)
8. There are conditions (political and institutional reforms) that need to be implemented so that the Xi strategy is or can become sustainable and thus avoid or overcome an MIT.
9. Development can best be explained as a stepwise process with thresholds to overcome and structural change as a sequential, step-by-step (nonlinear) reform process. This means that development/growth strategies are (or have to be) changed/reformed from time to time to avoid endangering the stability (and hence the sustainability) of a social (economic and political) system.
10. A developing (emerging market) country that does not initiate the necessary structural reforms on time will be caught in a development (middle-income) trap.
11. China can learn from successful countries, such as South Korea, how to avoid an MIT and hence implement a successful development strategy, though the framework conditions for China are different today.

We examine these hypotheses successively while dividing the paper into five sections. Section 2 deals with the so-called Deng strategy, which arguably lasted from 1978 to 2011. It describes this strategy and then discusses whether it was unsustainable, which is a common view. Section 3 presents the new strategy after 2011 (beginning with or even before the start of the presidency of Xi Jinping in 2012/13), which here is called the Xi strategy, and asks whether this strategy will be sustainable. It tries to identify the decisive factors or preconditions for the sustainability of the new strategy and highlights the pitfalls. After Section 4 gives a brief growth-theoretic systematization of the previous arguments, Section 5 asks what China can learn from successful countries, such as South Korea, to avoid an MIT and hence implement a successful development strategy. Section 6 concludes. Appendix A develops the core of a theory of instability tendencies in a socialist market economy. In Appendix B I sketch the basic idea of how development evolves and structural change takes place over time. This deepens the theoretical background for the interpretation of the growth strategy change in China outlined in the main part of the paper.

2 The Deng strategy and the doubts about its sustainability

2.1 The Deng strategy and its content

The Deng strategy has been characterized by **(i)** stepwise regional development of the country, starting with the development of the eastern (while neglecting the development of the western) part of China; **(ii)** prioritization of the goal of maximizing economic growth (aiming for quick economic convergence with the advanced frontier countries, like the US or Japan, while “neglecting” the effects on the social and ecological environment in China’s boom regions); **(iii)** an export-led, industry/manufacturing-supporting growth path; and **(iv)** political “decentralization,” that is, a partial shift of power from the central to the local governments in the regions.

(i) Stepwise development

Such stepwise development has been regarded as being (and probably was) “without alternative/the only way,” since China did not have enough capital to develop such a huge country quickly as a whole.³ Moreover, as a result, China could raise its economic growth rate by profiting from the huge migration flow from the west to the east (see Section 4 for a growth-theoretic explanation).

Table 1 compares China’s resources around 1980 with those in the United States in the same year.

³ See also Wei et al. (2017: 53), who emphasize that “public funding for infrastructure was limited, especially in the early days of the reform era.” Therefore, efforts were concentrated on special economic zones and special development zones in the coastal provinces. Moreover, “policy reforms within these zones were politically easier than doing the same things on a national scale.”

Table 1 Resources in China and in the United States in 1980

	Capital stock (mill. US\$)	Land area (sq. km)	Population (thousands)	Human capital (index)	GDP p.c. (const. 2010 US\$)
China	2,783,241	9,388,250	981,235	1.68	347.9
US	22,033,662	9,158,960	227,225	3.35	28,734.4

Data Source: Capital stock (at constant national prices in mill. 2011 US\$) and human capital: PWT 9; land area, population and per capita GDP: World Bank (2017).

(ii) Prioritization of economic growth

The alternatives to the prioritization of economic growth would probably have been more risky or more conflictual as the population of China strived to improve the economic living standards. It definitely would have reduced the speed of (economic) convergence over the past decades. Moreover, it is necessary to take into account that, according to the German author Berthold Brecht's statement: "Food comes first, then the morals"⁴; that is, economic preferences dominate in the beginning or at an early stage of development, leading to transitory sectoral imbalances (cf. Engel 1857, Kongsamut et al. 2001).⁵

Moreover, by following a higher growth or quick convergence strategy, the Chinese Government could calm down potential social tensions (particularly after the Tiananmen Square events in 1989). Here it was helpful that the Communist Government had enough power to steer the strategy course even against potential resistance. A mighty communist government could even be (and perhaps was) regarded as a kind of powerful and assertive "common-wealth maximizer" – according to the artificial figure that has prominently been used for characterizing policy makers in Keynesian policy models.

All in all, this meant that the priority had to be given to developing the economic system before focusing on other subsystems (the social and the ecological system) in China.⁶ This reflects the so-called "environmental Kuznets curve" – a stylized fact that describes environmental damage increasing in the early stages of development and reducing in later stages (see Dasgupta et al. 2002).

(iii) Focus on exports and manufacturing

This growth strategy, mainly focusing on exports and manufacturing, was consistent with (and obviously was the right choice for) China's aspiration to develop fast, as there was a need in China for technical knowledge and know-how that was too expensive for it to buy on the market; therefore, there was a need to open up and invite foreign companies and simul-

⁴ Translated from the German "Erst kommt das Fressen, dann die Moral." Brecht and Lucchesi (2005).

⁵ At the heart of this statement is the so-called "Engel's Law." This "Law" states that the richer a household becomes, the less it desires to spend on food. Kongsamut et al. (2001) extend Engel's Law by arguing that the (average) household then desires to spend more on services, whereas Brecht argues that it then places more emphasis on morals (social values), which can be understood as a kind of non-economic service.

⁶ As Naughton (2017: 20) notes: "In China, as in other East Asian societies after World War II, there has almost certainly been a profound social and political consensus in favor of growth."

taneously to offer China as part of a world-wide production chain.⁷ Accordingly, China could become the “workbench” of the world. In particular, China could attract FDI to squeeze out know-how and training (on the job) from foreign companies. Actually, the Chinese Government forced foreign companies into “joint ventures.” This approach was very promising and successful for a fast and cheap type of acquisition of know-how insofar as it enabled China quickly to narrow the technology gap with the Western frontier countries. Of course, this was only possible because of the huge market size of China, which was attractive to foreign investors; it would not have been possible or promising for smaller countries (based on a cost–benefit analysis of FDI investors particularly looking for huge markets, whereas smaller countries and markets are less attractive to foreign investors due to the need to give away technological know-how).⁸

(iv) Political decentralization

After 1978 China followed a gradual, experimental reform approach for three decades, known as “crossing the river by groping for stones” (Deng Xiaoping). This approach was associated with political decentralization (the governance literature in political science sometimes speaks of a decrease in states’ capacity for hierarchical steering; this is also in line with an increase in the need for the cooperative state).⁹ This kind of political decentralization (together with accepting social differentiation and elements of market economy self-regulation) apparently had been highly beneficial for triggering the growth dynamics in the past decades.¹⁰ Deng’s policy strategy is a good demonstration of both the potential and the challenges involved in experimenting with new rules. In the late medieval age, China was the world’s leader in technology, but, in the nineteenth century, the country turned inward and missed the new economic dynamism that new technologies helped to foster in the period of the Industrial Revolution. Only under Deng Xiaoping did China open up its economy and begin to experiment with new sets of rules. First special zones were created following the example of Hong Kong under the British Colonial Government, with which China created the opportunity for investors to experiment under market rules, realize economic incentives and unfurl technologies, albeit in a controlled setting. These (originally) four economic zones and fourteen cities, designated as special areas for economic experimentation, paved the way for a nationwide consensus on moving to a more market-orientated economy.

⁷ Theoretically, China also had the alternative option to follow Japan’s example and just learn from the knowledge (blueprint) incorporated into imported high-end products (for the theoretical foundation, see the new growth theory, e.g., Coe and Helpman 1995, Falvey et al. 2002). However, this technologically more ambitious alternative may have been too risky for China, as, in contrast to Japan, China was still at a lower technological level (i.e. it lacked experienced engineers capable of successfully implementing this “blueprint” detection method).

⁸ See in this context Krugman (1989) and Young (1991).

⁹ “Deng built a system of tacit norms by which senior leaders were limited to two terms in office, members of the Politburo Standing Committee divided leadership roles among themselves, and the senior leader made decisions in consultation with other leaders and retired elders” (Nathan 2016).

¹⁰ Of course, it is not possible to prove this, as the counterfactual cannot be tested, that is, history cannot be turned back (there is no time turner as in Harry Potter stories).

2.2 On the (un)sustainability of the Deng strategy

Since the mid-2000s the Deng strategy has been labeled as “unsustainable.” To my knowledge, this characterization was first made by Western scholars and international organizations, such as the IMF and the OECD, and was adopted soon afterwards by Chinese scholars and politicians as well.

Hence, Chinese politicians, such as Premier Minister Wen Jiabao, warned early (in 2007) that the growth of the Chinese economy would be “unstable, unbalanced, uncoordinated and unsustainable.”¹¹

Since the mid-2000s a growing body of literature has referred to increasing imbalances within China and the need for rebalancing (e.g. Blanchard and Giavazzi 2005, Aziz 2006, Aziz and Cui 2007, Prasad 2009, Zhu and Wan 2012). It has been claimed that China’s economic growth in the past decades has primarily relied on (too) high savings, (too) high investment and (too) high exports. A comprehensive list of imbalances (including uneven growth across provinces, skill levels and sectors, weakened safety nets, misallocation of investment and growing macroeconomic imbalances)¹² is provided by Blanchard and Giavazzi (2005).¹³ The authors argue that these imbalances had already emerged at the beginning of the 2000s along with the exceptional (but unsustainable) growth that China had already experienced in the two previous decades. (See Appendix A for a more formal description of the example of ever-increasing macroeconomic imbalances.)

The question remains of whether unsustainability was then seen as being endogenously driven or dependent on exogenous factors.¹⁴ The state of “sustainability” can be described as the result of the interaction of several subsystems of a society, namely the economic, political, socio-cultural and ecological subsystems, as analyzed in more detail in Appendix B of this paper.

Until now the IMF has characterized China as having “reached an inflection point, where continuing with the old-growth model will likely either drag the economy into the middle-income trap or trigger a financial crisis” (see Zhang 2016: 3).

Using the above-chosen structural characteristics of the Deng strategy permits a better structuring of the discussion.

¹¹ In addition, Premier Minister Li Keqiang recently (2016) stated that “(t)he new normal means ... a farewell to the unbalanced, uncoordinated and unsustainable growth model,” though the IMF argues in its recent country report (2016) that this “transition is proving difficult and bumpy” (IMF 2016: 4).

¹² As already mentioned, this is the result of a strategy chosen deliberately by Deng Xiaoping in the mid-1980s to develop a large, poor country.

¹³ “(...) there are increasing signs that the [Chinese] economy has proceeded too far into manufacturing for export markets, to the point that the Chinese capital stock is misallocated: too much in manufacturing, too little in the domestic service industries – in particular the provision of health services” (Blanchard and Giavazzi 2005: 2).

¹⁴ Here I understand “sustainability” as follows: a development policy is sustainable if the adopted growth path (or policy strategy or development strategy) can be maintained for a long time without the overall social system collapsing.

(i) Stepwise development

The stepwise regional development has led to an increasing discrepancy of wealth and rising income inequality between eastern and western China. In 2015 the average per capita income of the western provinces was only 55% of that of the eastern provinces (NBS, own calculations). It is hard to believe that this rising discrepancy and inequality can be maintained forever (or for a much longer period of time) without risking the emergence of a political legitimization crisis.

(ii) Prioritization of economic growth

As emphasized above, the economic preferences dominate in the beginning and at early stages of development (according to Brecht's statement: "Food comes first, then the morals"). In China this prioritization of economic growth in the 1980s, 1990s and still in the 2000s has been accompanied by a focus on carbon technology. This has steadily increased pollution within China, particularly in the industrial boom era. This pollution cannot be stopped easily, as the incentive mechanisms in China relevant to individuals, particularly firm bosses and local politicians, reward individual and regional growth-maximizing behavior and threaten punishments for reducing environmental pollution if it is accompanied by a decrease in economic growth (failing to reach economic goals) in their companies or regions (see below in more detail).¹⁵ This also explains the current difficulties that China's Central Government faces in achieving its goal to reduce pollution by cutting overcapacities. Recent reports by Xinhua press about the northern regions in China, where enterprises and local politicians have counteracted the official line of reducing pollution through cutting overcapacities, appear to confirm such behavior in these regions.^{16, 17}

(iii) Focus on exports and manufacturing

This economic growth-maximizing strategy during the 1990s and 2000s led to an excessively large share of the industrial sector and to overcapacities in the manufacturing sector. It again triggered a reduction of the market return from industrial investments and thus a decline in the sectoral and overall productivity. This is in line with the empirical literature, which finds a declining trend in TFP growth since the 1990s (see, e.g., Zheng et al. 2009, Wagner 2016).

¹⁵ "Such an incentive system can only make sense when a single objective – such as economic development – is seen as an overwhelming priority. This has been true of the Chinese leadership in the last few decades, and may reflect a broader social consensus" (Naughton 2017: 10). Correspondingly, Knight (2014) argues that China has been a "developmental state."

¹⁶ See press article: http://news.xinhuanet.com/english/2017-02/20/c_136068637.htm.

¹⁷ These mainly economic incentive mechanisms for bureaucrats had already been initiated in the 1980s with formal "target responsibility systems" establishing targets (success indicators) for bureaucrats on all levels. These targets were mostly economic (the most important was GDP growth and an increase in fiscal revenues; see Whiting 2001 and Chan and Gao 2008). Today, however, "declines in local air pollution and reductions in local industry energy intensity are also statistically significant correlates of promotion chances, especially in relatively richer cities on the east coast" (Zheng et al. 2014).

Moreover, it led to high sensitivity of the Chinese economy (and its utilization rate) to a decline in demand exports, which became painfully apparent after the global financial crisis.

(iv) Political decentralization

The opening up of the economy in China entailed opening up not only to Western products but also to Western ideas and tastes. Particularly the latter were feared by Chinese politicians to lead to political (and cultural) instability;¹⁸ therefore, they tried to stop this import during the Xi era, when there was a reversal towards more (central) control, as I shall explain in Section 3 below.

The theoretical background of this issue is that there is a long-run trade-off or even an imbalance between developing and stabilizing an emerging market country. On the one hand, political stability needs economic growth and convergence. On the other hand, sustainable growth and development (convergence) need stability, whereas short-term growth and development (convergence) can be attained even with increasing imbalances; actually, they can even be hastened for a while by neglecting imbalances (see the above-discussed arguments). Hence, it is an art for the politicians to balance the two policy goals in a uniform concept. If stability is neglected or endangered for too long, there will be negative spillbacks to the development capacity (growth dynamics) of the economic system as a whole. This is explained in more detail in the argumentation outlined in the Appendix.

2.3 Was it really unsustainable?

Nevertheless, although the hypothesis about the unsustainability of the Deng strategy was argumentatively well founded, it was not empirically tested. Thus, it remains uncertain whether the Deng strategy, if it had continued (i.e. the counterfactual), would have really failed or not (it was stopped before the unsustainability hypothesis was proved and before the country fell into an MIT). As such, it can be argued that the Chinese Government followed a risk-averse (robust-control-type) risk management strategy, not a benign neglect attitude, and that the Xi Government “bought” the interpretation of ever-increasing imbalances from Western scholars and therefore changed the Chinese development strategy from 2012 onwards.¹⁹

Furthermore, the Deng strategy was consciously built on an unbalanced development strategy (see Hirshman 1958) to speed up economic growth and catching up. This was accompanied by social and economic imbalances over time, which ultimately have to be corrected (“rebalanced”) in a painful way (to avoid, but also with the danger of producing, a political

¹⁸ Such ideas and preferences can be regarded as already being incorporated into the traded products and information channels (according to a similar interpretation in growth theory of a major triggering factor of economic growth, whereby knowledge is incorporated into the traded products and hence knowledge spillovers occur, leading to faster convergence; see above).

¹⁹ However, it has to be taken into account that this change was also, to a certain extent, driven by the after effect of the global financial crisis to reduce the sensitivity of the Chinese economy to exports.

legitimation crisis; this is worked out by Wagner 2016 in more detail²⁰). The existence of these imbalances produced pressure to change the Deng strategy.

In defense of the strategy change in China, one can point to the fact that structural change patterns in other emerging countries have shown that after a while the negative side effects of continuing industrialization become larger and hence deindustrialization is efficient or even required (this is worked out by Wagner 2013 in more detail).

By following the old growth strategy further, not only the economic system but also the political system would have become unsustainable. This was the motivation of the already-mentioned reversal of the Xi strategy with a return to a greater focus on central control (and thus on stability instead of further maximizing economic growth; see below).

All in all, it can be argued that the unsustainability critique of the Deng strategy was theoretically well founded. Nonetheless, it is not proven or provable that China really would have run into major problems (for example, facing an MIT by continuing to follow the Deng strategy), as it was stopped early. Neither can it be proven that the problems created by a continuation of the Deng strategy would have been greater than the problems triggered by a continuation of the Xi strategy.

3 The Xi strategy

The period of the Deng strategy is sometimes called the “first transition” (1978–2011), whereas the new Xi strategy period is called the “second transition” (2012/13ff.). In 1978–1991 a reform of the planned economy was initiated; in 1992–2000 the term “socialist market economy” was coined; and afterwards the “Go West” strategy was developed. Typical slogans for the concepts of reforms associated with the first strategy period were Opening Up for the period 1978–2000 and Going Global for the period 2001/02–2011.

In contrast, a major slogan for the second (Xi) strategy period (2012/13ff.) is “One Belt, One Road.” Other new slogans associated with the second strategy are: “Made in China 2025,” “Supply Side Economics” and “Chinese Dreams.”²¹

While the first (Deng) strategy followed an investment-led growth path, the second (Xi) strategy is planned to follow an innovation-led growth path. A major plan to implement this innovation-led growth path is the so-called “Made in China 2025” initiative. This initiative aims to restructure the whole of Chinese manufacturing by 2025. Thereby, China intends to

²⁰ In a nutshell, the structural rebalancing process is associated with significantly declining growth rates. If the growth rate drops below a so-called “political legitimation line,” this may cause civil/political unrest. As the Chinese population is used to very high GDP growth rates and thus may have even higher expectations of future growth performance than other countries, Chinese politicians might prefer to delay the rebalancing reforms.

²¹ For such a characterization of the development stages in China, see for example Fischer (2016).

be in the mid-range by 2035 and a world leader in manufacturing by 2049, the hundredth anniversary of the founding of the People's Republic.

3.1 Characterization of the Xi strategy

What I call the Xi strategy is the strategy of “rebalancing” that started with the rise to power of Xi Jinping in 2012, first announced in the 12th Five-Year Plan of the Chinese Government in 2011.

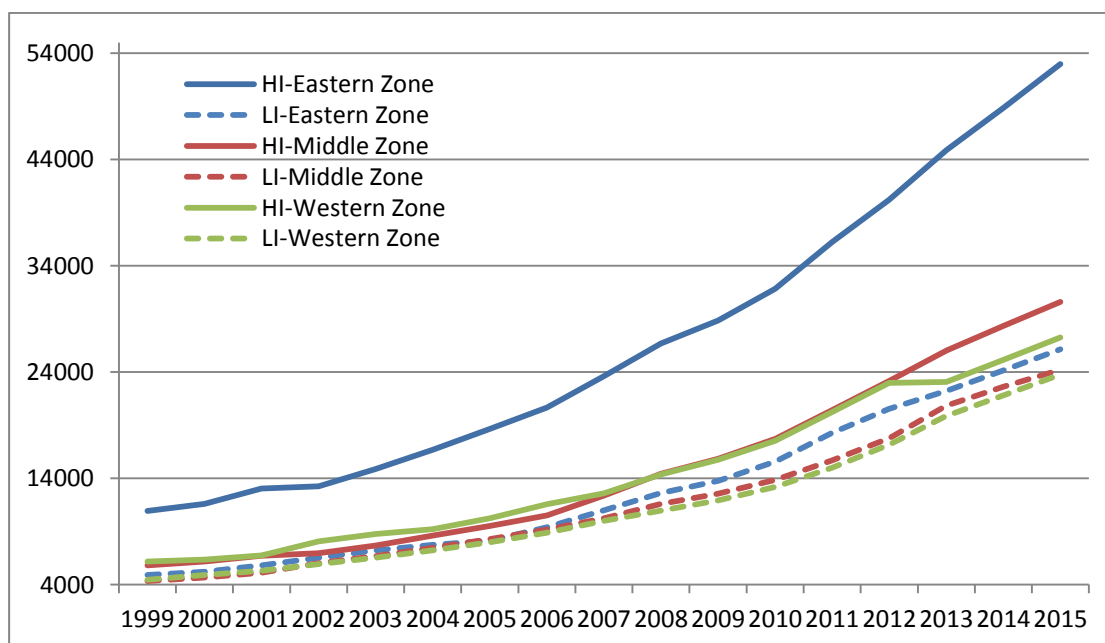
This strategy of rebalancing focuses on the whole system; that is, it is characterized by **(i)** the attempt to include/integrate the western regions of China into China's development strategy; **(ii)** the emphasis on improving the social and ecological standards within China; **(iii)** rebalancing the economy towards a consumption- and service-led growth path; and **(iv)** the attempt to (re)stabilize the society by re-authorizing the political system (refocusing on central control) and by trying to reject Western values.

(i) Integration of China's western regions

The attempt to include the western regions in the development strategy aims to reduce the welfare differences between the eastern and the western regions in China.

Figure 1 depicts the annual salary of employed persons in the three different Chinese regions, namely the western, middle and eastern regions. Since the beginning of the 2000s, there has been an increasing income gap between the eastern region and the middle and western regions. In addition, the gap between the provinces with the highest and the lowest average real wage has increased, especially for the eastern region (see also Wagner 2015).

Figure 1 Income inequality between (and within) the eastern, middle and western regions



Data Source: NBS (per capita disposable income in urban households, current prices). Note: “HI” (“LI”) stands for “high income” (“low income”).

For the Deng strategy period, I have already highlighted the positive role of the establishment of special economic zones and single cities chosen as special areas for economic experimentation. These special zones and cities/areas for economic experimentation should now be extended step by step towards other western areas in China to reduce the economic and social discrepancies between the eastern and the western parts of China.

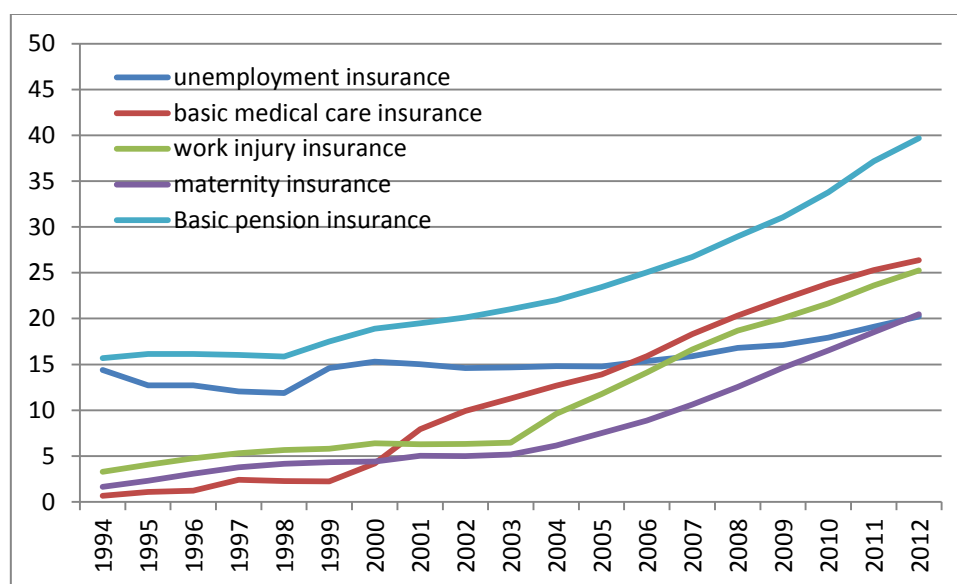
(ii) Improving social and ecological standards

The emphasis on improving the social and economic standards in China intends to fill the “social gaps,” which have increased in China during the past decades.

a) Insurance coverage

Although China has improved significantly since the beginnings of the 2000s with respect to the insurance coverage (as depicted by Figure 2), there is still room for improvement, particularly if compared with some developed countries, such as Germany.²²

Figure 2 Social insurance coverage (percentage of employed population)



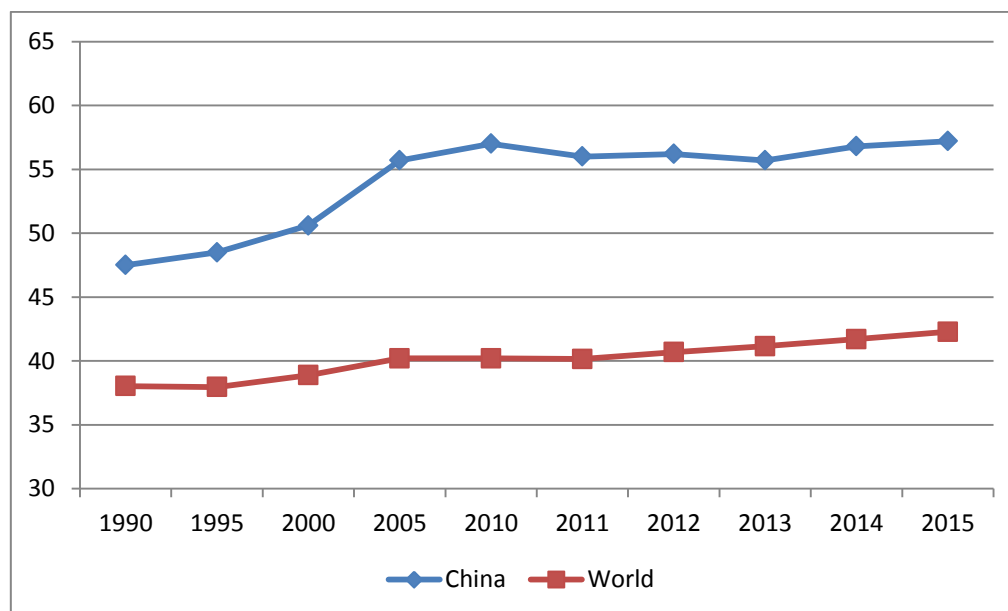
Data Source: NBS.

²² In the same vein, the *Quarterly Forecast and Analysis* report of the Center for Macroeconomic Research, Xiamen University (2015), states that the “total amount of social security, medical, and educational expenditure in public fiscal expenditure gradually rose from 29.5% in 2010 to 31.7% in 2014.” However, this is still small compared with the performance of the Western economies: for example, in “2011, EU-27’s spending on health, education, and social protection together accounted for 47.8% of the central (federal) government spending” and in “2013, the US social security, Medicare, and Medicaid spending accounted for 48% of federal fiscal expenditure” (Center for Macroeconomic Research of Xiamen University 2015: 57).

b) Environmental pollution

Fighting the huge amount of environmental pollution in industrial areas as well as in big cities is another challenge to be mastered in China over the coming years and decades. See Figure 3.

Figure 3 Environmental pollution in China (PM2.5, mean annual exposure, mcg/m²)



Data Source: World Bank (2017).

All in all, as Naughton (2017: 18) emphasizes, recently “China has taken real and meaningful steps toward re-establishing at least a rudimentary welfare system that covers its entire population.” “However, average payments are very low” (Naughton 2017: 17). Nonetheless, the “Xi Jinping administration has since 2012 reduced the focus put on economic growth in official success indicators, squeezing in new indicators such as managing local government debt, reducing poverty, and improving the environment (*New Capital Post* 2014; Wei 2016)” (Naughton 2017: 14). Therefore, “the bureaucratic incentive system becomes less single-minded” (Naughton 2017: 14). In other words, “(t)he objective of China’s state intervention has clearly shifted from growth at any price to a more complex set of goals that includes redistribution and social economic security” (Naughton 2017: 21).

(iii) Rebalancing

In the 13th Five-Year Plan, the Chinese Government underlined the importance of reducing the imbalances built up during the previous industrialization period (see, e.g., Wagner 2016). In the following I will briefly evaluate China’s attempt to achieve this goal since then.

Table 2 depicts some of the important imbalance indicators already mentioned (cf. Section 2.2), namely the investment and savings rates, household consumption expenditures and CPI (corruption) index (note that a higher CPI index indicates a lower level of corruption). In particular, it is claimed that China’s investment and savings rates are too high, whereas the do-

mestic consumption is too low. In addition, China has a relatively high level of corruption (compared with the developed countries).

Table 2 Imbalance indicators in China

	Gross fixed capital formation (percentage of GDP)	Gross savings (percentage of GDP)	Household consumption final expenditure (percentage of GDP)	CPI index
2010	44.99	51.5	35.92	0.55
2011	44.89	49.47	36.75	0.57
2012	45.27	49.75	36.63	0.61
2013	45.51	48.93	36.63	0.63
2014	45.04	49.66	37.16	0.56
2015	44.05	48.67	37	0.58
2016	-	-	-	0.62

Data Source: World Bank (2017) and Transparency International.

As shown in Table 2, China reduced its savings rate by 2.83 percentage points between 2010 and 2015, whereas the household consumption expenditures slightly increased by more than 1 percentage point. The improvements regarding the too-high savings rate are only modest, and it even increased between 2012 and 2013. However, since then there has been a decreasing tendency. In addition, the CPI index improved during the 2010–2016 period (besides the deterioration in 2014).

Regarding overcapacities, another major imbalance of the Chinese economy,²³ the picture looks less optimistic. In particular, the overcapacities in all the major industry sectors depicted in Table 3 increased sharply between 2008 and 2014. Recent newspaper articles claim that in 2015/2016 as well China was unable to improve its overcapacity problem; however, at least there seem to have been no further increases.²⁴

Table 3 Scale of overcapacity (in million tons)

	2008	2014	Increase (in %)
Steel	132	327	247.73
Electrolytic aluminum	4.9	9.2	187.76
Cement	450	850	188.89
Refining	77	230	298.70
Flat glass	76	215	282.89
Paper and paperboard	9	21	233.33

Data Source: European Union Chamber of Commerce in China (2016).

²³ For an extensive overview of the various overcapacities in China, see Wagner (2015, 2016).

²⁴ See for example <https://global.handelsblatt.com/companies-markets/studies-chinese-steel-overcapacity-hardly-changed-in-2016-703021>.

(iv) Refocus on central control

Over the last three decades, the Chinese Communist Party has struggled against the threat of “bourgeois liberalization” and uncontrolled evolution. It is said (Economist 2016) that, over the past couple of years, President Xi Jinping has been involved in a war against “historical nihilism.”²⁵ In party jargon historical nihilism means denying the “inevitability” of China’s march towards socialism.²⁶ Hence, an attempt to regain control in today’s China can be seen here.

Thereby, the Chinese Government intends to avoid the destabilization of the political system, to be understood as a loss of power by the Chinese Communist Party. The change or rebalancing process within the Xi strategy is not only economically but also politically oriented. One year after Xi Jinping’s rise to power, the Chinese Communist Party implemented the “Decision on Some Major Issues Concerning Comprehensively Deepening the Reform” on November 12, 2013. This document includes a wide-reaching reform program with the intent to enhance the quality and efficiency of governance at all levels of the party.²⁷ More importantly, it marks a massive step toward recentralized governing and rehierarchy, reasserting top-down political steering and installing new instruments for political and social control in areas like anti-corruption campaign work, social management, ideological mobilization and internet control.²⁸ Using “big data” as the main vehicle, a nationwide system of comprehensive data evaluation will be developed to monitor the misconduct of individuals, particularly of entrepreneurs (and of local politicians), by computers and then punish them by the fastest means. This apparently stands in contrast to the prior Deng strategy of a decentralized, experimental approach to reforms.

²⁵ Online, available at: <http://www.economist.com/news/china/21709321-battle-raging-realm-historiography-china-struggling-keep-control-over-its>.

²⁶ The term came into vogue after the crushing of the Tiananmen Square protests in 1989. Party leader Jiang Zemin then declared that historical nihilism threatened to “seriously erode” the party. Jiang’s main concern then was a television broadcast called “River Energy,” which pictured China as a country burdened by a long history of backwardness and inward-looking conservatism. Today, Xi Jinping regards similar critical statements, for example descriptions of the horrors of the Cultural Revolution, as a challenge to the legitimacy of the party rule. (To counter this challenge, his predecessor, President Hu Jintao, had already reintroduced Confucian elements (“harmony”) into the Chinese policy culture in 2003.)

²⁷ To implement this new approach of top-down steering, a new organizational mechanism in the form of a hierarchy of “Leadership Small Groups for Comprehensively Deepening Reform” has been adopted, with direct and comprehensive powers of top-down enforcement.

²⁸ This is in line with the naming of Xi Jinping by the Central Committee of the Chinese Communist Party in October 2016 as the “core of the party’s leadership.” This meant the concentration of power in the hands of the party chairman, which has not been the case since Mao Zedong. Under Xi Jinping’s predecessor Hu Jintao, the principle of a collective party leadership was still preferred.

3.2 Will the Xi strategy be sustainable and under which conditions?

3.2.1 Doubts about the sustainability

It is uncertain whether the Xi strategy is or will be sustainable. The probability of falling into an MIT may be even higher under the Xi strategy than under the Deng strategy. To explain this, I again follow the above-chosen structuring characteristics of the Xi strategy.

(i) Integration of China's western regions

Integrating the western parts of China into its current modernization process will be all but easy. It may be possible to develop China's west toward the level that the east had reached one decade ago (being part of the "manufacturing workbench for the world," producing (low-skill) intermediate goods for advanced countries). However, integrating China's western regions into the current modernization process targeted in the "Made in China 2025" program will not be possible, at least not in the short to medium term. The goal of upgrading the manufacturing sector and developing an innovation-based industry is beyond the reach of the western regions of China due to the weaker level of education and the human capital shortage. Moreover, the readiness of educated, well-trained workers from the east (including former migrants from the west) to move (back) to the west to help in developing China's western regions is reported to be very limited.

(ii) Improving social and ecological standards

Improving social standards requires the building up of a social welfare system. This not only takes quite a while but will also be very costly. It will aggravate the structural shift of labor from more productive manufacturing to less productive service sector jobs, thus reducing the overall productivity and hence the economic growth in China (see Wagner 2013).

Improving ecological standards, however necessary this may be, is obviously difficult to implement. As the official press agency of China, Xinhua, recently reported, there are significant setbacks with regard to the attempt to reduce pollution in the old industrial regions, as many companies and local authorities there ignore the orders from the central government to cut back production processes with high levels of environmental pollution. The reasons are obvious and based on wrong incentives offered to local companies and authorities (see below in more detail).

(iii) Rebalancing

A shift toward services (tertiarization) will be accompanied by a significant decrease in productivity and hence in economic growth (the more that the government aims to increase the low-productivity parts of the service sector, like social or welfare services; see Wagner 2013, 2015; Murach and Wagner 2017). The question is whether the central and local governments will accept this or, as during the past few years, will further counteract the decrease in economic growth by implementing or triggering macroeconomic stimulus pro-

grams financed by credit expansion, which, however, may unintentionally further decrease the productivity growth (see Wagner 2016).

(iv) Refocus on central control

Recentralization itself is costly, as it may cause the economic development to deteriorate by threatening to paralyze the drivers of innovation and by increasing bureaucracy and regulations, thus decreasing the economic efficiency and increasing the macroeconomic costs of political governance.²⁹ The change toward recentralization may be detrimental, particularly if Deng's way of creating opportunities for investors in China to experiment under market rules, realize economic incentives and unfurl technologies is slowed down.

All in all, the costs associated with overall rebalancing will be high, and these costs will hit influential interest groups in the industry sector particularly hard, thus causing much resistance and pressure on the Government and hence slowing the reform process.

Therefore, the Xi strategy will only be successful if policies and institutions (including incentive mechanisms) are sufficiently reformed so that the reform process has a chance to be implemented quickly and the innovation-led growth strategy can be realized successfully. What is argued for here is: a) upgrading of the financial system, b) investor protection, c) easing the market entry for foreign competitors, d) a decline in corruption, e) better institutions and f) political competition.³⁰ Particularly, better institutions are mostly relevant due to the devastating results that China experienced in the recent World Government Indicator ratings (see Wagner 2015).

Another major problem is that, due to short-term political interests, politicians tend to favor a return to the investment-led strategy (to avoid the high costs of structural reforms). For example, as many examples from all over the world show,³¹ eliminating overcapacities is difficult, as influential interest groups in the respective enterprises or branches are severely affected by such reforms and hence will lobby to block them or water them down.

Here I have to take into account (as already briefly mentioned) China's establishment of wrong incentive mechanisms for local politicians and authorities. Local authorities in China have an incentive to keep even ailing companies alive, as their business tax revenues are calculated not from the profits but from the production value. However, the Central Government in Beijing also has an incentive to delay the elimination of excess capacities to prevent a corrective recession and the resulting social unrest.³²

A driving force of disequilibria (and of preventing reforms) in the form of an increase in investments, for example in construction stimulus programs, is also the fiscal dependency of

²⁹ See, however, Mohr and Wagner (2013) for an analysis of the beneficial role of regulatory governance.

³⁰ These suggestions are made in other publications as well (see, e.g., Hasan et al. 2009; Söderlund and Tingvall 2016, Zhang et al. 2016, Zilibotti 2016).

³¹ See for example the experiences of European Union countries or regions with "old-type" industries; in Germany these are, in particular, North-Rhine Westfalia and some East German federal states.

³² Therefore, as a substitute, it often favors the initiation of new macroeconomic stimulus programs.

the local authorities on land sales. The land formally belongs to the Government in China; however, it is expensively leased to building contractors. The income from this source constitutes the most important part of the total income of a local government. About 40% of the total income generated by cities comes from land sales (see Shepard and Wade 2015: 32).

Furthermore, local politicians often try to protect incumbents, thus regarding foreign competition as a threat (forcing foreign competitors into joint ventures and into the use of breaching/corruption, at least in early stages of reforms) (see, e.g., Davies 2013). This in turn delays rebalancing reforms.

Therefore, and to soften the costs of rebalancing reforms, the Xi strategy (with a stronger focus on stability) has so far often chosen a Keynesian-type expansionary monetary and fiscal policy to counteract the negative growth effects of “rebalancing,” that is, to avoid economic adjustment recessions and thus social unrest. However, consequently, it has actually built up ever-widening imbalances (see Wagner 2016).³³

3.2.2 The danger of becoming stuck in an MIT

There is a real danger for the Xi strategy of becoming stuck in an MIT. The reason is that the imbalances are still very high or even higher than at the beginning of the rebalancing program. Examples of this are the extent of overcapacities and ghost cities and the increase in debt and in house prices (see, e.g., IMF 2016).

Corporate debt increased from 130.3% in the last quarter of 2012 to 167.6% in the second quarter of 2016. House prices (yearly changes) have experienced strong fluctuations since the last quarter of 2013, exceeding the critical +/-6% threshold suggested by Bondt et al. (2011).

The following question arises: what does “unsustainable” mean? A growth strategy that is unsustainable leads to an MIT or (for an upper-middle- or lower-high-income country) to a “high-income trap” (HIT). Conversely, if a country has fallen into an MIT or HIT, one can conclude that its growth strategy was unsustainable. (However, I have to take into account the necessity of filtering out the effects of special factors that can have finished otherwise sustainable development.)

The question here is which strategy is associated with a higher probability of slipping into an MIT, the Deng or the Xi strategy?

The reforms in the Xi Jinping era are lagging behind the original plans and goals, particularly the plans to reduce loss-making state-owned enterprises. On the contrary, currently there

³³ This does not, however, imply that the Chinese Government has so far not tried hard to implement the intended rebalancing process and to eliminate imbalances. Nonetheless, the institutional hurdles have been (too) high (and underestimated) and the incentive mechanisms often ineffective or wrong to implement the reform process successfully in this giant country with significant regional diversity.

are many complaints (by European companies active in China, for example) that state-owned enterprises are systematically being strengthened in many branches and that the state is claiming an ever-greater role for itself (see, e.g., European Chamber 2016). The IMF also complains in its recent country report that China has hardly made any progress with its reforms, particularly concerning the ineffective state-owned enterprises.³⁴

In general, it can be stated (as briefly mentioned above) that there is a trade-off between a) development and b) stability (the two main political targets), which a government has to take into account (in China and elsewhere).³⁵

a) Development (to be successful over time) requires, on the one hand, from time to time, quick implementation of structural reforms or change (which is a painful process and requires patience, as many people have to suffer J-curve transition costs during structural change), and in later stages “subsidiarity,” that is, a certain degree of privatization, liberalization, deregulation and incentive mechanisms. Both, however, may overburden many developing and emerging market economies, particularly when conflictual, impatient attitudes or interest groups dominate and/or there are free or open capital markets (like in the Asian crisis 1997/8; see, e.g., Berger and Wagner 2000) facilitating or fueling an increase in macroeconomic instability and fluctuations. On the other hand, sustainable development is not imaginable without stability. Therefore, governments also have to take care to stabilize an economy and society. Too strong a focus on stabilization, however, can slow or even stop the development and convergence process, as I will argue in b).

b) Stability is a requirement for ensuring sustainable development and avoiding legitimization crises (Wagner 2016). However, in the case of China, placing more emphasis on stability threatens to favor the conservation of the investment-led strategy (by delaying structural reforms and hindering the change to an innovation-led strategy).

This has recently been experienced widely in China despite the official announcement of the need for rebalancing, as already mentioned. The implementation of rebalancing is associated with high transitory costs (common to all big structural reforms), so powerful interest groups/associations (representing the interests of the “old elites” or old industries) try to avoid transition costs that are

³⁴ Investments by private investors halved in the first half-year of 2016, whereas investments by state-owned enterprises doubled within the same period of time. In addition, there have been warnings of a banking or financial crisis in China, for example by the Bank of International Settlements in a recent Quarterly Paper (BIS 2016) as well as by the IMF in its recent country report (IMF 2016).

³⁵ As argued above, there has been a shift towards the stability goal under Xi Jinping (based on recentralization to gain control over the system).

too high by fighting rebalancing reforms.³⁶ Therefore, the reforms are at best delayed if not prevented.

On the political side, stability requires control (and this conserves or fosters non-democratic, authoritarian systems). Too much control, however, may hinder further strong growth dynamics and fast development as it hinders experimentation, new creative thinking and acting, and hence technological advancement.

It may suffice to hinder economic development if governments only impede single subsystems from developing in the same way as others are allowed to develop (for example, if experimentation is allowed in the economic system but not in the political and socio-cultural systems). This alone can imply unbalanced development, leading to imbalances and bottlenecks.³⁷ The history of China shows the effect that too much control and isolation can have; just think of China's major set-back from having been the world's leader in technology to becoming one of the poorest, least-developed countries in the world during and after the nineteenth century, when China missed the new economic dynamism of the Industrial Revolution and of globalization. That is not to say that a certain degree of stability and control is not a necessity: it is, particularly in such a giant country as China. Hence, the political reversal in the Xi strategy was probably a good choice locally. However, the danger of overdoing it and destroying the economic dynamism built up during the Deng strategy era is not negligible.

3.2.3 Under which conditions can China avoid an MIT?

Further questions concern whether China is already in (or even beyond) the middle-income range (MIR) and whether it is able to avoid becoming stuck in (or falling back into) an MIT. These questions are still unresolved (see Glawe and Wagner 2016b).³⁸ Depending on which database and MIT definition are used, various cases (China is in an MIT, China has avoided an

³⁶ Or, respectively, against the specific reform options that put high costs on them; instead they may favor reform alternatives that put relatively higher transition costs on others (Alesina and Drazen 1991).

³⁷ If the political–socio-cultural system is not allowed to develop as fast as the economic system, a demand for political and cultural changes or experiments and hence social protests and unrest may not arise as extensively and rapidly as otherwise; however, such unbalanced development will lead to ecological, regional and other inequalities or imbalances, as the example of modern China shows. On the other hand, if the socio-cultural system is also allowed to develop or change as fast as the economic system, then the danger of political destabilization (a call for democracy, co-determination, transparency and decentralization) may occur. This, however, can lead to global instability in a country as immense as China. The Xi strategy can be seen as an answer to this threat.

³⁸ The welfare convergence attained by China is even lower if I measure welfare not only by GDP per capita but also by other measures, such as consumption, leisure, mortality and inequality, as Jones and Klenow (2016) show.

MIT, China will experience an MIT and China will not be caught in an MIT) are supported by the evidence (Glawe and Wagner 2016b).³⁹

There are conditions (political and institutional reforms) that need to be implemented so that the Xi strategy can simultaneously generate stability and convergence/development as well and thus become sustainable. However, I have already briefly listed some of these conditions above (see also Wagner 2015, 2016), so I will not repeat them.

4 Growth-theoretic systematization of the arguments

In this short section I want to systematize the above arguments from a growth-theoretic viewpoint to highlight the major drivers behind the recent growth slowdown in China and the possible key levers for keeping the growth reduction moderate.

In a developing country (like China in the 1980s and 1990s), the supply-side-driven potential output is mainly dependent on input accumulation and relative prices. I here use a Cobb-Douglas production function:

(I) $Y = K^a N^{1-a}$, where Y denotes output, K capital, and N labor; indices “ a ” and “ $(1 - a)$ ” stand for production elasticity of K and N , respectively.

Potential growth is then given by

$$(II) \hat{Y} = a\hat{K} + (1 - a)\hat{N}.$$

In China, the growth dynamics during the 1980s and 1990s (partly also the 2000s) was on the one hand fostered by the strategy of neglecting the development of the western Chinese regions so that a huge migration flow from the west to the east of China emerged that helped to increase the growth dynamics in the east (by increasing \hat{N} in the east of China).⁴⁰

On the other hand, capital accumulation (\hat{K}) was fostered by the Government’s decision to favor the industry sector, by increasing the infrastructure and integrating China’s industry sector as a workbench into the world production (globalization), and pushing domestic banks to extend credit expansion to domestic investors from the industry sector.

Moreover, China’s Government has kept wages and capital prices artificially low by fixing the wage income at a low level and by subsidizing capital (through reducing the price of capital and of credit), which is relatively easy in a planned system, but not in a market economy without state intervention in price setting. By keeping the wage income low, China managed to realize high forced saving as a precondition for financing high capital accumulation. In

³⁹ In particular, many different definitions of the MIR exist; furthermore, the GDP (per capita) data differ significantly across databases (as well as across different versions of databases); see Glawe and Wagner (2016a, b). This can have significant impacts on the MIT results.

⁴⁰ In addition, the migrant work-force could be employed more productively in the east than it was possible in the west of China.

addition, by subsidizing capital, it reduced the capital costs of investors and thus (together with forced low wages) costs in general so that products produced in China became and stayed attractive to foreign direct investors and importers of intermediate and end products. Thereby, export incomes could be kept high and thus foreign assets could also be accumulated steadily and used to keep the exchange rate stable (i.e. to avoid a currency appreciation which would have damaged the export incomes).

In the following I show that – by subsidizing capital and keeping real wage increases low (below labor productivity growth) – the Chinese Government could foster capital accumulation.

For example, if I assume that by reducing r (subsidizing capital costs) the government could raise K (foster capital accumulation),⁴¹ and assume that capital investors (including state enterprises) maximize real profit or surplus:

(III) $\max \tilde{Y} - r\tilde{K} - w\tilde{N}$, where r is real interest rate and w is real wage, and \tilde{Y} , \tilde{K} , \tilde{N} stand for output, capital and labor input of the individual investor,

then I get (as the solution of this maximization problem):

$$\tilde{K}^* = \left(\frac{a\tilde{N}^{1-a}}{r} \right)^{\frac{1}{1-a}}$$

Furthermore, we know that (in a closed economy) aggregate income is capital income plus labor income:

(IV) $Y = \Pi + Q$, with $\Pi = rk$ and $Q = wN$

Hence $1 = \Pi/Y + Q/Y = \pi + \theta$.

By keeping wages or real wage income low (so that $\hat{Q} < \hat{Y}$ and hence $\hat{\theta} < 0$), the profit or surplus share (e.g. of the state enterprises) π could be raised so that therefrom more capital accumulation could be financed. In this way, the Chinese government could foster and raise capital accumulation.

However, after two (and a half) decades, the flow of migrants began to slow down, and the attempts to reduce this tendency by implementing institutional reforms like the softening of the hukou regulations occurred late and hesitantly. Thus, one of the growth determinants, namely \hat{N} , started to fall (particularly for the booming east of China). Additionally, and, more importantly, the negative externalities of the industrialization process (of extensive capital accumulation and hence the relatively high investment share) began to become apparent (environmental pollution, asset-price-booms and busts, etc.). Hence, the other growth determinant, namely capital accumulation \hat{K} , also had to be slowed down, and herewith \hat{Y} also to fall. Moreover, wages in the manufacturing sector have risen substantially over the last decade (due to shortage particularly of well-educated workers)

⁴¹ A basic assumption in neoclassical production (and growth) theory is that the factor inputs are substituted when relative prices change; that is, $K/N = f(r/w)$ with $df/d(.) < 0$.

This process of growth slowdown can only be stopped or reduced by implementing technical progress which is implied in the following extended output production function:

$$(V) \hat{Y} = b\hat{A} + a\hat{K} + (1 - a - b)\hat{N}.$$

By increasing A (\hat{A}), Y (\hat{Y}) can be increased. The potential of the state to encourage technological progress, however, is limited. What the government can do is to subsidize the price (cost) of producing innovations (where $\hat{A} = f(P^A)$ with $P^A =$ innovation costs, and $f' < 0$). However, in general it is difficult for a government to directly spur or “order” innovations (except from indirect ways, for example attracting foreign direct investments). Creating the right incentives or institutional reforms to encourage innovations is all but easy. This is apparent in the current attempt of the Chinese Government to implement the “Made in China 2025” initiative. Insofar continuing the fast convergence process in the next decades will be much more difficult than it was to initiate it during the first three decades after 1978. It is not impossible; however, it is dependent on the right structural incentives being set by the Government to encourage (in particular) creative thinking and acting within China.

However, growth dynamics depends not only on encouraging technical progress, but also the method of managing the reduction in the negative externalities created and accumulated previously by the old growth strategy of the Deng era. The influence of this management on the growth dynamics is reflected in the Appendix of this paper.

5 What can China learn from other successful countries?

In this section I ask what China can learn from successful countries like South Korea to avoid an MIT and hence implement a successful development strategy. Here I can refer to the historical experience (see also Appendix B below) that only developing (emerging market) countries that initiated the necessary structural reforms in good time avoided being caught in a development (middle-income) trap.

The theoretical approach sketchily outlined in Appendix B suggests that development can best be explained as a stepwise process and structural change as a sequential, step-by-step (nonlinear) reform process.

If a growth strategy reaches its stability limits, it has to be replaced by a new strategy in time; otherwise, the system might explode (in the sense of becoming unstable and non-sustainable), because it exceeds the economic and political stability thresholds (Wagner 2016). In contrast, a timely transition to a new growth strategy can restore stability and thus sustainability, albeit usually at the expense of a transitory lower growth rate.

The latter can explain the successful development of an emerging market economy into a developed country. In contrast, countries that fell into an MIT can be interpreted as having not managed to adjust their growth strategies in a timely manner.⁴²

Conversely, this means that the few successful East Asian countries (like South Korea and Japan) that have been able to avoid or overcome an MIT have obviously implemented the necessary structural changes and reforms and installed a new growth strategy on time (before system-destabilizing crises could develop in these countries). I illustrate this in another paper with the example of South Korea, which may serve as a learning experience for China.⁴³

However, it can hardly be expected that China, even if it follows the experience of South Korea and avoids/overcomes an MIT, can experience the same high growth rates during the coming few years as Korea did during its equivalent development stage. The reason is the worse frame conditions currently confronting China. These worse frame conditions appear on two sides:

Supply side

a) There are huge overcapacities due to the after effects of the global financial crisis (the global economy has not yet fully recovered), and the global demand for intermediate products is still low; these effects, however, should be transitory.

b) Ageing: \hat{N} will decline (China will age rapidly in the coming decades); in 1985, when South Korea had a similar GDP per capita to China's current one, the former already recorded an age dependency ratio of 52.4%. In 2016 China's age dependency ratio stood at 36.6% (World Bank 2017); this ageing effect in China is permanent or medium to long term and increasing.

Demand side

a) Secular stagnation (low/negative natural rate of interest) is often expected to become a general phenomenon in the coming years; if the stagnation is really "secular," as argued by Summers and others (cf. Summers 2014), the effect will be permanent or long term.

b) Urbanization in China is expected to increase from 50% to 80% during the coming decades; there is a need for housing and need for green technology; the effect will be medium to long term.

⁴² This means that, if the economic imbalances are not reduced in good time, if pollution is not reduced before it becomes explosive, if social imbalances are neglected for too long (such as before the Trump election in the US) and if structural–normative values are changed too rapidly, then a development/growth strategy will generate problems or, respectively, become unsustainable.

⁴³ See Murach and Wagner (2017) and Kim, Park, Murach and Wagner (2017, work in progress).

c) Lack of a sufficient/encompassing social system and pension system (leading to precautionary savings); the effect will be either transitory or medium to long term, depending on how seriously or quickly the Government tries to realize a social welfare system.

d) Greater uncertainty after the global financial crisis; this effect may be permanent as well, as interconnectedness and the technologies fostering it may supposedly progress.

From this I can derive that, whereas, over the 20 years following 1977, Korea had an average growth rate of 7.6%,⁴⁴ China's growth rate over the next 20 years will be lower due to the less friendly frame conditions.⁴⁵ (In a rather optimistic scenario of repeating the Korean success story, I think that China's growth rate will perhaps be around 5–6%.⁴⁶)

6 Conclusion and Outlook

China has tried to satisfy the expectations of its citizens and avoid potential social tensions (after the Tiananmen Square events) by creating one of the most spectacular economic growth stories ever during the 1990s and 2000s. However, by having achieved such tremendous economic growth or, respectively, convergence speed for such a long period of time, the Government has overacted, so ever-increasing (economic and non-economic) imbalances have arisen, now forcing the Government under Xi Jinping to introduce a drastic change of course. As rebalancing measures (structural reforms) are always very painful and costly (the transition economics literature speaks of J or L cost curves in the transition process), particularly for strong "old" interests groups, the Government is often inclined or pressured to postpone the rebalancing or reform process for a while. Instead, it chooses macroeconomic credit-financed stimulus programs to counteract and take the edge off the costs of rebalancing (particularly in the context of deindustrialization), because they are less painful in the short term. However, as a result, the Government unintentionally creates new imbalances that may be even more dangerous, for example by triggering credit/debt explosions and asset price bubbles, which may end in banking and financial crises, further slowing down the economic growth.

Besides the various alternatives that China will have to choose from in the coming years to develop the economy further and to sustain high growth levels, it will also have different alternatives with regard to reforming the political system (decisive for the further development and for sustainably overcoming an MIT). These are:⁴⁷ (1) the return to "neo-

⁴⁴ See the calculations by Lin et al. (2016). Lin et al. (2016) guess that Korea in 1977 had the same technology gap (vis-à-vis the US) – seen there as a measure of the development gap – as China had in 2015.

⁴⁵ Lin et al. (2016) are more optimistic, assuming that the above-mentioned worse frame conditions will only be transitory. This, however, seems to be questionable or even improbable.

⁴⁶ See, for example, Murach and Wagner (2017).

⁴⁷ See Shambaugh (2016: 2–3).

totalitarianism,” (2) the maintenance of the current system of “hard authoritarianism,” (3) the return to “soft authoritarianism,” which accords with the regime between 1998 and 2008, and (4) the change to a “semi-democracy.”

Alternative (2) is probably the simplest alternative for the Chinese Government; however, it may lead to limited reforms and hence to stagnation of the economic development, which would aggravate the acute social problems and might introduce the decline of the sole governing Communist Party of China.⁴⁸

If I compare China with Japan in the most recent economic history, I can state that, by having overacted by fostering extremely high economic growth and convergence speed for too long, both countries produced ever-increasing macroeconomic imbalances. Japan suffered from a crash in 1990 and from the following two “lost decades,” whereas China under Xi Jinping decided to be more cautious and hence recently started to rebalance its economy before an overall crash occurred. Nonetheless, if the announced rebalancing process in China is further postponed or slowed and furthermore watered down by credit-financed macroeconomic stimulus programs (because of the fear of a drastic growth decline and hence high social costs associated with structural reforms), a crash on the financial market is still a real danger. That is, postponing and watering down the necessary structural reforms could end up in a vicious circle of ever-declining productivity and economic growth and eventually an MIT (Wagner 2016).

⁴⁸ It can be expected that, until the 19th Party Congress of the Communist Party of China in 2017, China will remain on its current course of “hard authoritarianism.” Afterwards there is a chance of a transition back to the “soft authoritarianism” of the Deng strategy.

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Appendix A: A theory of instability tendencies in a socialist market economy

Appendix A.1: A “theory” of quantity instability of the economic system

In this Appendix A I shall describe the “global” instability tendencies prevalent in socialist market economies where the state still (partly) “controls” price movements and hence prevents the market price mechanism from functioning as smoothly as generally assumed in market (general equilibrium) theories. Preventing the price mechanism from functioning creates the tendency that economic “quantities” such as output, capital or labor react and develop unstably so that market disequilibria (reflected in overcapacity or unemployment for example) steadily grow. Market disequilibria then are not reduced by stabilizing effects of price adjustments but tend to widen unlimitedly. I try to model this in a very simple way. I first start with some general equations that are always valid in market economies.

The core of the structural process of the macroeconomic system in a market economy can be described by the following two equations:

$$(I^*) Y = C + I$$

$$(II^*) Y = Q + \Pi$$

(Y := income; C := consumption; I := investment ($\equiv \Delta K$:= capital accumulation); Q := wage sum; Π := profit sum (in a capitalist market economy) or/and surplus (in a socialist market economy)).

Equation (I*) describes the alternatives regarding expenditures of national income, whereas (II*) denotes the alternatives regarding production and distribution of national income.

From this I can derive:

$$(1) 1 = c + gk$$

$$(2) 1 = q + Rk$$

This basic economic structure includes the central development determinants of the economic system, namely the capital accumulation rate g ($:= I/K$), the capital coefficient k ($:= K/Y$), and the profit or reservation rate R ($:= \Pi/K$), c := consumption rate and q := wage share. If I also consider government activity, then I obtain as a fourth development determinant or structural variable: the government expenditure share ($\frac{G}{Y} = \left(\frac{G}{K}\right) \left(\frac{K}{Y}\right) = \gamma k$, where γ is the government expenditure rate).⁴⁹

This is relevant when considering the economic system as tending to be unstable. This can be expressed as follows: from (1) I obtain (including the government expenditure rate, γ):

$$(1') g = s/k (-\gamma), \quad \text{where } s \text{ is the private savings rate } (S/Y); \text{ and/as } Y - C = S \text{ (savings)}^{50}$$

⁴⁹ With government expenditure, (I*) becomes $C + I + G$, and (1) becomes (1').

⁵⁰ From (II*) and (2), I can also develop a theory of price instability of the economic system (a theory of inflation or deflation; be it consumer price or asset price inflation/deflation). Reciprocal attempts to stabilize their income shares by using prices and wages (workers/unions fighting for wage increases if the labor share threatens to decrease, and entrepreneurs counteracting by compensating for the increase in costs by increasing their sales prices in order to avoid a decline in their profit share) lead to cost-push inflation in market economies (see, e.g., Frisch 1983). However, as these fights to defend the labor income (and/or the profit) share are not as relevant (yet) to socialist market economies like China (at least during the 1980s), I shall refrain from analyzing

The question is how the system reacts to disequilibria between investment and savings. If (as assumed in the neoclassical general equilibrium theory), the market prices react sufficiently quickly (perfectly), no instability will endure or become relevant. If however, the prices do not react (at least not sufficiently quickly, that is, not as quickly as the quantities), instability of the economic system becomes relevant (this is often the case in non-capitalist or socialist market economies, when the government (state regulations) hinder(s) the necessary price reactions from reacting (quickly enough) to quantity disequilibria. Then the disequilibria tend to widen. For example: if $I > S$, entrepreneurs tend to increase the utilization rate of their capacities, and vice versa. Formally expressed:⁵¹

$$(3) \dot{a} \gtrless 0 \text{ for } g - \frac{s}{k} \gtrless 0,$$

where a is the utilization rate ($a = 1$ here means normal capacity utilization; $a > 1$: a shortage of capacity; and $a < 1$: overcapacity). The basic equation is:

$$(4) Y = (a/k_v) K \text{ with } k_v = ka \text{ (} k_v \text{ is the capital coefficient with full utilization of the capital stock)}$$

If the entrepreneurs/investors react to situations of excess capacity or shortage of capacity with their investment activity in such a way that they want to reach their degree of normal utilization again (because this appears to them to be the most cost-efficient degree), then they contribute to increasing the I - S -disequilibrium. This can be expressed formally as follows:

$$(5) \dot{g} \gtrless 0 \text{ for } a - a_o \gtrless 0 \text{ (where } a_o \text{ is the optimal utilization rate) }^{52}$$

Such a dynamic behavior pattern as described in (3) and (5) could be seen in China in many branches, in particular in the infrastructure.

(This can also describe the anxieties with respect to letting the economy slip into recession in the process of rebalancing in China, as there can be a tendency toward endogenous aggravation (ever-increasing overcapacities, for example). It can also be seen as the reason for governments' counter-action with expansionary macroeconomic stimulation programs, as described above for China.)

Appendix A.2: Extensions

In an open economy with government activities, (I^*) becomes⁵³

$$(I^0) \quad Y = I + C + G + NX, \text{ or}$$

$$I - \tilde{S} = -NX \quad \text{or} \quad (\tilde{S} - I) = NX, \text{ where } \tilde{S} = Y - C - G$$

this in the following. Here I only need to consider the quantity side of this instability hypothesis. With the foreign sector, (I^*) becomes $Y = C + I + NX$ and (1) becomes $1 - c = gk + x$. Foreign assets can then be used (as in China) as an additional strategic component (see in Appendix A.2 in more detail).

⁵¹ For simplicity reasons, I refrain from including government interventions here.

⁵² The core of such disequilibria can be traced back to Keynes (1936), Harrod (1939) and others; it was also extensively discussed in the 1970s by authors such as Robert Barro (Barro and Grossman 1971) and Winfried Vogt.

⁵³ Here I disregard taxation. Alternatively, I can regard I and C as values after taxation. [In practice, I and S are influenced by the size and structure of government taxation, where $T = (t_i + t_c)Y$, where t_i is the tax rate on investment and t_c the tax rate on consumption and T is tax income.]

$Y - (C + G)$ denote the national savings (\tilde{S}). These national savings – if not all used by/for domestic investment – can, for example, be given to foreigners as credit (so that foreigners can buy domestic goods, which would enlarge the domestic exports), used for hoarding foreign reserves (to discourage possible speculative currency attacks) or used for buying foreign assets. These options are those that were used by Chinese governments under the Deng strategy, whereas the Xi-strategy plans to reduce these national savings or, respectively, the $\tilde{S} - I$ gap (by increasing consumption and/or government expenditures (e.g., for social services) and/or encouraging private domestic investors to use a greater portion of the national savings for private domestic investment expenditures).

Conditions (1'), (3), (4) and (5) then change to:

$$(1^{\circ}) \quad g = \frac{\tilde{s}}{k} + \frac{x}{k} = \frac{(\tilde{s}+x)}{k}, \text{ where } \tilde{s} = 1 - c - \gamma k$$

$$(3^{\circ}) \quad \dot{a} \geq 0 \text{ for } g \geq \frac{(\tilde{s}+x)}{k}$$

$$(4^{\circ}) \quad = (4)$$

$$(5^{\circ}) \quad = (5)$$

In an open economy (with fixed exchange rates),⁵⁴ positive (negative) disequilibria or imbalances $I - S$ or $I - \tilde{S}$ are usually “equilibrated” by negative or positive foreign capital flows or (the equivalent) positive (negative) current account imbalances. If there is (as planned in the 13th Five-Year Plan) more consumption in China, then the savings will decrease and the positive gap between S (\tilde{S}) and I (which has so far dominated in China during the past two decades) will diminish. Together with the planned increase in welfare expenditures (for the building-up of a public pension and a social security system) which increases G and I , this will reduce the current account surpluses and the dependency upon exports.⁵⁵

Appendix B: Requirements for a theory of sustainability of a development/growth strategy

B.1 The lack of a suitable theory

To analyze the (non-)sustainability of a growth/development strategy more thoroughly, a theory about the interrelationships of the dynamics (and of endangering the stability thresholds) of the various subsystems of a society is needed. There is not much of a theoretical basis for interpreting the unsustainability of a growth/development strategy in the literature so far. In the context of the often-used hypothesis of non-sustainability of the above-described Deng-strategy only single aspects regarding the economic subsystem, such as cur-

⁵⁴ China has tried to sustain a fixed exchange rate regime (vis-à-vis the US-dollar) for a long time over the past decades.

⁵⁵ Of course, the positive gap between S (\tilde{S}) and I can also be reduced by letting the exchange rate fluctuate freely. Whether the Chinese Government is ready to implement this method is still an open, hotly debated question.

rent account imbalances, are usually mentioned. No comprehensive analysis of the dynamics of their development from the point of view of social theory can be found.

Hence I present some first ideas on how to construct such a theory in the following.

B.2 Requirements of a theory of (non)sustainability

What should such a theory look like?

A theory of the (non-)sustainability of a growth/development path has to consider the danger that the instability of a single subsystem can infect other subsystems so other or even all subsystems may also become unstable (as certain subsystems are “systemic”, that is, imbalances in these subsystems can infect other subsystems and thus endanger the stability of the entire societal system). In other words, the subsystems are dynamically interrelated. This interdependency can system-theoretically be represented as follows (for the theoretical background see Wagner 2014: 7-8).

The overall system consists of several subsystems. Usually, societal theory differentiates between:⁵⁶

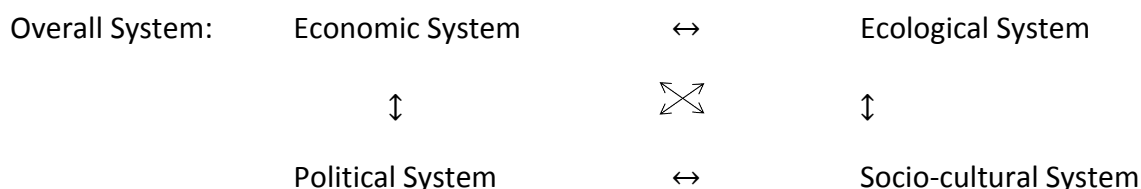
- the economic system (the private system of labor, production and distribution),
- the political-administrative system (governance, system of social welfare services, and bureaucracy),
- the socio-cultural-system (legal system, research and science, motivation, and tradition).

Furthermore, I can add the

- the ecological system (in natural science, this is understood as the community of living organisms in conjunction or interacting with the non-living components of their environment, like air, water and mineral soil).

These four subsystems perform certain (systemically important) services for each other (this is explained in Wagner 2014: 13-15).

Figure B.2.1: Subsystems of the overall system



⁵⁶ See for example Habermas (1973).

On the other hand, each subsystem that enters a state of crisis can infect other subsystems (instability interdependency). Economic imbalances may arise for two reasons, namely (a) unexpected changes in the non-economic sub-systems (e.g. a change in government and thus the associated change in the policy regime (political system)) and (b) the price inflexibility within the economic system. For examples of the above instability interdependency see Wagner 2014: 9-10.

So far, the literature only focuses on instability considerations with regard to single subsystems. In the following, I am focusing on the economic system and in particular on the macroeconomic equilibrium condition. I can derive the macroeconomic equilibrium condition (first for a closed economy without government expenditures, without technical progress and without employment growth) below as⁵⁷

$g = s/k$, where g is the accumulation rate, s is the savings rate and k is the capital coefficient.

Accordingly, if a poor country (like China in the 1980s) has the desire to converge quickly with rich countries in GDP per capita, it has to produce much stronger economic growth than the frontier benchmark advanced country. Convergence requires that, for a long period of time, $g > g_{US}$, where g_{US} is the growth rate of the benchmark advanced country (here the US).

Reaching a „much higher growth rate“ than the other successful developed countries for a long time is not easy for a developing country.⁵⁸ However, there are some options that an authoritarian, welfare-maximizing state can take to increase the convergence rate: for example, it can artificially increase the savings share s and/or maintain it at a high level, or it can artificially lower the capital coefficient k and/or maintain it at a low level.⁵⁹ The latter is politically less easy to arrange than the first option, as the lowering of k is usually associated with the need to increase the productivity of the capital employed, and this cannot be “imposed” from the outside.⁶⁰

State measures to attain a higher savings share s include:

- a. Higher taxation of private income⁶¹
- b. Education/socialization regarding precautionary savings

⁵⁷ See the derivation in Appendix A.1 above.

⁵⁸ Relying on having a “latecomer advantage”, that is, on being able to imitate and thus cheaply import new knowledge, like Lin et al. (2016), is not enough to ensure sustainable convergence.

⁵⁹ Not considered here is the possibility that, if the goal is an increase in output growth, a government can additionally try to foster technical progress and increase the labor pool to raise the output growth. This can be seen from a Cobb-Douglas function: $\hat{Y} = \hat{A}\hat{K}^a\hat{N}^{(1-a)}$, where \hat{A} denotes technical progress, and N is labor. See Section 4 for more details.

⁶⁰ This could only be realized by encouraging technical progress (or an increase in labor input).

⁶¹ Under the assumption that the state has a higher savings rate than the private agents (as was the case in China).

- c. Non-provision of social welfare services so that private individuals have to provide these services themselves by higher private savings.

With a low(er) capital coefficient k a higher output Y can be produced with a given capital equipment.⁶²

Under a high savings rate s (corresponding to a low consumption rate c), a high capital accumulation rate g is only attainable sustainably in an open economy like China if high exports can be maintained for a long time (as, without high export levels, the domestic demand is not large enough to maintain a very high accumulation rate).⁶³ This can be an explanation for the prioritization of an export-led growth strategy by Deng Xiaoping.⁶⁴ If this is supposed to occur within integration into a worldwide production chain, it can best be attained by promoting or subsidizing the industrial sector (manufacturing). This may explain why the Deng-strategy was characterized not only by an export-led but also by an industry/manufacturing-supported growth path (see above).

All these artificial attempts to increase s and decrease k to sustain high economic growth create distortions and eventually (macroeconomic) imbalances: economic and non-economic ones.

Economic imbalances include for example high current account imbalances.⁶⁵

In a market economy, imbalances in the economic system usually lead to adjustment processes of prices and/or volumes (quantities); however, this process can be impeded or delayed for a certain time in an authoritarian system such as a “socialist market economy” with a communist one-party government. However, by acting in this way, the government does not only delay the reduction of imbalances but can even aggravate them (for the derivation of this hypothesis, see Appendix A). In addition, (self-enforcing) social, political and ecological imbalances can arise (via system interdependencies) (see also Wagner 2014: 13ff).

Political imbalances may arise if the (formerly built up) expectations of the population can no longer be satisfied, for example full employment, high growth/convergence, and (for China) compliance with the five-year plan. This can be initiated by a decline in the GDP growth in the context of decreasing marginal productivity of an ongoing industrialization or the transition to a domestic- and consumption-oriented growth path.

⁶² As mentioned above, this requires the creation of technical progress (and/or higher labor input).

⁶³ An alternative for China would have been to extend its indebtedness vis-à-vis Western developed countries or the IMF, which was not regarded as a real option by the Chinese Government (particularly following the experiences from the Asian crisis in 1997ff; see e.g. Berger and Wagner 2000). Of course, this could also have been achieved by creating technical progress and thus inducing a decrease in costs and hence in prices. This would have helped to increase the consumer purchasing power.

⁶⁴ In an open economy (with fixed exchange rates), the equilibrium condition of the economic system can be derived as: $g = s/k + x/k$, where x describes a positive net export. See Appendix A.2 for the derivation.

⁶⁵ The high current account surpluses enabled China to accumulate the huge foreign assets necessary for stabilizing its exchange rate vis-a-vis the US-dollar (to avoid currency appreciation and thus a reduction in export chances).

Social imbalances can occur if dissatisfaction about a lack of social-/welfare services develops (because this would make lifelong precautionary savings necessary and hence limit the consumption possibilities for a long time). This will be aggravated by the process of ageing (demographic development) like in China. Other social imbalances arise from income inequalities like in China.

Furthermore, the opening-up and “going global” strategies (see also Section 3 above) imply not only high levels of goods imports but also the undesired (because presumably it is politically destabilizing) importing of Western ideas (e.g. the desire for liberalization, freedom and democracy); the latter is reinforced by new information technologies. This, however, will entail the demand for a change in the restrictive political and socio-cultural framework that can undermine the previous power structure and system of norms.

Ecological imbalances may occur if high growth comes at the expense of the excessive exploitation of natural resources and environmental pollution (associated with emphasis on the manufacturing sector).

In general, if the development is very unbalanced in the sense that one subsystem develops much faster than the others over a long time period, the danger of an abrupt stopping or reduction of the growth dynamics can arise. This means, in relation to China, that fast convergence is relatively “easy” until the MIR is reached; then there can be a reversal due to the effects of accumulated imbalances (and spillovers therefrom), which disrupt the growth process so that the economy falls back and may even slip into a “middle-income trap”. I call this the “mayfly syndrome” (growth dynamics may fade away or be short-lived).

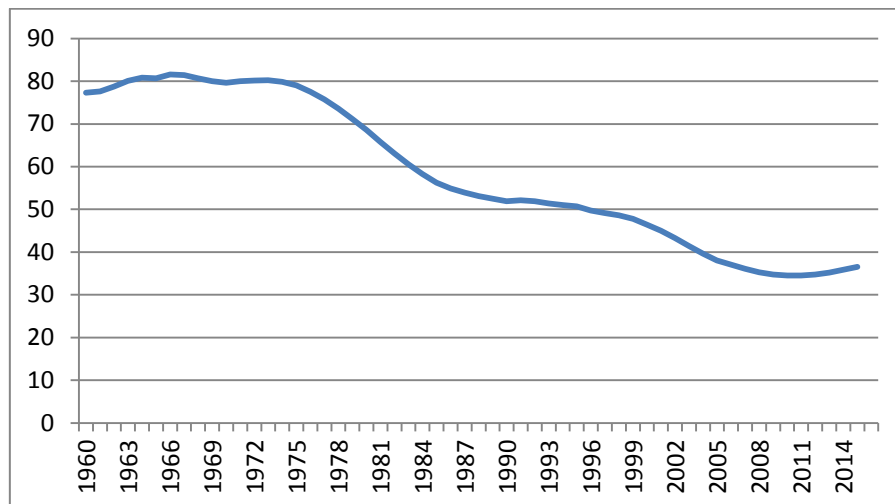
Only continuous reforms can save a middle-income country from falling into a middle-income trap. Such reforms can be modelled endogenously as follows. Reforms arise when imbalances cause substantial costs for influential societal groups (reaching a “critical threshold” for them) so that these groups start (or threaten) to “rebel” against the government, thus forcing it to change the institutional causes of these imbalances, that is, to implement reforms. The surpassing of such a critical threshold can arise in any of the four subsystems listed above, and it does not need to arise in the subsystem in which imbalances first appeared, as imbalances can spill over from one subsystem to others (as emphasized above) and there grow until they reach a critical threshold. To that extent, I can say that reforms (R) arise endogenously from within the dynamically interdependent overall system.

Formally expressed:

$R = f(a_i - a_i^*)$, $i=1,..,4$ (subsystems); $a_i - a_i^* \geq 0$ denotes imbalances; a^* is the goal level (associated with normal capacity utilization, maximum utility, etc.); $\underline{x}_i \leq a_i - a_i^* \leq \bar{x}_i$; $\underline{x}_i (< 0)$ and $\bar{x}_i (> 0)$ denote critical thresholds in subsystems $i=1,..,4$ ($i=1$: economic; $i=2$: political; $i=3$: socio-cultural; $i=4$: ecological subsystem). This means, the imbalances $a_i - a_i^* \geq 0$ must remain within the interval $[\underline{x}_i, \bar{x}_i]$ in order to prevent spillovers of imbalances and crises infections into other subsystems.

Appendix C

Figure C.1 Age dependency ratio



Data Source: World Bank (2017).