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**Chinese Developmental State uniqueness: an
interpretation based on productive development
policies and the dynamics of institutional change**

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Chinese Developmental State uniqueness: an interpretation based on productive development policies and the dynamics of institutional change

1

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Abstract

This paper analyzes the co-evolution of transformations in the Chinese institutional matrix and in its productive development policies based on a dialogue between institutionalist, developmental state and neo-Schumpeterian literature. The paper has the hypothesis that the synergy of this co-evolution in the Chinese case, this phenomenon rests on two pillars. The first is the specificity involved in the process of institutional change and the formulation of Chinese productive development policies in the face of other historical materializations of Developmental States. These would result from (i) structuring the political and institutional system based on a logic that combines fragmentation and hierarchy (Chen, 2020; Lieberthal; Oksenberg, 1988; Mertha, 2006), from (ii) construction of policies and institutional innovations based on a high tolerance for experimentation and orientation towards pragmatism (Heilmann, 2008), from (iii) organization of state action in economic coordination from what Pearson (2015) and others call a multi-layered structure and from (iv) Chinese originality when compared to other historical catching-up strategies, of simultaneously seeking to match the current paradigm and dispute leadership in a new techno-economic paradigm in gestation (Diegues; Roselino, 2023; Naughton, 2021). The second pillar that would positively contribute to the synergy in the co-evolution between institutional changes and productive development policies would be the coexistence of traits from different stages of development, which combine in regions of the country, sectors and technologies, qualitatively different productive policies. From these pillars, the contribution intended by this work is to show that one of the main virtuous elements that explain the success of the Chinese development strategy after the beginning of the Economic Reforms of 1978 is the capacity of co-evolution between the transformations in the institutional matrix and in the policies of productive development. The pace of transformation and the morphology of this co-evolution, in turn, would ultimately be determined by the challenges and contradictions that emerge from the transitions between the different phases of Chinese development.

Keywords: China, Institutional change, Development, Innovation, Productive development policy.

Resumo

A singularidade do Estado Desenvolvimentista Chinês: uma interpretação a partir das políticas de desenvolvimento produtivo e da dinâmica da mudança institucional

Este artigo analisa a coevolução das transformações na matriz institucional e nas políticas de desenvolvimento produtivo chinesas a partir de um diálogo entre as literaturas institucionalista, do *developmental state* e neoschumpeteriana. O artigo parte da hipótese de que a sinergia dessa coevolução no caso chinês tal fenômeno se ampara em dois pilares. O primeiro deles é a especificidade que envolve o processo de mudança institucional e de formulação de políticas de desenvolvimento

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produtivo chinesas perante outras materializações históricas de Estados Desenvolvimentistas. Essas decorreriam da (i) estruturação do sistema político e institucional a partir de uma lógica que combina fragmentação e hierarquia (Chen, 2020; Lieberthal; Oksenberg, 1988; Mertha, 2006), da (ii) construção de políticas e de inovações institucionais a partir de uma elevada tolerância à experimentação e da orientação ao pragmatismo (Heilmann, 2008), da (iii) organização da atuação estatal na coordenação econômica a partir do que Pearson (2015) e outros denominam de estrutura multi camadas e do (iv) ineditismo chinês frente às demais estratégias históricas de *catching-up*, de se buscar ao mesmo tempo o emparelhamento no paradigma vigente e disputar a liderança em um novo paradigma tecno-econômico em gestação (Diegues; Roselino, 2023; Naughton, 2021). O segundo pilar que contribuiria positivamente para a sinergia na coevolução entre mudanças institucionais e políticas de desenvolvimento produtivo seria a coexistência de traços de distintas fases do desenvolvimento, que combinam em regiões do país, setores e tecnologias, políticas produtivas qualitativamente distintas. A partir destes pilares, a contribuição pretendida por este trabalho é mostrar que um dos principais elementos virtuosos que explicam o êxito da estratégia de desenvolvimento chinesa após o início das Reformas Econômicas de 1978 é a capacidade de coevolução entre as transformações na matriz institucional e nas políticas de desenvolvimento produtivo. O ritmo de transformação e a morfologia dessa coevolução, por sua vez, seriam determinados em última instância pelos desafios e pelas contradições que emergem das transições entre as diferentes fases do desenvolvimento chinês.

Palavras-chave: China, Mudança Institucional, Desenvolvimento, Inovação, Política de desenvolvimento produtivo.

JEL: O25, O17, O43.

1. Introduction

This paper analyzes the Chinese economic development strategy from 1978 to 2022. Based on a dialogue between institutionalist, developmental state, and neo-Schumpeterian literature, it aims to show that one of the main elements that explain the success of the Chinese development strategy is the capacity of co-evolution in its institutional matrix and its productive development policies. This paper hypothesizes that this synergistic co-evolution is built upon two pillars.

The first is the coexistence of characteristics from different stages of development, which combine in regions of the country, sectors and technologies, qualitatively different productive policies.

This coexistence enables the reduction of an institutional lock-in that could negatively contribute to the continuous institutional and political transformations required at each stage of development. So, such coexistence would maintain institutions and policies related to “previous” phases, facing less political resistance to changes. In other words, it circumvents a path-dependence force that could lock in social technologies since institutional and political innovation in the Chinese case does not necessarily mean overcoming and destroying previous policies and institutions (Nelson, 2003).

This process of coexistence and coevolution of different stages of productive and technological development in different sectors and regions means, most of the time, introducing complementary innovations capable of adapting to the new challenges that emerge from transformations in the development strategy.

The second pillar that supports the synergistic co-evolution of the Chinese institutional matrix and development policies refers to the specificity of the process of institutional change and formulation of productive development policies. Compared to other historical materializations of Developmental States strategies, its specificities result from:

- (i) A political and institutional system based on a logic that combines fragmentation and hierarchy (Chen, 2020; Lieberthal; Oksenberg, 1988; Mertha, 2006),
- (ii) The construction of policies and institutional innovations based on a high tolerance for experimentation and orientation toward pragmatism (Heilmann, 2008),
- (iii) State coordination based on a multi-layered economy (Pearson, 2015),
- (iv) Chinese originality (when compared to other historical development strategies) of simultaneously aiming to catch up and fight for leadership in an emerging techno-economic paradigm (Diegues; Roselino, 2023; Naughton, 2021).

The first and second characteristics enable the replicability of central institutions and policies at subnational levels, especially in provinces (such as five-year plans, the creation of Development Banks, the establishment of investment funds in emerging industries, guidelines to regulate foreign direct investments, etc.). This replicability, despite its broad alignment with central guidelines, also gives subnational units a high degree of flexibility and adaptability to local specificities and reinforces the second guiding element of institutional transformations and Chinese policy-making: a high tolerance for experimentation and pragmatism (Heilmann, 2008).

The third distinctive element of Chinese development policies - the multilayer coordination structure - allows the heterogeneity of the local productive structure not to be a limiting factor for development. The reason is that economic coordination in each of these layers materializes in different institutions and policies - created considering the respective levels of productive and technological development and even the institutional maturity of each of these layers. The upper layer consists of the commanding heights of the Chinese economy, dominated by large state-owned companies and coordinated by the central government (under the institutional figure of SASAC – State-owned Assets Supervision and Administration Commission). The middle tier consists of companies in sectors that are central to the Chinese innovation-driven strategy. Its institutional apparatus of coordination is based on establishing industrial policies that define the strategic industries (Naughton, 2021). Finally, the last layer is made up of smaller private companies in which state coordination is barely present.

The fourth distinctive element of the materialization of Chinese industrial institutions and policies (when compared to other historical configurations of the Developmental State) refers to its aim of both catching-up with the actual paradigm and fighting for leadership in an emerging techno-economic paradigm (Diegues; Roselino, 2023). An interesting feature of this initiative is the fact that competition for leadership in an emerging paradigm by a country that is yet to finalize its process of catching-up to the previous paradigm expectedly requires a set of institutional and political innovations that differ from those required in the leading countries in the current paradigm (Perez, 2004).

After analyzing the pillars that support the synergistic co-evolution of the Chinese institutional matrix and development policies, this paper concludes that the pace of transformation and the morphology of this co-evolution is determined by the challenges and contradictions that emerge from the transitions between the different stages of Chinese economic development, from early catching-up as the factory of the world to its recent innovation-driven strategy of development and the US-China tech war.

To this end, the article is organized into four sections. The second section proposes an identification of the existing relations between the state, markets and companies as fundamental economic institutions, aiming at characterizing the changes in the composition and configuration of the Chinese “institutional matrix”, which occurred since the end of the 1970s. In turn, the fourth section addresses the main aspects of institutional innovations related to Chinese development in the 21st century, emphasizing productive development policies centered on innovation. The last section is reserved for conclusions.

2. Institutional change and economic development: elements of the composition and configuration of the Chinese institutional matrix

This paper understands economic development in a national economy as a simultaneous and interconnected process of structural and institutional change, in which lasting growth is one of its desired results. Productive structural changes would include physical technologies, whereas institutional changes would be associated with organizational changes and social technologies (Nelson, 2003).

Over time, authors in several institutionalist perspectives have dedicated themselves to analyzing the role institutions play in development, highlighting the contribution of institutional changes, especially in catching-up processes. If, on the one hand, we find a consensus on the idea that institutions matter, on the other hand, their role (or even the meaning of institutional change as a process inherent to development) remains debatable.

Understanding economic development as a catching-up process requires simultaneously and interconnectedly highlighting the relation between structural (techno-productive) and institutional changes, analyzing to what extent these relations would predominate over the other. Note that the way structural transformations affect and are affected by institutions has been a central issue that differentiates institutionalist approaches.⁵

Institutional changes promoted over time are considered innovations since each economic trajectory has a unique character, i.e., regardless of the way in which the causal relations that promote development are established, analytical perspectives (institutionalist perspectives) share the notion that change is synonymous with innovation,⁶ reiterating that changes bring unpredictable effects to development, although they may be inserted in a planning horizon.

Thus, institutionalist perspectives could aid us to understand the Chinese economic development as an object of analysis. In turn, the way institutional changes occur and how this relates

(5) With greater prominence among institutionalist perspectives, we find the original economic institutionalism (IEO) (Hodgson, 2000) and new institutional economics (NEI) (Williamson, 2000), with analytical perspectives differing on the role of institutions, especially regarding how they affect development. Sometimes, in a kind of institutionalist “third way,” greater relevance is given to structural aspects, as in Chang (2011), Reinert (2007), and Nelson (2003). In sum, a “structuralist” perspective seeks to establish a relation with IEO (an evolutionary strand) and mainstream institutionalist NEI. What this section will highlight refer to some complementary aspects between these approaches that enable us to address singular cases such as the Chinese economic development, especially Douglass North’s (1991; 2008) original contributions on the concept of institutional matrix.

(6) This study will adopt this treatment to institutional changes.

to national economic development requires understanding the relations between fundamental economic institutions. Characterizing the composition and configuration of a national institutional matrix from its fundamental economic institutions is a crucial starting point to analyze its long-term economic performance.

North (1991) claims that an institutional matrix encompasses a set of rooted factors consisting of the basis of economic agents' decision-making, thus referring to political, social, cultural aspects, etc., and containing rules that aim to give operability to transformation processes. Thus, formal rules may lack a rooting character given possible changes based on previously established objectives.

The history and dynamics of their institutional matrices largely explain the trajectories of different societies. The institutional matrix of a nation comprises the formal and informal mechanisms that directly relate to its economic development.⁷

As highlighted, institutions and changes to them must be understood both from “cultural elements” (values, habits, beliefs, etc.) and “formal mechanisms/regulations” (laws, policies, plans, etc.). In practice, such processes both compose and configure the institutional matrix of a nation. To a large extent, economic development depends on how these mechanisms mix with ongoing structural changes. An institutional matrix and its economic bias encompass three fundamental institutions in its composition (state, market, and companies) based on how they relate to each other. This relation is established by an institutional configuration that tends to adapt to economic development while promoting it or creating obstacles to it.⁸ An aggregate perspective of the economy becomes even more necessary as the state plays a leading role in development, as has been the case in China over the past few decades.

Based on this concept, we seek to understand the composition and configuration of an institutional matrix and their influence on economic development, i.e., which institutions have greater capacity and scope over change processes and how these institutions relate to each other in a national economic trajectory.

Although North (1991; 2008) stresses the process of building efficient institutions, he also considers that elements such as mental models, ideologies, beliefs, culture, and learning are fundamental to understanding economic performance. Even when he proposes the concept of an open society (North; Wallis; Weingast, 2009), he notes that institutions are unable to be transplanted from one society to another since they are historical constructions with singular trajectories. The way societies undergo institutional transformations changes their composition but above all the configuration of their institutional matrix as a movement inherent to economic development. Such transformations depend to a large extent on their capacity to promote institutional innovations.

(7) Markets and companies (organizations) play an essential function as institutions that operate the “matrix,” affecting national economic performance. However, the state plays the central role in the composition of the “institutional matrix,” as in the Chinese case as we will see. In turn, the way the state, markets, and companies relate to each other consists of what we will consider the configuration of the “institutional matrix.” Since our analysis addresses relations between institutions (configuration), it will ignore aspects of individuals' behavior. On the relationship between individuals and institutions, see Hodgson (2007; 2010).

(8) An institutionalist approach, highlighting the macro level without neglecting micro aspects better analyzes a trajectory of national economic development. We will adopt such a perspective from this section onward.

As institutional matrices have no standard configuration, the state has a fundamental role, especially in creating and enforcing compliance with formal rules, thus directly influencing change or inertia processes. In an extreme case (a top-down relation), the state would have a determining role in its institutional matrix. This relation tends to be diluted as other institutions (markets and companies/organizations) expand their role in a long-term strategy (trajectory), i.e., one in which the institutional matrix configuration undergoes changes without the state necessarily ceasing to be a central agent of development.

To the extent that the state plays a fundamental role in development, institutional relations become more comprehensive and, as a rule, more complex, compared to cases in which the role of the state is restricted to that of an agent whose fundamental function would be to apply and enforce the “rules of the game.” The way the state interferes in the economy defines its role in the institutional matrix, influencing the way markets and companies operate, as pointed out earlier.

We should highlight that, in a historical sense, markets and companies are unable to emerge and establish themselves in an “institutional vacuum.” Thus, a development strategy presupposes the fundamental role of the state in this process. Markets are unable to formulate development strategies and companies, in turn, adopt micro-organizational strategies from a given institutional and business environment.

As this institution consists of several others, the state articulates national development strategies, especially when it assumes a developmental character. As Reinert (2007, p. 68) notes: “Some institutions importantly serve dual, multiple, and systemic purposes.” This would apply to the state as an agent of development.

The Chinese state configures both a basic institution of the national institutional matrix and a central agent of development.⁹ Thus, state actions affect the behavior of national and foreign public and private companies, impacting markets and changing the configuration of the institutional matrix according to long-term objectives, usually following “five-year plans”.

Transforming China into the “factory of the world” would be the main objective of this configuration of the Chinese institutional matrix throughout the 1980s and 1990s.

Thus, analyzing the institutional component of Chinese economic development requires understanding the nature of state-market relations and the role of domestic and foreign public and private enterprises. State, market, and companies configure economic institutions whose interrelation is quite varied considering the several national economies in their long-term trajectories. As Naughton (2021, p. 96) points out:

What is certain today, however, is that the process of China’s emergence will be determined primarily by the interaction between an aggressive and interventionist government, on the one hand, and a robust business sector on the other, rather than through primary market forces on their own.

(9) Political control has been a striking feature of the Chinese economic development. This study will not analyze the role of the Chinese Communist Party (CCP) but highlights the importance of politics, especially regarding economic planning as the basis of a national development strategy. For more details on the influence of the CCP on the Chinese economy, see Jabbour and Gabriele (2021) and Moura (2021).

In fact, its economic development has been characterized by its capacity to nationally organize markets, which demands direct and indirect state intervention over the economic activities of public and private companies – with neither historical precedent nor reference (not even a close one) in developed contemporary economies. This organizational capacity has been the basis of the Chinese institutional matrix, in which the state coordinates development actions, as clearly expressed in 14 of its five-year plans.

Rather than a state-versus-market or public-versus-private dichotomy, China would have planned and decisive state actions on the importance of the private sector for national economic development. Thus, the private sector would have grown in recent decades without the state ceasing to be a central agent of national economic development. However, analyses of how the state relates to the domestic and foreign “private sector” and market have failed to signal a consensual (sometimes not even complementary) interpretation of the economic trajectory of China.

Naughton (2021, p. 13) suggests the characterization of a “market-driven, government-steered economy:” “Indeed, Chinese policy-makers argue that they are creating a “market-driven, government steered” economy, essentially, a new model of an economic system.” (Naughton, 2021, p. 99), adding that: “The term *yindao*, generally translated as “guided” or “led,” has a long history in Chinese Communist usage, usually referring to the “guidance” of public opinion.” (Naughton, 2021, p. 99) Thus, rather than fixing market failures, it refers to organizing market functioning based on development goals with a strong state influence.

Additions to the institutional matrix tend to be incorporated over time into the development process. Thus, productive transformations imply an accumulation of knowledge in the productive and institutional evolution, rather than a rupture with ongoing processes. Institutional innovations are shaped to promote and support productive transformations, characterizing the need to promote innovations in all senses, but in an articulated way.

The way the state interferes in public and private companies, redefining their functions in the national economic development over time, changes the configuration of its institutional matrix, affecting domestic and international markets; i.e., variants of the basic composition condition the changes to the institutional matrix configuration, as above. Jabbour and Dantas (2021, p. 295) find a “strategic relocation of the State” in which the “cyclical emergence of institutions” delimits the form of the “reorganization of activities between the state and private sectors of the economy, with the growth of the private sector not occurring to the detriment of a decrease in the role of the State.”

China would have its own characteristic internal organization and international insertion against the prevailing capitalist “model.” In China, development singularities overlap with the “regularity patterns” other economies throughout history showed during their pairing attempts. To a large extent, the way the Chinese government has promoted institutional changes (as a fundamental part of its national economic development strategy) has corroborated the idea of a singular strategy. Naughton and Tsai (2015) claim this strategy is based on building a form of State Capitalism characterized by (i) the state retaining direct control of strategic sectors, (ii) a broad and vigorous industrial policy, and (iii) its dominant position in the banking sector and equity markets.

Thus, the adoption of development policies (especially on industry and innovation in the 21st century) fails to break with the “framework” of the Chinese institutional matrix, which is the basis of

its economic policies and productive evolution enabling both technological and institutional innovations. Any change in the composition (but above all the configuration) of the Chinese institutional matrix has been processed based on a long-term development strategy in which economic policies highlight the key role of the state as a planner and agent of development. Thus, understanding how China conducts its institutional and productive innovation policies in an integrated way is an important step to analyze its economic development in the most recent scenario.

3. The uniqueness of the Chinese Developmental State

Based on the framework present in previous section, we understand the centrality of coevolution between institutional changes and productive structure transformations as the element guiding a national development strategy. As Nelson (2003) suggests, the search to build synergy in the co-evolution of these processes turns into an evolutionary dynamic of permanent experimentation that affects what the author calls social technologies and physical technologies. It is precisely in the sense of making these experiments compatible that we must understand the institutional transformations associated with formulating productive development and industrial policies.

To this end, Chang (1994) suggests that the need to build productive development policies that mold themselves to the product cycles - according to Vernon (1966) - should guide the search for compatibility between institutional changes, social technologies, productive transformations, and physical technologies. This compatibility should enable policy reconfigurations, permanently transforming the productive forces of a nation, and diversifying them toward products and technologies in different stages of development.

Chang (1994) suggests that policies focus on measures to socialize the risks of products and technologies in early stages of development. As these stages have neither established technological standards nor consolidated market structures, the author suggests as main policies (i) generalizing incentives to experimentation, R&D diversification, and innovation, (ii) promoting an institutionality that generates externalities (technological and productive standards, etc.), and (iii) publicly offering venture capital funds for emerging technologies.

Intermediate stages would show an advanced codification of knowledge and reduced experimentation as an instrument to create competitive asymmetries. Thus, the most appropriate productive development policies would concentrate investments to reduce what Chang (1994) calls excessive competition and social waste and form large conglomerates (*chaebols* in South Korea) that can leverage productive and technological catching-up.

In the final (or senile) phase of a certain technological development stage, the author reinforces that industrial policies should break with the lock-in of the industrial structure in previous phases, reducing the relative importance of decadent sectors. This goal would be achieved by policies that would reduce previous agent lock-in to assets, investments, and knowledge that currently adhere less to the new phases of a technological trajectory in permanent evolution.

In the same argumentative line, Perez (2004) seeks to establish a relation between transformations to techno-economic paradigms and the institutional and political configurations that both support and are fostered by these transformations. Lee (2019) describes a set of stylized facts to suggest a normative typology for productive development policies that also stresses the need for the

constant evolution of their instruments and guidelines. These developments would be a way to circumvent the relative backwardness of developing countries and enable both catching-up and leapfrogging by developing innovative capacities that boost local competitiveness toward areas linked to the emerging technological frontier.

Based on this framework, this paper aims to understand the coevolution dynamics of the industrial policies and institutional transformations in China, following Naughton (2021), Jabbour *et al* (2021), Pearson (2015), among others, deeming productive development policies as permanent institutional transformations, according to Andreoni and Chang (2019).

Note that the transformations in the Chinese economic development strategy occur from a previous institutional base whose characteristics resemble that of the Asian Developmental State: a socially embedded vigorous public bureaucracy with Weberian traits, the autonomy to formulate policies, great public policy coercion and enforcement, the validity of state/private sector cooperation (coordinated by the former and subordinated to the logic of national development), a production-subordinated financial system, a reasonable degree of prior social homogeneity, and participation of functional international capital to development (Evans, 1995; Haggard, 2018). All these elements would be fostered by its international scenario, especially its geopolitics - favorable to the development strategies of some Asian countries (such as Japan, South Korea, and Taiwan).

In addition to this common framework supporting a political economy of structural transformation, Heilmann and Shih (2013) highlight the decisive influence of successful Japanese industrial policies in the 1970s and 1980s on the transformations of the Chinese institutional apparatus from the 2000s onward. This influence would have been fostered by the interaction between Japanese bureaucrats and academics and a generation of Chinese researchers at Renmin University and the National Development and Reform Commission in association with the political group of the then future Prime Minister Wen Jiabao. As he rose to power in 2003 with President Hu Jintao, a political coalition crystallized, laying the groundwork for Chinese central planning to institutionally incorporate productive development policies with some characteristics that resembled those Japan adopted in previous decades.

To the already virtuous characteristics of these policies were added the specific dynamics of the permanent Chinese institutional evolution, which enable a greater adaptation to its local social, productive, and regional heterogeneity. In other words - and referring to the definition of the Developmental State in Evans (1995) - even the high degree of autonomy of the Chinese Party-State remained sufficiently porous to the permanent contradictions of rapid structural transformations, as observed in China for at least the last four decades. This porosity became institutional innovations embedded in the new challenges permanently reposed by the local development strategy.

In our interpretation, among the elements that reinforced the specificity of the formulation of Chinese productive development policies in the face of other historical materializations of Developmental States, at least four deserve emphasis:

- (i) The structuring of its political and institutional system based on a hierarchical fragmentation logic (Chen, 2020; Lieberthal; Oksenberg, 1988; Mertha, 2006);
- (ii) The construction of policies and institutional innovations based on a high tolerance to experimentation and an orientation to pragmatism (HEILMANN, 2008);

(iii) The organization of state actions toward economic coordination based on what Pearson (2015) and others call a multi-layered structure;

(iv) The Chinese novelty (compared to other historical catching-up strategies) of seeking both to pair with the current paradigm and to fight for leadership in an emerging techno-economic paradigm (Diegues; Roselino, 2023; Naughton, 2021).

The first feature replicates central institutions and policies at subnational administrative levels, especially in provinces (five-year plans, the creation of development banks, the establishment of investment funds in emerging industries, guidelines for regulating the performance of foreign direct investments, etc.).

This replicability, while roughly in line with central guidelines, also gives subnational units a high degree of flexibility and adaptability to local specificities and reinforces the second guiding element of Chinese institutional transformations and policy-making: a high tolerance for experimentation and orientation to pragmatism (Heilmann, 2008).

Tolerance of this flexibility and regional autonomy constitutes a central historical element for maintaining the balance of power in the vast Chinese territory (Chen, 2020) and contributing to mitigate conflicts that may threaten territorial unity, fostered by the fact that provinces and municipalities configure the major operationalizers of resources and financial instruments aimed at developing productive forces (Naughton, 2021).

Despite boosting experimentation, fragmentation does not reduce cohesion between the political orientations of the five-year plans of the central power and local policies and institutions. This is due to another specificity of the Chinese political system: its system of chairs based on bureaucratic and political cadres in the hierarchical structure of the CCP and state-owned enterprises being determined by their compliance with certain major objective metrics. The higher bodies of the party establish these individual evaluation metrics, invariably focusing on the economic performance indicators of the organization/institution/region to which the bureaucrat or politician is linked and ultimately conditioned by five-year-plan guidelines. Thus, they indirectly align the party structure and local politics to the guidelines of the national development strategy - although often with conflict, as shown by Chen (2020). In other words, Heilmann (2008, p. 23) shows that:

(...) the unexpected capacity of the Chinese party-state to find innovative solutions to long-standing or newly emerging challenges in economic development rests on the broad-based entrepreneurship, adaptation, and learning facilitated by experimentation under hierarchy. The combination of decentralized experimentation with ad hoc central interference, which results in selective integration of local experiences into national policymaking, is a key to understanding how a distinctive policy process has contributed to China's economic rise.

The third distinguishing element of Chinese development policies (its multi-layered coordination structure) enables the heterogeneity of the local productive structure to avoid necessarily limiting development since economic coordination in each layer turns into distinct institutions and policies that are forged according to their development levels and productive, technological, competitive, and even institutional maturity.

Pearson (2015) suggests that the Chinese economy can be understood from three layers, each with different institutional regulation patterns.

The superior layer would consist of the economy commanding heights, based on sectors of transversal inputs or natural monopolies, invariably owned by large state-owned enterprises and directly coordinated by the central government under the institutional figure of SASAC.

The middle layer would contain regional and municipal state-owned and non-state-owned enterprises from technologically dynamic sectors whose relations with transnational companies would be central to the Chinese development strategy of building a technological superpower. These include electronics, machinery, cars, chemicals, and pharmaceuticals. In this layer, the institutional coordination and regulation apparatus fundamentally establishes industrial policies that give various sectors a character of emerging and/or strategic industries (Naughton, 2021).

The last layer consists of smaller private companies operating in light industries, consumer goods, and other sectors focused on the export of low-cost products. These show incipient state coordination and regulation, especially what Pearson (2015) calls social regulations, such as health and food safety issues.

The fourth element that gives specificity to the embodiment of Chinese industrial institutions and policies in relation to other historical configurations of the Developmental State is its aim to both pair the country to the current paradigm and fight for leadership in an emerging techno-economic paradigm (Diegues; Roselino, 2023).

A first major implication of this dual strategy is the need for the simultaneous existence of institutions and policies with varying complexity, maturity, and formatting within the country itself.

Unlike what a linear interpretation of the correlation between institutional maturation and development might suggest, Chinese institutional and political heterogeneity is an important instrument shaping the needs and contradictions inherent to an equally heterogeneous economy. To illustrate this, as China seeks to establish solid institutions to support its national innovation system and promote intellectual property as an instrument to create competitive asymmetries in sectors close to the technological frontier, the main catching-up instrument in others remains formatting institutional and political arrangements that can guarantee the low-cost supply of productive factors (capital, land, and labor).

A second interpretation is that, unlike the experiences in Japan and South Korea, as China catch-up the international frontier, its policies and institutions have resisted westernization, as the interpretations of the political establishment in Washington have suggested since Kissinger's classic visit to China in 1971 (Kissinger, 2012).

Thus, in contrast to the normative orientations of international institutions (as in Latin American countries) and/or even of strategic geopolitical partners (as observed in a reasonably disseminated manner in Japan, South Korea, and Taiwan), as China approaches the technological frontier, it has substantially strengthened its efforts to foster and create new institutional and political configurations that can drive the transition to a new techno-economic paradigm (conventionally called Industry 4.0).

An interesting feature of this initiative is that the competition for leadership in an emerging paradigm by a country that is yet to catch up to the previous paradigm will expectedly require a set

of distinct institutional and political innovations from those that seek to foster this process in the leading countries of the current paradigm. Thus, since the reference for productive and technological matrix is yet to be consolidated even in developed countries, it is impossible to at least draw inspiration from certain elements of a supposedly virtuous institutional arrangement that would most appropriately support the emerging techno-economic paradigm (Perez, 2004).

As mentioned, the combination of the four characteristics that permeate the historical embodiment of the Chinese Developmental State agrees with a strategy of permanently transforming productive and institutional development. In addition to these elements, we find that this functional dynamic of coevolving institutional and political innovations is boosted by the local coexistence of traits from several intertwining development phases in Chinese regions, sectors, and technologies and qualitatively distinct productive policies. This stems from economic, geographical, and social specificities that give Chinese development and catching-up a unique historical nature compared to other national experiences.

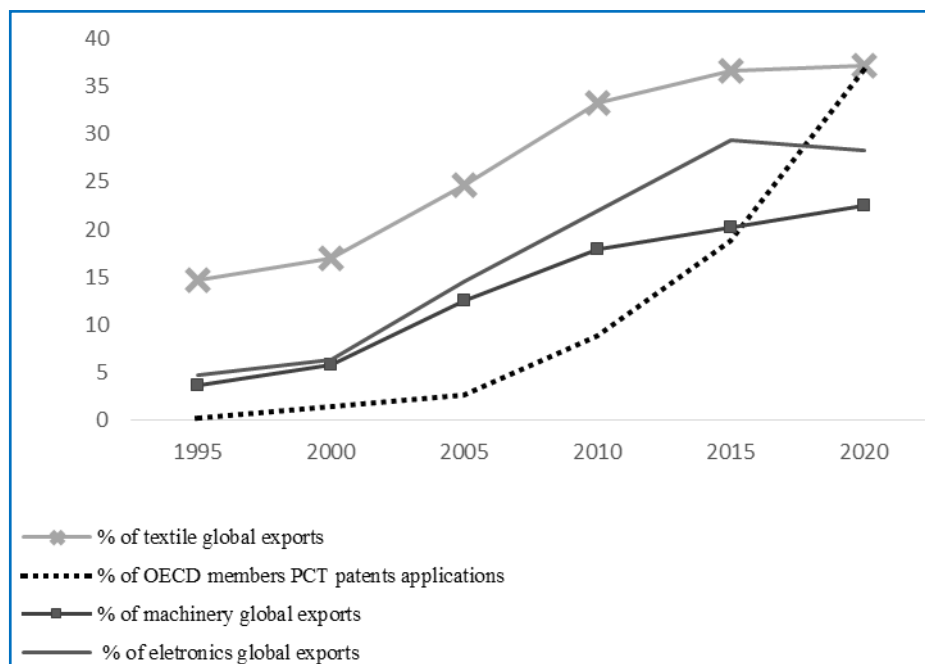
Given the Chinese structural productive, technological, regional, and social heterogeneity, and geographical and population dimensions, this process distances itself from a strategy to emulate the historical experiences of countries such as Japan and South Korea under the flying geese paradigm (Akamatsu, 1962; Palma, 2009) since its structural transformation, aimed at building an economy specialized in activities of greater technological complexity that dispenses with medium and low technological manufactures, finds obvious limits to its universalization and to incorporate and extend the fruits of technical progress to the huge Chinese population contingent.

Thus, while observing the search for the construction of an economy oriented to autonomous innovation characterized by the Developed by China stage – dating back at least to the 10th Five-Year Plan (2001-2005) – we can still observe the coexistence of the industrial policy pillars on which the strategy to foster the Made in China movement is based (Nolan, 2014; Chen; Naughton, 2016).

An illustration of this coexistence of a structure with a relevant share of low-tech and high-tech industries simultaneously is the fact that a rapid and steady increase of Chinese market share in world exports in electronics and machinery sectors does not occur in parallel to the reduction of market share in sectors such as textile. This movement, in turn, occurs in parallel with the also significant increase in China's share in the total number of patent applications filed under the PCT agreement, which has a very similar tendency to the one seen in the increase of market share in high-tech sectors presented in Figure 1.

Additionally, this coexistence movement can also be seen in the evolution of Chinese R&D expenditures. According to OECD data measured by purchasing power parity, R&D expenditures in relation to China's GDP increased from 0.89% in 2000 to 2.4% in 2018, with accelerated growth from the mid-2000s (275% between 2007 and 2018). This means that in 2018 China's R&D spending was equivalent to 79% of the USA's spending, 362% of Germany's, and 269% of Japan's.

Figure 1
Chinese Productive Indicators – Selected years – in %



Source: Atlas of Economic Complexity – Growth lab at Harvard University (% of exports) and OECD Stats (% of patents).

The regional distribution of labor-intensive manufacturing sectors illustrates this movement well. At the beginning of its economic opening, such activities concentrated in its coastal region and newly established special economic zones, constituted to foster the export integration of the Chinese economy into the international economy and fostering the attraction of international capital and local productive learning. Given the then embryonic stage of Chinese development, the pursuit vectors of such goals mainly focused on labor-intensive and low-technological sectors such as clothing, footwear, toys, etc.

The gradual success of the Made in China strategy (between the 1980s and 2000s), accompanied by the sophistication of its domestic productive structure, caused such labor-intensive sectors to lose some space in the main coastal regions of the country - such as the Shenghen special economic zone, for example. The reorientation of the industrial policies in more developed provinces toward other stages of development (such as the construction of an innovation-oriented economy) somewhat reduced incentives to these low technological sectors. The increase in production costs in these regions (such as wages, land, and inputs in general) also caused such activities to partially move to less developed regions in the inner coastal provinces at first (and later to Western China).

However, we should stress that this displacement failed to overcome Made in China. Unlike Japan and Korea, China avoided the virtual disappearance of local low-technological productive activities whose competitiveness is fundamentally determined by low costs and wages. Thus, the regional displacement of these activities meant both the migration of more developed regions to

higher stages of development (such as Developed By China from the 2010s to the present day) and the incorporation of new regions previously excluded from the productive development process to the initial stage of Made in China.

As can be seen in Table 1, such movements, in turn, are reflected in a heterogeneous behavior of the indicators traditionally used by the literature to measure the transition of an economy between different stages of development. Thus, even when analyzing Beijing and the 10 major Chinese manufacturing regions, it is verified that there is no clear pattern of behavior in practically all the variables that could synthesize a movement of supposed overcoming of Made in China stage (reflected in indicators such as wage, FDI and exports) and a transition to an innovation-driven strategy (which would have impacts on R&D indicators and the number of patent applications).

In other words, in general, it is not possible to observe a uniform movement between regions in relation to these indicators, which reinforces the perception of the coexistence of characteristics of different stages of development even in the Chinese provinces that are at the forefront of the process of transition to the Developed by China stage. Another evidence of this heterogeneity is the high standard deviation level in all Table 1 indicators, except wage ones – from 74% to 103% of the average values among even the top 10 Chinese manufacturing regions. If we include other less developed ones, this variation is expected to be much bigger.

Table 1
Chinese economy heterogeneity, selected indicators to 10 major manufacturing provinces, 2018*

Region	Annual average wage in manufacturing (USD)	FDI stock, (USD billions)	Exports, (USD billions)	R&D, (USD billions)	Number of patent applications (1.000)
*Beijing	10.409	548	74	4	21
Shandong	8.101	345	160	21	61
Guangdong	8.051	1.924	647	31	242
Jiangsu	7.980	1.056	404	29	165
Shanghai	7.773	885	207	8	29
Fujian	7.605	279	116	8	32
Zhejiang	7.396	446	321	17	100
Anhui	6.909	113	36	7	57
Sichuan	6.351	113	50	5	26
Hubei	5.835	142	34	8	28
Henan	5.771	105	54	8	28
(A) Average	7471	541	191	13	72
(B) Standard Deviation	1299	559	194	10	71
(A) / (B)	17%	103%	102%	74%	99%

Source: China Statistical Yearbook (2019).

*Data classified by business revenue of manufacturing sector. Beijing is not between the 10 majors manufacturing provinces in 2018.

In sum, unlike what a linear interpretation of Chinese development as an emulation of models from other Asian countries based on the flying geese paradigm would suggest, we find the permanent complementarity and mutual dependence of the various stages of development of its domestic productive forces.

On the one hand, this complementarity is necessary due to the geopolitical ambitions of the Chinese civilization and the challenge of incorporating its huge local demographic contingent into the fruits of technical progress and the impossibility of doing so from an export-led model with a highly specialized insertion in global value chains. On the other hand, it is only possible by coordinating the capacity of a centralized industrial policy in the National Development and Reform Commission and SASAC and the consequent socialization of investment (Bresser-Pereira et al., 2020; Jabbour et al., 2021)

The coexistence of traces of these phases also enables us to observe the coexistence of policies and institutions that typify certain configurations of specific phases. In other words, to the extent that institutional and political innovations arise to support a new phase of development, we often observe no linear and automatic destruction of existing institutions and policies to support the dynamics of accumulation in another phase of supposedly prior development.

Thus, this phase coexistence enables the reduction of lock-in elements that would contribute negatively to the continuous institutional and political transformations necessary at each stage of development since they would retain the institutions and policies characteristic of 'previous' phases and thus impose less political resistance to change. This movement circumvents path dependence force that could lock in Chinese development strategy to unfunctional social technologies (Nelson, 2003), as institutional and political innovation do not necessarily mean overcoming and destroying previous policies and institutions. Most of the time, this Chinese strategy introduces complementary innovations (see Figure 2).

Figure 2

China: phases of its development strategy, main guidelines for its productive policies, the configuration of its institutional matrix, and instrumental institutional changes

Strategy phases and guidelines	Characteristics of the composition and configuration of the “institutional matrix”	Instrumental institutional changes and productive development policies
<p>Made in China (1980s, 1990s, and 2000s)</p> <p><i>Sub-stage 1: Reorientation of the post-1978 Development Strategy</i></p> <p><i>Sub-stage 2: Formation of the ‘factory of the world’</i></p>	<p><i>State:</i> prioritizes developing market forces (Naughton, 2021); transition to indicative planning; NDRC, “reforms” & openness;</p> <p><i>Companies:</i> high state control, including ownership.</p> <p><i>Markets:</i> export orientation as a source of dynamism and modernization; “immature internal market” (Naughton, 2021)</p>	<p><i>Main markers of institutional changes:</i> Reorientation of the development strategy: reforms and economic opening</p> <p>Special Economic Zones as embryos of political and institutional experimentation</p> <p><i>Main markers of changes in productive development policies:</i></p> <ul style="list-style-type: none"> (i) Freedom to trade agricultural surplus (ii) From imperative to indicative planning (iii) Freedom to grow production beyond planning (NAUGHTON, 1995) (iv) Flexibility in the management of state-owned and collective enterprises (v) Privatization of collective enterprises: formation of a local bourgeoisie (vi) Incentives to attract FDI
<p><i>Owned by China (2000s and 2010s)</i></p> <p><i>Sub-stage 3: Formation of the National Team</i></p> <p><i>Sub-stage 4: Internationalization of the National Team - Going Global (Nolan, 2012)</i></p>	<p><i>State:</i> complexification of selective and indirect planning; complementation of growth with structural transformation; sophistication of coordinating agencies.</p> <p><i>Companies:</i> joint ventures (Nolan, 2012); increasing relevance of multinationals; concentration of large state-owned groups</p> <p><i>Markets:</i> investment as an instrument for dynamism and structural transformation; “instrument of government” (Jabbour et al., 2021)</p>	<p><i>Main markers of institutional changes:</i> Selective and indirect coordination/commanding heights (Pearson, 2015)</p> <p><i>Main markers of changes in productive development policies:</i></p> <ul style="list-style-type: none"> (i) Autonomy of the corporate management of large state-owned enterprises (ii) Creation, consolidation, and expansion of national and regional development banks (iii) Creation of holding companies of state-owned enterprises: SASAC (non-financial) and Central Huijin Investment (financial)
<p><i>Developed by China (2010s and 2020s)</i></p> <p><i>Sub-stage 5: Search for indigenous innovation</i></p> <p><i>Sub-stage 6: Fostering Industry 4.0 and building an industrial and digital superpower</i></p>	<p><i>State:</i> Productive and Technological Development Policies as guiding instruments of the strategy.</p> <p>To <i>capital accumulation-led</i> or <i>investment-led to innovation led-growth</i> (Aglietta; BAI, 2016); “innovation-based model”</p> <p><i>Companies:</i> expansion of private companies based on national capital; increase in FDI in R&D facilities, emphasis on joint ventures</p> <p><i>Markets:</i> “market-driven, government-steered economy” (“guided” or “led,”) (Naughton, 2021); “instrument of government” (Jabbour et al., 2021)</p>	<p><i>Main markers of institutional changes:</i> from the FDI-attraction paradigm to that of domestic competitiveness (Chen, 2020)</p> <p><i>Main markers of changes in productive development policies:</i></p> <ul style="list-style-type: none"> (i) Techno-nationalism as a vector to build productive and technological capacities (ii) Modernization of the corporate management of state-owned enterprises with selective and partial insertions in the stock markets (iii) Creation of State Capital Investment and Operations with the freedom to operate in capital markets (iv) Industrial guidance funds as resource drivers for areas defined as ‘emerging industries’ (Naughton, 2021) (vi) Aim to construct its own technological standards

Source: Elaborated based on Naughton (1995; 2021), Nolan (2012), Chen (2020), Aglietta and Bai, (2016), Jabbour et al. (2021), and Pearson (2015).

Figure 2 systematizes the phases of the Chinese development strategy. Its main industrial policy guidelines undergo permanent transformations to continuously shape institutional reconfigurations. The latter, in turn, to the extent that they are reshaped from a dynamic that combines institutional learning and embeddedness in society, are instrumental to the challenges that emerge along the Chinese catching-up trajectory (Nelson, 2008).

In other words, one could suggest that one of the main elements that explain the success of the Chinese development strategy is its capacity of co-evolving its institutional matrix and in productive development policies. This synergistic co-evolution is built upon two pillars.

The first is the coexistence of characteristics from distinct stages of development, which combine in regions of the country, sectors, and technologies, qualitatively different productive policies.

The second pillar that supports the synergistic co-evolution of Chinese institutional matrix and development policies is the uniqueness of the process of institutional change and the formulation of Chinese productive development policies when compared to other historical materializations of Developmental States strategies.

As Figure 2 details, this co-evolution arises when we analyze the characteristics of the composition and configuration of the Chinese “institutional matrix” with the changes in industrial policies at different stages of the Chinese development strategy.

In general, the Chinese development (after its opening in the late 1970s) consists of a logical circuit structured in three stages: (i) the construction of a productive structure that would be consolidated as the factory of the world between 1980 and 2000 (Made in China); (ii) the consolidation of mostly state-owned large local business groups followed by a rapid and intense internationalization from the early 2000s onward (Owned by China, according to Nolan, 2012); and (iii) the reorientation of growth model of its economy to build an innovation-driven economy from the last years of the first decade of the 2000s onward (Developed by China).

Although shown as stages following a logical sequence typical of the classical interpretations of post-World War 2 development theories (Rostow, 1959; Lewis, 1954; Gerschenkron, 1962; Hirshman, 1958), this paper tries to show that the Chinese process is peculiar even when we compare it to other strategies characteristic of Asian Developmental States since, despite the logical evolution of these phases, their transition fails to negate or overcome previous stage. In synthetic terms, we aim to illustrate that, unlike what a linear view of development might suggest, the viability of a stage characterized by Developed by China failed to necessarily eliminate the foundations on which Made in China was based, i.e., they coexist, albeit in different dimensions, regions, and configurations within the Chinese productive structure.

This movement can be identified empirically when observing the transformation of the Chinese productive structure, as illustrated in Table 2. It is possible to identify that at the same time that the participation of the sectors of high technological intensity in the total of manufacturing value added (VA) grows from 1% in 2000 to 10% in 2019 (a movement similar to that observed in relation to the total number of employees), the sectors of low and medium-low technological intensity have maintained its share in Chinese value added practically unchanged over the last two decades (from 57% in 2000 to 59% in 2019). Another element that reinforces the idea of the coexistence of different stages of development is the strong stability in VA shares is from 2010 to 2019 (which change only after the decimal place).

However, it is also worth mentioning that, despite the relative stability of the productive structure in the period, there is a continuous trend of reduction in the productivity gap of all sectors in relation to the US economy.

Table 2
Chinese manufacturing structural change – selected indicators, 2000, 2010 and 2019

2000			
Tech intensity	Value Added	Employees	% of USA productivity
High	1%	1%	3%
Low	31%	34%	5%
Medium-high	42%	38%	4%
Medium-low	26%	26%	5%
2010			
Tech intensity	Value Added	Employees	% of USA productivity
High	10%	11%	10%
Low	29%	35%	12%
Medium-high	31%	31%	9%
Medium-low	30%	24%	17%
2019			
Tech intensity	Value Added	Employees	% of USA productivity
High	10%	13%	16%
Low	29%	30%	23%
Medium-high	31%	35%	15%
Medium-low	30%	22%	31%

Source: Unido – Indstat 2 (2022).

Note: Tech intensity classification based on OECD (1987). Productivity measured by value added / employees.

The coexistence between characteristics of different stages of Chinese productive development, as we emphasized, configures a distinctive element of the Chinese strategy and an important factor to explain its lower resistance to permanent institutional transformations. In other words, by retaining previous productive institutions and configurations, it circumvents (if only partially) the political resistances that could arise in an institutional lock-in limiting the profound institutional changes that follow a development process as fast and intense as the Chinese one.

As Figure 2 shows, the essence of the coevolution of institutional changes and productive development policies by the experimentation and evolution of regulation can be understood in three major dimensions: **(i) markets and competition, (ii) foreign direct investments, and (iii) dynamics of accumulation.**

In **market and competition regulation**, the first major barrier to institutional transformations that underpinned a focus on export as a source of dynamism and modernization was a reorientation toward indicative planning. In the stage this paper called Made in China (1980s, 1990s, and 2000s), these NDRC-based coordinated transformations fundamentally aimed at the economic opening, the allowance to trade agricultural surplus, and the important institutional transformations to the large state-owned and local collective enterprise by incentives

to modernize the management of the former and increase the flexibility of the performance of the latter.

The next stage - Owned by China (2000s and 2010s) - undertook a huge effort to complexify selective and indirect planning, ultimately aiming to use the concentration of investment as an element to enable accelerated structural transformations. As relevant institutional changes in the period we highlight the creation, consolidation, and expansion of national and regional development banks and state-owned company holdings: SASAC (non-financial) and Central Huijin Investment (financial).

The expansion and reconfiguration of the instruments of state action occurs in parallel with the need to concentrate investments and consolidate large state and non-state national groups. The latter, in turn, would configure some of the main vectors for structural transformations in the Chinese economy either by direct action (in the case of companies) or by financing (in the case of development banks). Note that the need for these institutional innovations becomes evident the moment the Chinese economy seeks to transit to a stage that requires forming large local conglomerates to enable a greater capacity for value appropriation in global value chains. The sophistication of the domestic productive structure on which such a search for a greater appropriation of value would be based would require, in turn, reconfiguring available financing instruments. Hence the need to expand development banks given the impossibility of international productive or financial capital to lead this movement.

In the Developed by China stage (2010s and 2020s), **market and competition regulation** aims at what Naughton (2021) calls the guided economy. The development model undergoes another reorientation, migrating from capital accumulation or investment-led to innovation-led growth, according to Aglietta and Bai (2016). The combination of these elements was based on structuring a top-down market and competition regulation logic, in which techno-nationalism configures a key vector to build productive and technological capacities in the Chinese economy (Chen; Naughton, 2016).

The second dimension illustrating the co-evolution of institutional changes and productive development policies – **foreign direct investment regulation** – also undergoes important transformations throughout the stages of the Chinese development strategy.

During Made in China, regulation aimed to attract FDI to circumvent the domestic capital gap, encouraging productive learning and insertion into incipient global value chains. To this end, an institutional decision (geographically circumscribed to special economic zones) aimed to establish a gradual policy to attract capital and configure an embryo of political and institutional experimentation derived from economic openness.

The next stage, Owned by China, crystallized a paradigm Chen (2020) calls market for technology, which accentuated the presence of large multinational companies in China (invariably established from joint ventures with local companies). Later, this paradigm shifted from an FDI-attraction paradigm to one based on an innovation-led economy (Chen, 2020).

The very evolution to configuring special economic zones and the policies constituting them illustrates the transitions between the different stages of Chinese development strategy well.

The first two stages were characterized by creating and fostering economic and technology development zones (ETDZs) with a range of incentives to virtually all export-oriented activities without distinguishing activity sectors. Industrial policies also favored multinational companies over national ones. While the income tax rate for multinationals in ETDZs was 15%,

Chinese companies paid 30%. Multinationals could also benefit from 40% to 100% return of previous taxes if they used their profits to reinvest in the zone, received exemption from taxation in their first two years, and would enjoy a 7.5% rate between their third and fifth year if they planned to stay in China for 10 years (Chen, 2020).

From the mid-2000s onward, Developed by China stage arose, reconfiguring exclusive economic zones to enhance the Chinese innovation-driven strategy. The establishment of high-tech development zones (HTDZ) abolished the distinction between multinational and local companies. From then on, the operation segment of a company would constitute the main guiding factor for granting incentives (rather than its capital origin). Then, high-tech products were exempt from income taxes and 15% income tax rates were established for all state-recognized high-tech enterprises in or outside HTDZ zones, starting in 2008 (Chen, 2020).

Another illustrative example of this movement of adherence between institutional transformations and development policies is the set of reevaluations to FDI regulatory policies. Regulated by the Catalogue of Industries Encouraged for Foreign Investment and the 'Negative List' (Special Administrative Measures for Foreign Investment Access), the status of sectors, activities, and technologies undergo permanent updates according to the phases of the Chinese development - which can be classified as strategic, priority, discouraged, among other modalities. Thus, as productive, technological, and innovative capacities increase, FDI restrictions tend to be removed. However, such changes are not transversal to all sectors and ultimately adhere to the coexistence of different phases of Chinese development, configuring a strategic level of selectivity in its relationship with foreign productive capital.

We can also mention the emblematic strategy (present, to a greater or lesser extent, in most other sectors) of the automotive sector. The local industry was incipient at the beginning of the post-1978 reforms and primarily consisted of state-owned enterprises. Then, the strategy of exchanging technology by markets attracted foreign companies as joint ventures with local companies (Chen, 2020). In a third moment, after developing domestic production, FDI regulation demanded that these joint ventures carry out R&D activities domestically. The need for foreign capital to establish joint ventures was only extinguished in the second decade of the 2000s (Chu, 2011), after the consolidation of local technological, productive, and innovative capacities (including global leadership in the electric vehicle segment) and the establishment of Chinese brands with aggressive internationalization strategies.

The third and final dimension illustrating the coevolution of institutional changes and productive development policies consists of **the regulation of accumulation dynamics**.

Regarding capital control, the first two stages of the Chinese development strategy aimed to constitute a model oriented to accumulation and investment. This movement has, in various degrees, the participation of FDI at first moment, and later relies on a tendency of accentuating resource concentration in the hundreds of large national champion state-owned companies (coordinated by SASAC).

Thus, despite reducing the participation of state capital in macroeconomic indicators (such as job share, industrial production value, investment, etc.), it maintained a central position in the direction of the economy by its performance in what Pearson (2015) calls commanding heights, which is reflected in the exponential growth in the relevance of Chinese SOEs among the top 500 global companies (see Table 3).

Table 3
Chinese companies among the 500 biggest of the world, selected years

Companies		% of companies	% of revenue
<i>All</i>			
2000	9	2%	2%
2010	46	9%	9%
2020	124	25%	25%
<i>State Owned Enterprises</i>			
2000	8	2%	1%
2010	39	8%	8%
2020	83	17%	20%

Source: Fortune Global 500.

During Developed by China stage, a new round of institutional innovations affected capital regulation, including the modernization of the corporate management of SOEs with selective and partial insertions in stock markets. Another major institutional innovation was the creation of State Capital Investment and Operations (SCIO), with the freedom to operate in the capital markets and the establishment of industrial guidance funds as resource drivers for areas defined as ‘emerging industries’. These, such as China Venture Capital, would aim to indirectly fund innovation in non-state enterprises, many of which were highly promising start-ups, in technological areas with high disruptive power (Naughton, 2021).

Thus, SCIO and industrial guidance funds would constitute an important innovation illustrating the coevolution of institutional matrix transformations and productive development policies. In general, their creation meets demands from the contradictions due to the transitions between the different phases of Chinese development by aiming at several apparently antagonistic objectives. First, they open space for the larger reproduction of the capital accumulated by large SOEs beyond the productive dimension. They also partially respond to the pressures of domestic political forces to further develop capital markets. Second, despite this relative flexibility of capital markets, the freedom SOEs enjoyed to create investment funds was conditioned to their allocation in strategic emerging industries. Third, they introduce into the Chinese economy a mechanism to foster innovation (via venture capital) that is very characteristic of the current digitalization-based techno-economic paradigm, complementing the performance of development banks in financing structural transformations since they have their institutional and operational culture fundamentally directed at financing sectors in the techno-economic paradigm of the 2nd Industrial Revolution. According to Naughton (2021), the endowment of these funds would have reached about US\$ 1.5 trillion in 2020, highlighting the Integrated Circuit Fund (with an endowment of US\$ 50 billion) and the Central SOE innovation funds (US\$ 22 billion).

We should mention that these transformations in the institutional and political frameworks of investment control dynamics also appear in labor regulation transformations. In general, the various stages of the Chinese strategy show a sophisticated productive structure and labor regulation. At first, to enable the construction of Made in China in an economy with a low

potential for competitive asymmetries in bases other than cost, low-wage labor (virtually deprived of labor rights) was ubiquitous even in the most modern areas of the Chinese economy.

To the extent that we observe the success of this development strategy, which improved and enlarged production, we gradually find advances in labor regulation, which strengthened labor rights and exponentially expanded average wages and the minimum wage.

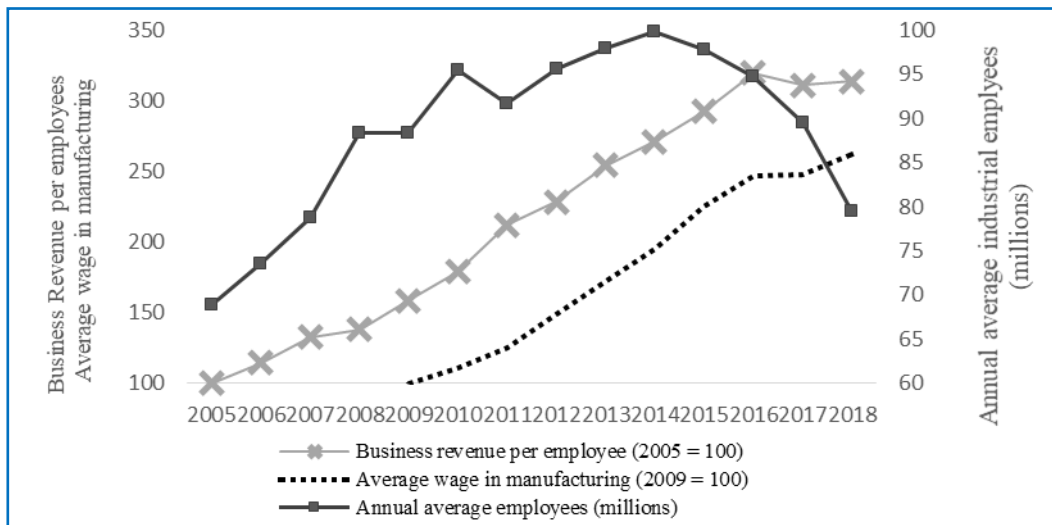
An illustrative example refers to internal migrant workers, who almost constitute a great part of the labor force in manufacturing in large Chinese urban centers. They were invariably deprived of minimum social and labor rights as they lacked a *hukou* that would enable them to reside in the urban areas in which they worked. As measures tried to rebalance the sources of internal growth from the last decade onward (strengthening of the domestic market), *hukou* has gradually been relaxed to ensure that some of these workers could also benefit from advances in labor regulations.

Among the main exponents of this movement to advance social and labor rights, those related to the minimum wage stand out. This was initially established in 1994, with a substantial advance of encouraging the expansion of its adoption in the Chinese economy from 2004 onward. As the State Council reinforced this guideline, it promoted other institutional innovations to strengthen the labor relation supervision system. Thus, in 2007 all provinces and cities promulgated and implemented the hourly minimum wage standard, accelerated the adjustment frequency of the minimum wage standard, and increased adjustment ranges.

Despite this general movement, it is still aligned with the strategy of supporting a leading position in global markets as a leading supplier of low costs and low value added products as one can still observe a high heterogeneity in regional minimum wages among regions and including among cities of a same region – ranging from 2690 yuan in Shanghai, 2300-2400 yuan in Shenzhen and Guangzhou, to around 1500 yuan in the less developed cities of Guangxi, Liaoning, Jilin and Hunan provinces.

It is worth noting, as shown in Figure 3, that this movement occurs in parallel with the growth in revenue per employee and despite the reduction in the stock of industrial employees after the peak reached in 2014. Thus, two findings are reinforced: (a) that the growth in scale and productivity of Chinese industrial companies has been accompanied by an intense increase in average wages, which suggests a virtuous development strategy and (b) this increase persists even after the economy has already surpassed the peak in the number of workers absorbed by the manufacturing sector.

Figure 3
Chinese Industrial Enterprises – Selected Indicators – 2005-2018*



Source: China Statistical Yearbook, 2019. Methodological scope: The scopes of industrial enterprises are: all State-owned industrial enterprises and the non-State-owned industrial enterprises with revenue from principal business over 5 million yuan from 1998 to 2006; all industrial enterprises with revenue from principal business over 5 million yuan from 2007 to 2010; and all industrial enterprises with revenue from principal business above 20 million yuan since

*Average wage manufacturing refers to employed persons in manufacturing in urban areas.

In sum, analyzing the changes to the regulation of **(i) markets and competition, (ii) foreign direct investments, and (iii) the accumulation dynamics** in the different stages of the Chinese development strategy reinforces the perception that one of the main virtuous elements explaining its success after the beginning of the 1978 Economic Reforms is its capacity to coevolve institutional matrix transformations and productive development policies. This is because, although the logical circuit, path, trend, and direction of its development stages are the same in several regions and sectors of the Chinese economy, this movement occurs at different intensities and speeds. Thus, the adjustment of institutional transformations and productive policies occurs in a unique way when compared to other successful catching-up strategies, including Asian Developmental States.

This fact, in turn, reinforces the centrality of the co-evolution of these transformations so both institutions and industrial policies adhere to the heterogeneities of the Chinese economy, which implies the need to formulate institutional and political innovations in a scenario of coexistence between different development phases.

4. Conclusion

China has promoted its economic development by a cumulative institutional and productive co-evolution on previously structured bases. Thus, economic development policies, adopted based on strategic plans, have promoted technological and institutional innovations in an integrated way, i.e., as parts of a whole.

Adopting productive and institutional innovations in a frequent and integrated way widens the scope and support to development policies and creates a favorable environment for the maintenance of long-term plans. The latter, in turn, comprise an entrenched institutional scope functioning as a guide to economic transformation.

To a large extent, this has enabled China to promote a catching-up process while fighting for the technological frontier of some productive activities in the emerging techno-economic paradigm. In this context, institutional innovations become increasingly necessary to consolidate productive changes, especially in the most knowledge-intensive activities that demand a favorable environment for change.

The Chinese case shows a strong planning component, a kind of institutional framework. From this, the role of institutional innovations has a markedly formal character, largely due to the state acting as a central development agent. This reinforces the idea of productive and institutional innovations taking place simultaneously and in an integrated/coordinated/articulated way.

As we highlighted throughout this paper, the phases of the Chinese development strategy changed the composition and configuration of its institutional matrix as events inherent to its productive and institutional co-evolution. The period comprising the phases from “made in China” to the “search for indigenous innovation” shows a long-term vision and an incessant pursuit of institutional and productive innovations.

China goes from a period in which its state strongly controls productive activity (including owning its main companies) and its markets, a period of increasing partnerships with foreign companies (especially joint ventures), to changing the composition and configuration of the Chinese institutional matrix at the turn of the 21st century. Finally, the consolidation of a search for indigenous innovation increases the importance of private companies with national capital, including activities of the emerging paradigm. Note that the greater emphasis on national or foreign private capital companies fails to diminish the importance of the state as a development agent.

The changes in the configuration of an institutional matrix would largely reflect institutional innovations, i.e., the way the state, markets, and companies relate to each other depends on changes to development strategies (based on five-year plans, etc.). China needs planned institutional innovations to bring about major structural transformations. Unlike the structuralist notion that structural transformations demand compatible institutions, China has sought institutional innovations as an inherent part of its development strategies. This would lead to some questions about the causal primacy of structural changes, showing that, at least in China, this causal relationship is complex and certainly is not unidirectional.

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