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Industrial Policies Under Xi Jinping: A Steering Theory Perspective

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Xi Jinping's ascension to power and subsequent developments in Chinese governance have stoked the flames on the debate on industrial policies, both in China and across the globe. At least partly, the debate results from the perception that industrial policies have been important for China's economic rise, growing competitiveness and drive to innovate. Outside China, this perception has already prompted some governments to suggest that their countries should react to China's rise by also promulgating industrial policies. But inspite of the growing interest in the topic, there is hardly a consensus on the character of China's industrial policies nor their efficiency and effectiveness, neither inside nor outside of China. This paper will shed light on these issues by looking at Chinese industrial policies from the perspective of political steering theory. It will first review the political steering theory, identify key concepts (steering modes, steering objects and subjects, etc.) and then explain the rationale of applying the theoretical deliberations to industrial policymaking and implementation in China's EV and solar sectors. Against this background, this paper will identify different types of industrial policies and look into Chinese industrial policy development and academic discussion over time with a specific focus on changes in industrial policy steering following the inauguration of the Xi Jinping administration. This paper aims to make a conceptual contribution based on the analysis of policy documents and academic texts as well as discussions and interviews with Chinese economists and political scientists. It is part of a larger research project

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that focuses on how political steering through industrial policies affects China's energy transition under Xi.

Keywords: Industrial policies; policymaking; China; political steering; central-local government relations.

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In recent years, China's industrial policies have become a hotly debated topic in China and across the globe. In China, the debate concentrates on the specific mix of industrial policy instruments that have contributed to the country's economic rise over the past 40 years, lessons that might be learnt and replicated by other developing countries, as well as the right strategy for China's future. The intellectual exchanges between two prominent Chinese economists who hold opposing views on China's industrial policies have garnered particular attention in national and international media (Lin, Zhang, Wang, & Kou, 2018).

Outside China, the renewed interest results from a perception concerning the importance of industrial policies to China's economic rise, growing competitiveness and drive to innovate. On the one hand, this perception has triggered complaints that Chinese industrial policies result in unfair advantages for government-favored Chinese firms. In this line, the U.S. government has accused China of unduly using industrial policies to support the competitiveness of Chinese firms as part of the ongoing trade conflict between the two countries (Meltzer & Shenai, 2019). As a consequence in 2018, the Trump administration demanded the Chinese government scrap its "Made in China 2025" strategy ("Assessing the Pain," 2018). On the other hand, the perceived success of Chinese industrial policies has prompted some governments to suggest indigenous policy programs that levy the unique advantages of local economies. For example, while the European Union is not currently engaged in any major trade conflict with China, it is nevertheless worried about the impact of Chinese industrial policies (European Commission, 2019). Even Germany, a country in which the term "industrial policy" was literally non-existent in local economic debates, has recently brought forward its own version of an industrial policy strategy (Bundesministerium für Wirtschaft und Energie, 2019).

While China's economic policies have triggered international debate, participants have so far been unable to find a consensus on the character of Chinese industrial policies and their efficiency and effectiveness. Instead, judgments range from the straightforward assumption that China's economic success must be related to industrial policies simply because the government continues to propagate a large number of industry-specific documents to the observation that Chinese industrial policies have

actually little explanatory power for investment flows and industrial development (Holz, 2018). Arguably, this lack of consensus is related to a reluctance by many authors to define their respective understanding of industrial policies and to delineate industrial policies from other types of economic programs. In addition, Chinese industrial policies are generally evaluated based only on their direct economic impact but not as an instrument of enhanced policy coordination and implementation.

Against this background, we pose the following research questions: why and how does the Chinese one-party state continue to use industrial policies to steer its economy? To answer these questions, we use political steering theory to better understand industrial policies as an instrument utilized by the Chinese government to manage the relationship between central and local government levels in policymaking and implementation. We show that industrial policy in China is not merely a tool to steer the economy, but also an instrument that helps us to come to terms with China's fragmented and decentralized political system. Finally, we identify how this approach helps to assess industrial policymaking under Xi Jinping.

For this purpose, the paper is structured as follows. We first review political steering theory, identify key concepts (steering modes, steering objects and subjects) and then explain the rationale of applying the theory to economic policymaking and implementation in China in general and to industrial policies in particular. Following the rationale of political steering theory, we identify different types of industrial policies and look into trends in China over time with a specific focus on changes in industrial policy steering since the inauguration of the Xi Jinping administration. In particular, we scrutinize the solar and electric vehicle (EV) industries, two emerging sectors marked as critical for China's economic transformation and consequently beneficiaries of large amounts of vertical state intervention over the course of Xi's time in office. Finally, the paper argues that any assessment of the success or failure of industrial policies in China depends on the perspective and definitions chosen. Put differently, even industrial policies that fail to achieve their goals in terms of economic efficiency may prove effective from a political steering perspective. In the end, we conclude that industrial policies have become an essential instrument for the Chinese government to balance stability and development.

This paper aims to make a conceptual contribution based on the analysis of academic literature and policy documents as well as on discussions and interviews with Chinese researchers, managers and local political decision makers in the years 2018 and 2019. It is a part of a larger research project on the role of political steering through industrial policies in China's energy transition under Xi Jinping. Over the course of three field trips, the researchers conducted a total of 21

semi-structured interviews. Respondents were recruited among previous contacts and through "snowballing." Due to the cross-system nature of our research goals, respondents from Beijing were sought to elucidate on national-level perspectives while interview partners at lower levels were sourced from the province of Jiangsu and selected for reasons of economic development and convenience in sampling.

Political Steering Theory and China

Since the beginning of the reform and opening era, numerous social scientists have attempted to conceptualize the way the government interacts with business and society as well as central-local government relations in policymaking. Models reflecting this particular period of Chinese policymaking regularly stress that the system is inherently authoritarian. While this is an adequate characterization in an exercise comparing political systems, it reflects neither the political changes China has undergone nor the considerable success and dynamism of China's economy under authoritarian rule.

The literature has therefore tried to come to terms with the "Chinese characteristics" of one-party rule and nominal socialism by adding different labels to authoritarianism. The notion of "fragmented authoritarianism," for instance, emphasizes the role of bureaucratic bargaining in China's political system (Brodsgaard, 2017; Lieberthal & Oksenberg, 1988; Mertha, 2009), while "consultative authoritarianism" stresses the system's ability to invite and use consultations in the process of policymaking (Deng & Liu, 2017; He & Thøgersen, 2010; Teets, 2013). Others have discarded the concept of authoritarianism in favor of "federalism, Chinese style" in order to stress the considerable influence that provincial and local governments gained in the course of decentralization during the first two decades of China's reforms (Montinola, Qian, & Weingast, 1995). Some scholars emphasize the positive contribution of government and bureaucracy to China's economic dynamism and therefore favor the notion of the "entrepreneurial state" (Duckett, 1996; Mazzucato, 2015).

Beyond the question of how to characterize or name China's political system, the approaches mentioned above also try to grasp the innate characteristics of Chinese policymaking. Relatedly, a broad discussion has evolved on the influence of experimentation in Chinese policy design. Opinions differ on whether experimentation in China is an exercise conducted as part of strict top-down policy orchestration or rather an instrument that excels in the adoption and upgrading of promising local policy initiatives to national policies (Heilmann, 2008; Tseng & Habich-Sobiegalla, 2020; Wang, 2019). Another line of research attributes special importance to the bureaucratic

incentive system that motivates party cadres, government officials or managers of state-owned enterprises (e.g., Kostka & Hobbs, 2012).

Irrespective of these efforts to grasp the political system and the logics of policymaking in China, Schubert and Alpermann (2019) argue that there have been few attempts to build a "conceptually and methodologically sound analytical framework" to analyze "Chinese policy-making [. . .] based on a number of assumptions (hypotheses) that inform agenda-setting, design (formulation), implementation and evaluation" or "the thinking and (strategic) behavior of all actors involved (political leaders, party state bureaucracies, policy entrepreneurs and different categories of societal actors)" (p. 205). On this point, we especially agree with Schubert and Alpermann that political steering theory has the potential to fill this void.[1]

Theoretical Foundations

The origins of political steering theory can be traced to the two German scholars Renate Mayntz and Fritz Scharpf (Mayntz, 1987; Mayntz & Scharpf, 1995) who published extensively on the topic during the 1980s and 1990s. According to Mayntz (1987), scholars in Germany started using *steuerung* (steering) as a translation of "control," a concept widely used in sociology at the time (p. 189). In reaction to the growing popularity of the concept, Mayntz (1987) argued for a theoretical approach to political steering. Based on her understanding, "steering does not only mean targeted influencing, but also to move a system from one [. . .] state to a specific other" (p. 186). In contrast to earlier theories of political planning that focused on the organizations relevant for planning such as ministries and their functions, steering theory conceptualized the process of policymaking and implementation by starting from the actors involved and their interaction with different subsystems in society (Schimank, 2007).

The theory distinguishes steering subjects from steering objects, with the former referring to those that intend to steer and the latter pertaining to those that are presumably steered (Mayntz, 1987). Still, steering objects can trigger steering and influence steering efforts at the stage of policymaking (negotiation and discourse) or implementation (counter-steering). Importantly, steering objects in a multilevel political system can also be steering subjects in relation to other actors.

[1]The authors have been part of a longer process of academic exchange and discussions with both Björn Alpermann and Gunter Schubert as well as other German political scientists and China experts on the possibilities of applying the theory of political steering to China during the period of 2015–2017.

The theory also assumes that steering subjects define and implement policies in order to steer society in a specific direction or solve pertinent societal problems. Throughout the policy process, different steering modes can be deployed to achieve goals. These steering modes define different types of decision-making and policy implementation practices that can be placed along a continuum delineating steering subjects' preferred degree of control from planning to more entrusting and locally empowering principles of governance (Figure 1).[2] *Hard steering* is associated with top-down, hierarchical decision-making that leaves little room for steering objects to influence policy targets and instruments. As a result, policy implementation relies largely on command and control mechanisms. *Indirect steering* is a steering mode in which the objects do have a say in policymaking by being involved in negotiations and design even though the final decision remains with the subjects. At the level of implementation, indirect steering refers to incentives and structures that encourage steering objects to implement policies such as encouraging competition among objects eager to outperform one another. By casting a watchful eye over the behavior of actors, steering subjects cast a "shadow or hierarchy" over the implementation process (Börzel & Risse, 2010, p. 114). The third mode is *soft steering*, which relies on discursive practices to align the goals of steering objects and subjects. If the objects move to embrace the overall policy goals, they will be more eager to support the process of policy implementation. The shadow of hierarchy still plays a role in this mode, as steering objects internalize policy goals harvested from close interactions with the subjects. We introduce a fourth mode called "no steering" which pertains to the option of political leaders to refrain from steering entirely. They may do so because they believe that policy goals are easier or more efficiently achieved by leaving decisions to the steering objects and mechanisms of market competition. While some authors see "competition" as a separate steering mode, we stick to Mayntz's argument that steering needs a goal. Whereas competition will always produce results, the character of competition is such that the exact results are not known in advance (Hayek, 1969). Thus, according to Mayntz (1987), competition or markets can be an instrument (as in the mode of indirect steering) or an option to refrain from active steering in the first place.

Over time, several reasons have contributed to steering theory's loss of appeal among Western political scientists. First, steering theory has an implementation bias. As such, it primarily analyzes how policy implementation is organized and how it can

[2]The following typology has been informed by (but differs from) Schubert and Alpermann (2019), Alpermann and Zhan (2018), and Budde and Großklaus (2010).

Planning — **Steering** — Governance

Steering mode	**Hard steering**	**Indirect steering**	**Soft steering**	**No steering**
Decision-making	hierarchical	negotiated	discursive	competition
Implementation	Command and Control	Competition in the shadow of the hierarchy	Self-enforcing in the shadow of the hierarchy	Self enforcing

Source: Alpermann and Zhan (2018), adapted and extended.

Figure 1. Steering modes, decision-making and implementation.

be optimized, but is less interested in how policies are defined. The inclusion (or exclusion) of steering objects in the decision-making process is mainly viewed from the perspective of steering subjects and based on the assumption that subjects are able to switch steering modes (meta-steering) as a reaction to changes in the original purpose of steering initiatives. The theory is relatively blind to power struggles or political representation. This arguably originates from the fact that the theory was developed with post-WWII societies and their democratic institutions in mind. Second, steering theory had emerged as a guideline on how to maintain control in systems that do not rely on active planning and that are clearly distinct from the socialist planning economies of the time. It was later gradually replaced by governance theory (Mayntz, 1999). This replacement was partly triggered by implementation failures. In addition, it turned out to be difficult for steering theorists to explain processes of political coordination following the emergence of pan-national institutions (such as the EU) that offered coordination in the absence of a government or a clearly defined steering subject (Levi-Faur, 2012; Rosenau & Czempiel, 1992).

Applying Political Steering Theory to China

Even though steering theory has its limitations, it is well equipped to understand policy processes in China. First, the historical roots of steering theory, which emphasize steering as an instrument of control different from planning are well suited to the Chinese context, as the current political and economic system is located somewhere between a socialist planning economy and a liberal market economy. The "fit" appears especially in relation to industrial policies since the concept of industrial policies was first explored in China in the late 1980s and formally deployed starting from 1994 when the government redefined its Five-Year Plans (FYP) to be indicative instead of mandatory (Fischer, 2000). Thus, industrial policies emerged as an attempt

to maintain control over the economy and correct for market failures while granting greater leeway to market forces and private enterprises.[3]

Second, central–local relations have been a major challenge for the Chinese government and a key puzzle for researchers trying to conceptualize China's system of policymaking and implementation. Irrespective of the authoritarian characteristics of the Chinese political system mentioned above, conventional and academic wisdom on China holds that the central government struggles with policy implementation at lower levels of government (e.g., Göbel, 2011; O'Brien & Li, 1999). Political steering theory has the potential to increase our understanding of how the center steers different policy fields, how it tries to overcome the implementation gap and how these attempts change over time.

This latter aspect leads to the third argument for the application of steering theory to China. As part of an analytical framework, steering modes provide a tool to identify deviations in steering within the context of a seemingly unchanged authoritarian system. So far, well-known attempts to characterize Chinese policymaking describe China's political setup and practices before Xi Jinping's rise to power. Since Xi's ascension, however, many changes in policymaking and implementation have occurred despite China's relative continuity at the system level. Arguably, a framework that allows Chinese researchers to explain these variations within an otherwise unchanged system would enlighten the larger public on the field of Chinese policymaking.

An equally compelling aspect of steering theory that is applicable to China is the concept's focus on actors and its delineation of them into steering subjects and objects, a factor that is explored to a lesser degree in other theoretical pathways such as the developmental state (Johnson, 1995; Knight, 2014). While economic steering theory and developmental state theory certainly share the idea that government policies can play an important role to propel the economy on a path of growth and development, the latter focuses on the national government while steering theory includes the perspective of the multiple layers of steering objects guided by the state. Because of the often informal nature of policymaking in China where patronage networks play a determining role in having issues registered, a theory whose focus lies on different actors is certainly beneficial to explain the procedures in policy design and implementation.

[3]Some researchers argue that China pursued industrial policies within the earlier planned economy (Holz, 2020). As this contradicts the logic that industrial policies originate from specific forms of market failure, we distinguish between industrial planning and industrial policies, though we contend that industrial policies under the hard steering mode can bear similar features as industrial planning (see also Figure 3).

Finally, the fact that steering theory has been substituted by governance theory in political sciences does not contradict its application to China. It is true that certain caveats and obstacles abound, such as the strong role of government in contrast to the marginal participation of non-governmental actors and civil society in China's political system.[4] At the same time, steering theory offers a strong reflection of Chinese reality which introduces steering objects as coordinated societal actors capable of influencing decision-making processes rather than independent voices.

Political Steering and Economic Policies

Mainstream economic research rarely discusses political steering explicitly. It traditionally concentrates on ideal-type economic models which often follow a neo-classical paradigm, minimize the role of the state and do not conceptualize the role of steering. As an alternative, the rationale for the state's role in the economy is explained by market failure or shortfalls in the market to provide necessary resources and public goods. This rationale can explain the state's function in, for example, financing education, developing relevant legal institutions and providing social security, even though the degree to which the state provides these goods can diverge considerably between different types of real-world market economies or varieties of capitalism (Witt & Jackson, 2016).

While the market failure argument can explain why state action is needed, it often falls short of explaining how the state does act (Rodrik, 2009). In addition, the justification of state intervention to remedy market failures raises the counterargument of possible state failure. In more general terms, Luhmann (1994) argues that politicians or the political sub-system are not able to adequately steer the economic sub-system, as the logics of these sub-systems differ. Still, political steering of the economy (or economic steering) did play an explicit role in the German social market economy of the 1960s (Schlecht, 1998), for example. This is a fact, which also contributed to the emergence of the concept of political steering in political science (Mayntz, 1998).

More recently, the concept of economic steering has experienced a certain revival. This revival can be attributed, among others, to the following causes: First and foremost, steering has emerged as a potent concept to address challenges of environmental degradation and climate change. The notion that the transition to more

[4]On the avenues and limits regarding the power for societal actors to push for policy changes, see, for example, Wu (2018).

sustainable development pathways and the mitigation of climate change are urgent matters that markets alone will not be able to solve (in time) has triggered a new interest in how governments can steer and thereby accelerate the transition process (WBGU, 2011). In a similar vein, governments rediscovered industrial policies as a means to guide the transition process with the goal of transforming green industries and innovations into drivers of national competitiveness and economic growth (Fankhauser et al., 2012; Rodrik, 2014). Third, the concept of economic steering also reemerged in the context of the European Union (EU). While this discussion was originally linked to macroeconomic issues directly related to the stability of the Euro (Jabko, 2011), the idea of economic steering is similarly raised in relation to energy transition and sustainable development because national freeriding on the latter could be as detrimental to the EU as freeriding on more traditional macroeconomic policies. It is in this context that the European Union has also started to reassess traditional perspectives on industrial policies and to promote a new understanding of the term (Walz, 2015) even before some of the continent's politicians began promoting European industrial policies in reaction to perceived injustices in China's use of industrial policies to affect global competition.

Political Steering and Industrial Policies

Definitions of industrial policy vary considerably. A broad understanding of industrial policies refers to all types of government intervention that result in the alteration of the economic structure and influence on the specialization of the economy (Pellegrini, Giorgetti, Jensen, & Bolognini, 2015). According to an even broader and neoliberal understanding, every action or economic policy propagated by the state ultimately constitutes an industrial policy because it directly or indirectly exerts influence on economic structures intentionally (European Asia Consulting PartG, 2015).

Narrowly defined, industrial policies are the targeted proactive government support of specific activities, technologies or industries (Altenburg, 2011). Assessment of this type of industrial policy has been mixed. In the past, industrial policies to support specific industries have been subject to criticism based on the observation that governments have too often failed in the attempt to "pick winners" (Baldwin & Robert-Nicoud, 2002). More recently, however, the positive effects of selective policies have been acknowledged for cases in which industrial development would otherwise have suffered from coordination failures, for cases in which industrial policies create dynamic scale economies and knowledge spillovers as well as for cases in which the technology selection is required to prevent environmental degradation (see Figure 2). Along these lines, Rodrik (2007) emphasizes the positive information

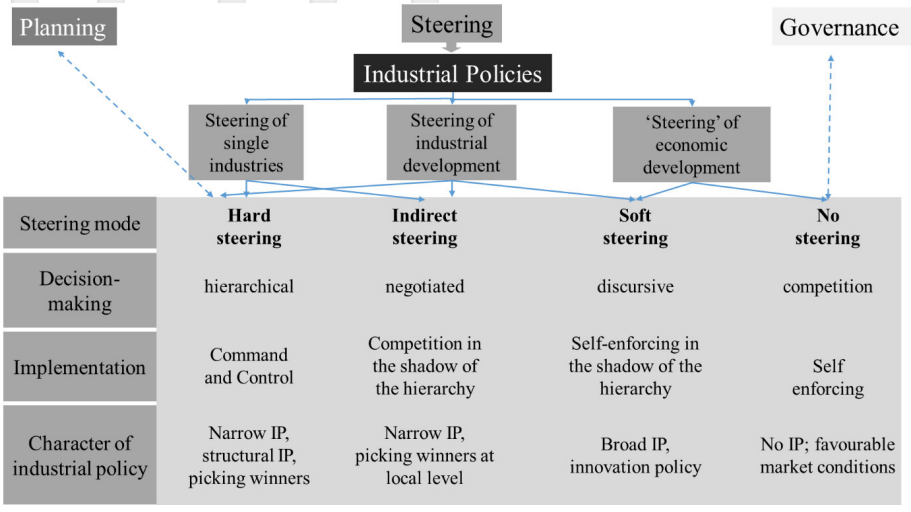
Type of Market failure	Imperfect competition	Asymmetric information	Coordination failures	Public goods	Externalities
Explanation	Market power resulting from non-atomistic structure and collusive behavior	Superior information of some market actors (mostly on the supply side)	Obtainable benefits are not reaped due to lack of coordinated action	Goods that are non-excludable and non-rival in consumption	Deviation between private and social costs and benefits
Policies to rectify market failure	Anti-monopoly and competition policies	Governance, standards and information disclosure regulation	**Industrial policies** (narrow definition)	Public ownership or regulation	Environmental, education, science & technology and innovation policies
	Industrial policies (broad definition)				

Source: Extended from Lütkenhorst et al. (2014).

Figure 2. Market failure typology and industrial policies.

and coordination externalities that industrial policies can produce for governments and private firms alike. This can be the case when changes in the basic techno-economic trajectories are necessary but a lack of information or trust among economic actors hinders them from coordinating (Lütkenhorst, Altenburg, Pegels, & Vidican, 2014, p. 11). It should be noted that extending the definition also bears some risks. When the use of industrial policies is justified by externalities, the definition overlaps with explications of environmental, education, and (most importantly) science, technology and innovation (STI) policies. Whereas the latter are common policy prescriptions in most countries (Block & Keller, 2011; Mazzucato, 2015), they become a matter of dispute if they are labeled as industrial policies.[5]

[5]Note that many countries do practice support for STI in specific industries but do not call these practices industrial policies. Similar policies in China have also been attacked as unfair industrial policy intervention. It would be equally misleading to assume that the existence of state-owned enterprises *per se* indicates the strategic or unfair utilization of industrial policy by the government. Until the 1980s, state-owned enterprises existed in many industrialized market economies and were legitimized as providers of public goods. Thatcherism and its global repercussions led to a wave of privatization on the grounds of expected efficiency gains. China did not follow this trend, and thus Chinese SOEs can dominate industries which used to be state owned in other countries. Flatly accusing China of unfair industrial policy practices simply because the country still possesses SOEs can therefore be misleading and difficult to accept for Chinese authorities.



Source: Authors.

Figure 3. A steering theory perspective on industrial policies.

The differences in industrial policy definitions require clarification for the application of steering theory. For the purpose of this paper, we therefore distinguish between a narrow definition of industrial policies which refers to government attempts to influence the development of specific industries and a broad definition which pertains to government policies that are industry neutral but relevant to industrial development and structural transformations. Similarly, we distinguish between two definitions of innovation policies. Narrowly defined innovation policies comprise dedicated government programs and support to increase innovation output, while broadly defined innovation policies consist of government action to create favorable conditions for education, science, research and innovation (Fischer, 2018).

Even though industrial policies fall into the realm of political steering, this aspect of steering itself is generally not well conceptualized in the existing economic literature. Some authors stress the importance of government capabilities to successfully select and implement industrial policies (Altenburg, 2011). In this regard, it has been argued that industrial policies should be conceived as trial-and-error experiments and not merely implemented in a top-down manner. In general, however, observers tend to neglect the challenges and practices of steering industrial policies across administrative levels, of coordinating different but interrelated industrial policies and instruments, and of adjusting them in reaction to shirking. Likewise, the counter-steering and negotiation strategies of steering objects are rarely taken into account. Ultimately, this raises the question of whether the success and failure of industrial policies — the core issue of most discussions — has to

be attributed to the policies themselves or rather to the strengths and weaknesses in the policy process or steering modes that guide their implementation.

Steering Modes and Industrial Policies

If steering as a concept of policymaking and implementation is positioned between planning and governance as suggested above (Figure 1), the act of steering should be located somewhere between economic planning (e.g., mandatory FYP) and the free play of the market with industrial policies being a major instrument of economic steering. Consequently, according to the definitions developed in the previous section, industrial policies can refer to the support of single industries, to the steering of industrial structures and development or — in a very broad understanding — to the steering of overall economic development. This distinction can be refined if we look at industrial policies from a steering mode perspective and consider the relationship between steering subjects and objects.

In such a scenario, hard steering with industrial policies refers to hierarchical decision-making where steering objects (lower-level governments and enterprises) exert little influence on the policy design process. This steering mode is most suitable for narrowly defined industrial policies. Typical examples include instruments that protect an industry via a license system, dedicated financial support to a specific industry's development and structural goals. The steering subjects impose these instruments on the steering objects and control implementation. Indirect steering with industrial policies refers to examples where policies are first negotiated with steering objects. Implementation can, for example, be supported by incentive schemes, matching funds or competition among steering objects that experiment with different implementation strategies. Indirect steering can either be used to influence the development of specific industries or to support industrial development. In contrast, soft steering is difficult to associate with the steering of single industries; it rather suits attempts to steer overall industrial and economic development. In a multilevel system, "no steering" can refer to the complete lack of pre-defined industrial policies or to the center refraining from steering and therefore accepting policies originating from local governments, which compete with or even contradict central government ideas (Chu, 2017).

Political Steering and Industrial Policies in China

Historic Overview

As mentioned above, industrial policies in China emerged in the course of its economic reforms. They gained in attractiveness as the government changed the character

of the FYP from mandatory to indicative during the 1990s as they promised government control in spite of the ongoing expansion of market forces (Fischer, 2000). With industrial policies, the Chinese government hoped to emulate industrialization drives in Japan and Korea (Eun & Lee, 2002; Shih, 2014) since the economic rise of these countries was largely attributed — and not only by Chinese analysts — to successful industrial policy design and implementation (Chen & Naughton, 2016). The attractiveness of the Japanese and Korean examples declined as a result of the Asian Financial Crisis which resulted in a temporary refrain from explicit industrial policies in China towards the end of the century. Still, industrial policies reemerged under the Hu/Wen leadership and have steadily increased in number ever since (Heilmann & Shih, 2013, p. 3).

The period between 2009 and 2012 was especially characterized by a series of narrowly defined industrial policies. These targeted ten major traditional industries as well as seven so-called "newly emerging strategic industries" which were deemed important for China's future development and global competitiveness (Ahrens, 2013). Adhering to a strategy that promised to establish China as a leader in the evolving global race for green technologies, the Hu/Wen- leadership aimed to combat two crises simultaneously: the global financial crisis and the climate crisis (Fischer, 2012). In response to industrial policies for newly emerging strategic industries, critics in China complained that the government was crowding out private initiatives (Lam, 2015) which had boosted the targeted sectors even before they were identified as strategic. Critics of the Hu/Wen leadership's attempt to propel strategic emerging industries therefore hoped for a change in industrial policies around the leadership change in 2012/2013, a change at least in character if not in name.[6]

Arguably, these hopes were premature (Brandt & Rawski, 2019, p. 17). At first glance, they were confirmed[7] since the "Decision" of the Third CCP Plenary Session in December 2013, which delineated the economic policy strategies of the Xi administration, did not place a strong emphasis on industrial policies. While the document stressed the intention to support industrial upgrading and innovation and also mentioned the role of future-oriented strategic industries, it only once mentioned

[6]Quite often, this hope was expressed as a request to once again reap the "reform dividend." For an overview, see Qian (2013).

[7]A strong signal for change with regard to industrial policies had been the sacking of Liu Tienan, Vice-President of the NDRC and Head of the National Energy Agency under the Hu/Wen administration. Liu disappeared in early 2013 and became one of the early high-level victims of Xi Jinping's anti-corruption campaign. He had been responsible for the design of narrowly defined industrial policies dedicated to renewable energies as well as electric vehicles in 2012 and early 2013. Therefore, his fall from grace seemingly signaled dissatisfaction with his signature policies, even though the policies themselves were not taken back (Fischer, 2014, p. 96).

industrial policies as an aspect of macroeconomic steering in the context of "strengthening coordination between fiscal and monetary policies as well as industrial and price policy measures" (Central Committee of the Communist Party of China, 2014, Section 14). The document seemingly signaled a reduction in industrial policy use by promoting greater liberties for market forces to decide on resource allocation. In addition, it was suggested at the time that the new leadership was unhappy with the perceived lost decade of reforms under the former administration (Lam, 2015). In sum, the signals sent out at the time indicated that the new leadership would rather favor broadly defined industrial policies.

In 2015, however, Xi kick started a "Made in China 2025" program, which immediately became the flagship industrial strategy of his first year in office. Against this background, a fierce debate on industrial policies erupted among Chinese economists in 2016, most prominently represented by the Peking University professors Justin Lin Yifu and Zhang Weiying. The debate reflected support as well as discontent with industrial policies under Xi's leadership (e.g., Cao, 2016). The exchange received extensive coverage in public and social media, most likely because it reflected internal discussions within the leadership (Chen & Naughton, 2016; Naughton, 2016).[8] In any case as it became known later, it anteceded the promulgation of yet another set of national industrial policy documents related to industries such as Internet+, artificial intelligence and electric vehicles (EVs).

Overall, the attitude of the Xi leadership towards the steering of industrial policies remains somewhat puzzling. The abstract nature of the recent theoretical debate has shed no light on differences between industrial policies issued under the former and the current political leadership, nor has it been able to explain the factors contributing to the success or failure of industrial policies in China. In contrast, interviews with provincial bureaucrats in 2016 uncovered changes in industrial policies under Xi in terms of the instruments deployed (Interview information, Nanjing, September 2016). The interviewed cadres especially mentioned the practice of *fangguanfu* (放管服) (Guowuyuan, 2016) as an indication that the central government would interfere less with policy and instrument choices and would more strictly assess lower government performance by goal achievement alone.

In sum, even though industrial policies have regained attention in the recent economic literature and are of great importance in the political steering of China's economy, several research gaps remain unanswered: First, shifts in the functions

[8]In the course of the discussion, it became obvious that the Xi administration sided with the position that industrial policies continue to be important for China and with Lin Yifu, the scholar who most prominently argued for industrial policies in the debate (Jingji Daokan Editorial Board, 2017).

attributed to industrial policies and changes in the selection of instruments are seldom addressed by the literature on economic policies in China. Despite laudable attempts on the part of Eaton (2016) and Shih (2014) to explain industrial policy practices in the PRC for earlier periods, few comparable in-depth analyses exist concerning the present leadership era. Second, research regarding the design and implementation of industrial policies in China usually ignores the perspective of local governments and public and private enterprises. Third, while it is widely acknowledged in the literature that local adaptations of policies for strategic sectors vary between different provinces in China, the causes and dynamics of such variations are not well understood. Finally, little is known about how interdependencies and conflicts between policies for different but interrelated industries are managed across administrative levels and by steering objects (Kostka & Hobbs, 2012).

A Steering Theory View on Industrial Policies in China: Some Examples

The application of steering theory is beneficial to filling some of these research gaps. The distinction between the different modes of steering with regard to industrial policies (see Figure 3) opens a new perspective on nuances in economic steering and the evaluation of changes in industrial policymaking in China over time. Influenced by Japanese examples, China's initial policies in the automotive sector clearly fell in the category of narrowly defined industrial policies dedicated to one sector. These policies established, amongst others, clear targets for the structure of the industry in terms of original equipment manufacturers and their suppliers (Eun & Lee, 2002). Licenses for production and sales were conceived as important instruments to achieve these goals at the time. The policy failed to reach its structural goals, not least because it was dropped in the aftermath of the Asian Financial Crisis and China's preparations to join the WTO. It succeeded, however, in signaling to steering subjects that the government intended to turn China into an automotive society.

In some industries that are dominated by central state-owned enterprises (央企, *yangqi*), the Hu/Wen administrations favored a narrow industrial policy approach with structural goals for the specific industries. This approach was based on the idea that competition between a few SOEs would be preferable to monopolies. Therefore, although hard steering was practiced with regard to the structure of the industries, the government's expectation that narrow oligopolies would ensure competition among steering objects and thereby increase the efficiency of industrial production still resonates with indirect steering. This latter consideration has been abandoned under Xi Jinping, as the central government in recent years has favored mergers of SOEs within

the same industry under the assumption that consolidation empowers state-selected "national champions" to compete in the international arena (Brandt & Rawski, 2019, pp. 24–25; O'Connor, 2018).

Policies dedicated to strategic emerging industries have also been industry-specific or narrow, but the approach to steering differs from sectors dominated by SOEs. Of these, the policies for solar energy and EV sectors were mentioned as the most typical industrial policies in our interviews. In the case of the solar industry, legislation resulted from negotiations with and lobbying by steering subjects that suffered under the impact of the global financial crisis (Fischer, 2014). Although the central government came up with structural goals for solar manufacturing to curb existing overcapacities, the initial steering instrument was to establish bidding processes for projects defined by the government in order to generate best prices from competition (Zhi, Sun & Su, 2014). Until recently, a subsidized feed-in-tariff and an annual contingent of projects have been the major steering instruments for the sector. Consequently, industrial policies for the solar sector fell into the category of indirect steering rather than hard steering because steering objects we cajoled into accepting centrally mandated goals by means of competition. More recently, the Xi administration decided to stop the majority of support schemes for the sector, arguing that the feed-in costs of PV generated electricity near grid parity (Zhonghua Renmin Gongheguo Guojia Fazhan he Gaige Weiyuanhui, 2018).[9] The remaining policy support for the small section of PV projects related to poverty alleviation follows a more hierarchical approach (Jia, 2018).

Indirect steering also applis to the development of the EV sector. In this case, central government subsidies were complemented by local experimentation with preferential policies for EVs like financial subsidies, exemptions from urban license plate lotteries and daily traffic controls, which have played a crucial role in the uptake of the industry since 2010. More recently, in order to achieve the government's ambitious target of 7 million EVs sold annually by 2025, state planners updated policies regarding financial incentives, infrastructure build-up, and research and development (Zhang, Liang, Yu, Rao, & Xie, 2017). The Ministry of Industry and Information Technology (MIIT)'s national cap-and-trade policy is a central initiative that requires carmakers to comply with an increasing EV quota in their car fleets by 2020

[9]It should be noted that the phasing out of subsidies was mainly due to promised subsidies exceeding available funds. In May 2018, interviewees said some enterprises had been waiting for subsidy payments for more than a year. In September 2019, the authors were informed that many private enterprises were still waiting for payments. As delayed payments would eventually drive enterprises into bankruptcy, one enterprise delegate speculated that this may be a strategic attempt of the government to again foster SOEs and kick private firms out of the market (國進民退, *guojin mintui*).

(Zhonghua Renmin Gongheguo Gongye he Xinxihua Bu, 2017). While the policy leaves less room for regional competition under hierarchy, it intends to instigate competition between manufacturing firms with regard to quota achievements and thereby accelerate the industry's technological advancement.

One example of soft steering would be state signaling, as observed by Stern and O'Brien (2012) as well as Harrison and Kostka (2014). With reference to China's energy sector, the latter argue that the "national government steered policy implementation by providing guidelines and concrete energy efficiency targets for local governments to follow" (p. 451). By means of signaling, the steering objects can infer how much emphasis should be placed on climate change mitigation as compared with other policy priorities. Harrison and Kostka (2014) argue that the "confidence that these signals will be taken seriously by local governments has enabled the national government to take a hands-off approach to how the targets are met. Signals are accompanied by concrete targets and incentives for local officials" (p. 458). Allowing local governments to design policies adapted to conditions on the ground, even within a given framework of incentives and targets, conforms with a softer mode of steering as compared to the more heavy-handed indirect modes of steering described in the previous paragraphs.

A New Era of Steering with Industrial Policy Under Xi?

The flagship industrial policy of the first years of Xi Jinping's reign, "Made in China 2025" (MIC 2025) has been heavily criticized internationally as a return to industrial policies that mirror ideas of the planning and early reform period. According to this view, MIC 2025 would have to be classified as a hard steering mode of industrial policies. Arguably though, MIC 2025 differs from the narrow industrial policies of the Hu/Wen era in that it seems to address technology fields, levels and platforms rather than industries. As an example, artificial intelligence (AI), for which the Xi administration has defined a specific strategy, pertains to a field of technologies that will change many industries and service sectors in the future. These industrial policies are broad in character and target industrial development more generally, even though they also name specific technology levels or define market size and international market share targets (Holz, 2018). For example, the government set a spending goal of at least US$150 billion on AI to achieve China's goal of becoming the world leader by 2030 (Guowuyuan, 2017). Similarly, the most recent "Three-Year Action Plan" for AI development released by the MIIT in 2018 demands a 97 percent accuracy rate of Chinese language speech recognition or specific performance levels set for neural network chips (Triolo, Kania, & Webster, 2018). None of these goals are

associated with instruments conventionally deployed in hard steering. On the other hand, China's AI policy provides financial and political support to the so-called "national AI team," a group of private enterprises involved in AI development (Ding, 2018). Thus, while recent industrial policy documents address technological fields and signal a somewhat different steering mode, "picking winners" is still on the government's agenda.

From the beginning, the Xi administration stressed that it wanted to change economic steering so that the government does what it is best at and leaves what the market is best at to the market.[10] Still, after a period of nebulosity, the new administration reintroduced dedicated policies for some industries and defined others afresh. In some cases, policies of the Hu/Wen era were continued, though with slightly different instruments. However, in the solar and the EV industry, for instance, policy outcomes have not met expectations. According to information from our interviews, the government has recently come to the conclusion that past support for solar energy and EVs, arguably the most representative industrial policies of the late Hu/Wen era that continued under Xi, were too costly and failed to achieve the goal of technological leadership. In response, the government redefined policies in both sectors as described above. In other cases, the Xi government has started using indirect and softer approaches to steering. This implies that the Xi administration is willing to allow greater freedom for local governments to adopt their own modes of steering. At the same time, it is quite obvious that the administration wants to be in control of overall development and stability. Therefore, the government will not and cannot fully refrain from steering. A recent policy document (Guowuyuan, 2019) hints at the central government's intent to move from steering via *ex ante* control to steering via *ex post* control. While the document does not directly refer to industrial policies, it clearly argues for a reassessment of roles attributed to different levels of the administration and encourages industry self-regulation as well as discursive practices (§ 15), suggesting a preference for indirect and soft steering in the shadow of hierarchy.

Conclusion

To sum up, we argue that the Xi government seems to be inclined to refrain from industrial policies in the narrow sense but is still eager to control overall

[10]Interview information from the Development Research Center of the State Council (DRC) (2012, August); see also World Bank and DRC (2012).

industrial development. The reliance on industrial policies of whatever type originates from the characteristics of China's political and economic system, which can neither be characterized as a system of planning nor a system of governance. Therefore, the government is unlikely to give up on steering as long as the Chinese political system remains unchanged. However, we suggest observers understand the changes in industrial policy approaches as a tinkering between different steering modes. While hard steering and indirect steering are used to implement industrial policies in the narrow sense, soft steering aims at structural readjustments and technology development without state interference in specific industries or enterprises. From the perspective of the central government, the different steering modes are associated with different levels of policy effectiveness and efficiency: hard steering is best equipped to ensure policy implementation, whereas soft steering risks implementation failures (see Figure 4). This is not to be confused with efficiency, however. As demonstrated by the solar and EV examples, these policies have been highly effective in that China today is the global leader in solar PV investment as well as registered EVs. At the same time, these policies are much criticized in China for their lack of efficiency. Against this background, the tinkering between different steering modes and industrial policy approaches reflects an attempt to balance the need for effectiveness and efficiency in policymaking.

Even though the examples presented in this paper have proven economic steering to be essential to the Chinese government, we argue that Chinese and international critics who simply accuse the Chinese government of misusing industrial policies without defining the concept run the risk of debating apples and pears and thereby weakening their argument. Furthermore, the use of broad industrial policies in order to steer industrial development and support innovation is not unique to China. Therefore, if critics ignore past and present changes in the use of industrial policy types and steering modes, the Chinese government will hardly take such criticism seriously. On the other hand, it may be possible with a more differentiated approach to persuade the

	Hard steering	Indirect steering	Soft steering
Steering effectiveness (likeliness that a policy is implemented regardless of its quality)	High	middle	low
Steering efficiency (likelihood that industry policy targets are achieved at lowest implementation cost)	low	possible	likely

Source: Authors.

Figure 4. Steering effectiveness and efficiency.

Chinese government to rely more on soft steering and less instrusive industrial policies instruments.

We have suggested in this paper that steering theory provides concepts and tools to improve the understanding of industrial policymaking and implementation in China. There are still some limitations to our argument. First, steering theory is an actor-centered approach. While the theory does assume that the steering subject in reality is often a coalition of actors, we have not distinguished between government and Party actors, and therefore, we have not discussed the recent move of decision-making power from the government to the Party under Xi Jinping.

Second, further research should also delve deeper into industrial policies for specific policy fields or classes of industries in order to develop a refined understanding of steering instruments. Similarly, a closer look at steering subjects and objects at the local level would grant further insights into their efforts to influence policies or counter-steer in the process of policy implementation.

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