Early View

RESEARCH FOR INVESTMENT COOPERATION BETWEEN BRAZIL AND CHINA

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City: Brasília
Publisher: Instituto de Pesquisa Econômica Aplicada (Ipea)
Year: 2021

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INTRODUCTION

China and Brazil are both important countries for two-ways investment. In the last two decades, companies from both countries tried to explore the opportunities of cooperation. Both governments have been trying to improve the investment environment. CAITEC and IPEA agreed to cooperate with a joint research on the two-ways investment cooperation in 2021 to help the related stakeholders better understand this issue.

This report draws a general picture of the investment between China and Brazil. The Belt and Road Initiative (BRI) has been an important platform for the bilateral investment cooperation between the two countries, including in the policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bond. After its proposal in 2013, quite a lot of achievements show us the good effects of cooperation, which in turn attracts more interests of cooperation from other countries.

The coronavirus (Covid-19) has changed the world with serious lockdown policies and slowdown of movement of people and cargo. China achieved positive GDP growth in 2020 and works hard to promote more resilient and high-quality development in the post-Pandemic years. The wide deployment of new technology and encouraging policies for further opening-up have attracted foreign investors. Data from the Ministry of Commerce of China (MOFCOM) shows the foreign investors' non-financial investment in China reached $91 billion from January to June 2021, an increase of 34%, compared to the same period in 2020. As for the outward investment, the BRI regions are attractive. During the first 6 months in 2021, Chinese non-financial direct investment reached $9.6 billion, an increase of 18% compared with the same period of last year. These investments correspond to 17.8% of all outward investment, 2 percentage points higher than last year.

Brazil has for several decades been a major recipient of foreign direct investment, frequently listed among the top five destinations for FDI in the world. The Belt and Road Initiative and Brazil's National Development Strategy and Investment Partners Plans will provide plenty of new opportunities for a more intense Brazil-China cooperation.

This report includes 7 chapters following this introduction. Chapter 1 reviews the global foreign direct investment flows, including the activities and related mechanisms' process. Chapter 2 introduces the investment cooperation policies of China and Brazil, so as to let investors understand the environment they may face. Chapter 3 discusses the bilateral infrastructure investment cooperation. Chapter 4 highlights the trade and investment cooperation. Chapter 5 sketches the Belt and Road Initiative, including its frame, background, development and achievements. Chapter 6 discusses the post-pandemic investment cooperation and Chapter 7 provides suggestions for further joint initiatives.

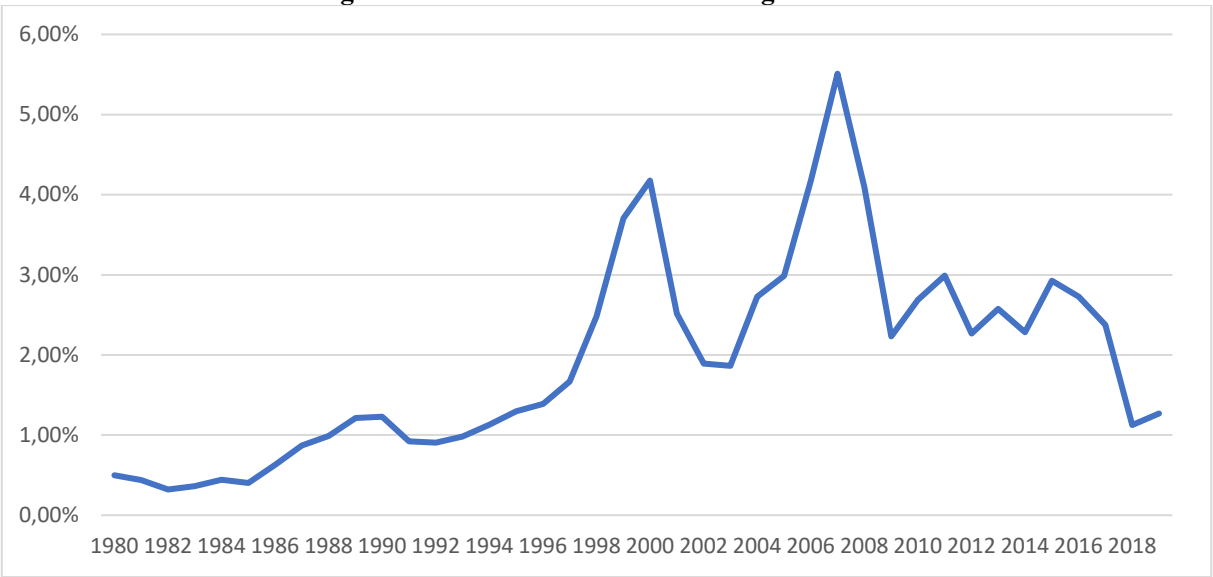
1. Global overview of FDI in recent decade and norms regulating investment flows

1.1 Global overview of FDI in recent decades and norms regulating investment flows

The last three decades have witnessed significant changes in transportation, communication and data processing, all of which have had effects upon productive processes, allowing for an increasing importance of offshoring, as well as fostering trade flows and the international movement of resources.

For the high-income economies this has meant several new business opportunities and new business models. Offshoring production allowed for significant productivity gains, stimulated by the freer movement of resources.
From the viewpoint of developing economies this new scenario has led to the recommendation that adhering to this new process could be an important tool to foster social and economic development. The broader access to external resources would help to cope with the domestic excess demand for project financing. From the viewpoint of external trade, this would allow to overcome the fixed costs of the export activity, thus improving the involvement of smaller firms in trade. Economic growth would obtain in a more sustainable way.
It should be kept in mind, however, that the inflow of foreign capital, positive as it might be, requires the adoption of prudential macro policies, as well as efficient regulation / supervision of the financial system. Hence developing economies – those that are bound to profit most from capital inflows – have to be cautious in providing discipline to capital flows.
This is not the place to have a deeper discussion of the pros and cons of importing capital. Suffice to say that the share of global direct investment (FDI) on global GDP – a measure of the relative importance of these flows – has increased quite significantly from 1980 (0.5%) to its peak in 2007 (5.5%), as indicated in Figure 1. The financial crisis started in 2008 is a clear turning point in this variable. It came down to a level of less than 3% and fell again in 2019, to a little over 1%.

Figure 1.1 Global direct investment / global GDP

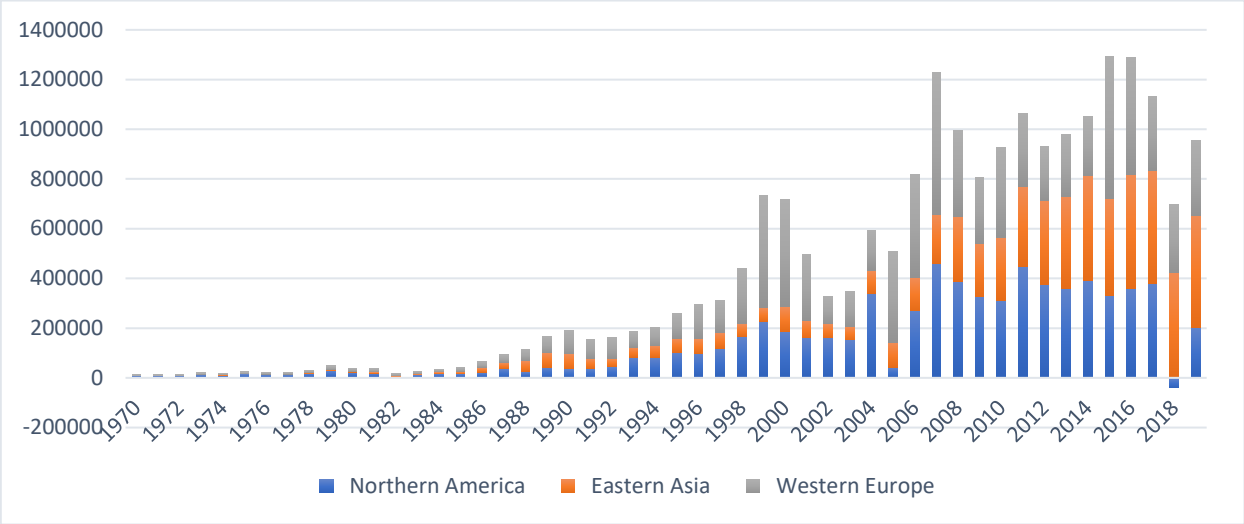


Source: World Bank, World Development Indicators.

A good deal of the recent reduction in direct investment in the manufacturing sector has taken place in informatics and communication, financial activities, chemical industries, electronic industry and computers. At the same time, investment in the pharmaceutical industry experienced a quite significant increase, even before the pandemic.
Most investment flows traditionally correspond to North American and Western European firms, as indicated in Figure 2. Since the mid-2000s, however, there has been an increasing participation of investment from East Asia, China in particular.
There are differences in the modalities of investment in these origins, though. Firms from the US, Western Europe and Japan typically have more investment projects in new plants, whereas Chinese

companies are more focused on merger & acquisition.

Figure 1.2 Regional origins of FDI flows (US$ million)

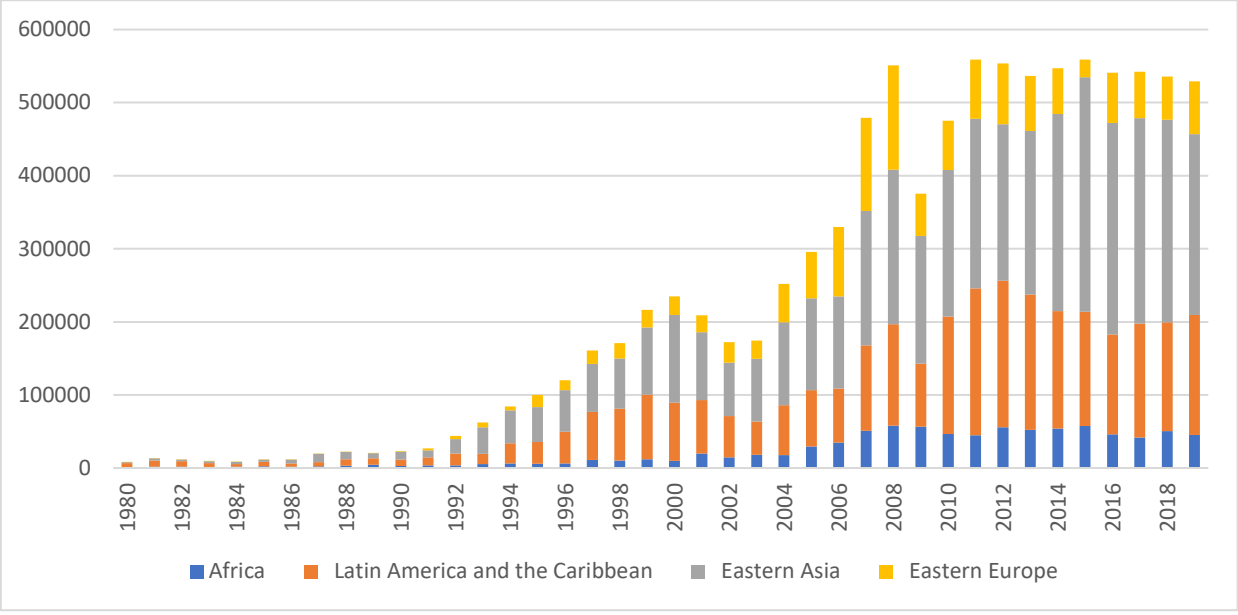


Source: www.unctad.org.

As per the regional destination of the investment flows, until 2008 a good deal of the resources was invested in Latin America and the Caribbean. Since then, the economies of Eastern Asia became a more important destination to the direct investment flows. Once again, a good deal of it is destined to China, the second most important destination of direct investment flows, surpassed only by the US.

The Brazilian economy stands out as one of the major individual destinations for investment. In 2019 it occupied the ninth position overall, being the major destination in Latin American, absorbing no less than 43% of total FDI into the region.

Figure 1.3 Regional destination of FDI flows (US$ million)



Source: www.unctad.org

The pandemic started in 2020 has probably contributed to a further reduction of the share of direct investment on global output. According to UNCTAD (2020)[3] foreign direct investment (FDI) flows are estimated to have had a decrease of 40% in 2020, bringing the total amount to less than US$ 1 trillion for the first time since 2005. Both new greenfield investment project announcements and cross-border mergers and acquisitions dropped by more than 50 per cent in the first months of 2020. FDI is projected to decrease an additional 5-10% in 2021, possibly recovering in 2022.

The lockdown measures are slowing down investment projects and the risk of recession makes big investors re-assess new projects. At the same time, policy measures taken by governments during the crisis include new investment restrictions.

Several countries have taken measures to mitigate the negative effects on investment flows or to protect domestic industries from foreign takeovers. These comprise online investment facilitation, pandemic-related services of investment promotion agencies and new incentives for investment in health care. In 2019, 54 economies introduced at least 107 measures affecting foreign investment, most of it in the direction of liberalization, promotion and facilitation.

There has also been a tightening of foreign investment screening mechanisms to protect strategic industries, such as mandatory production, export bans on medical equipment and reduction of import duties for medical devices.

Another outcome is the reduction in the pace of negotiating international investment agreements - in 2019 the number of agreement terminations exceeded the number of new agreements - a topic to be considered later on.

Investment flows are now determined, however, not only by pandemic-related issues. New technology trends are also bound to be a major determining factor, as much as the new characteristics of production value chains, with an increasing importance of regional rather than global productive structures. To these elements one should add the increasing concerns with environmental, social and governance (ESG) standards and the more intense trend towards rising protectionism.

It turns out that there is a set of new determinants of investment flows that allows for the expectation of a recovery trend in global investment, but with unprecedented features. Investment flows linked to the exploitation of lower-cost factors of production and cheaper access to resources will remain, but these elements will become increasingly less determinant.

These new features of investment flows will mirror new characteristics of productive processes. UNCTAD (2020) forecasts four tendencies for the international configuration of those processes: i) less fragmented value chains with higher geographical concentration of value-added, affecting mainly those sectors that are high-technology intensive; ii) a wider distribution of economic activities, increasing the opportunities to new entrants to global value chains; iii) an increase in the geographical distribution of value-added, thus leading to a shift from global efficiency-seeking investment to regional market-seeking investment and iv) more geographically distributed activities, but more concentrated value added, leading to a shift from investment in large-scale industrial activity to distributed manufacturing, which relies on lean physical infrastructure and high-quality digital infrastructure.

The new likely scenario creates opportunities for investors wanting to diversify supply bases. Regional market-seeking investment is likely to increase, with shorter value chains in final-goods production.

[3] UNCTAD, World Investment Report, 2020

To the extent that this scenario will materialize it calls for a new approach towards investment promotion policy, since in every movement towards a new paradigm there are relocations and investment diversion. In this case, with less emphasis in efficiency-seeking investment.
Emphasis should be given to investment in production for regional markets in a broader industrial base, not so much to export-oriented efficiency-seeking investment. Also, production should become more concentrated on small-scale manufacturing facilities and services with ´lean infrastructure` than in large-scale manufacturing.
This calls for an adaptation of the existing policy approach to investment promotion, with a double set of objectives in perspective. On one perspective, the likely trends of new productive processes. At the same time, however, the commitments to the Sustainable Development Goals (SDGs) call for new initiatives. From the viewpoint of investment agreements, for instance, most of the more than 3000 existing agreements pre-date the SDGs and would have to be redesigned.
This is not the place to discuss to a great extent the adaptations to be implemented in the investment promotion structures, even because they correspond to each individual country interests and possibilities. It is more useful to make a few comments about investment agreements, because they might correspond to jointly agreed international templates.

1.2 Investment Agreements

Recent decades have witnessed the reduction of trade barriers, as well as the opening of the capital and financial accounts of the Balance of Payments, with a widespread focus in attracting foreign investment.
An outcome of this movement has been the increase in the number of preferential agreements for merchandise and services trade, as well as investment promotion agreements. Whereas the trade preference agreements are registered as hundreds of documents, those dealing with investment rules surpass three thousand. Furthermore, several preferential trade agreements have specific chapters dealing with investment norms.
Lack of security with regard to the political risks in the capital importing country is one of the basic reasons leading a country to sign an investment agreement. Such agreement provides also a relative guarantee that the conditions that have originally motivated the decision to invest remain the same after the investment takes place. One basic condition is the non-discrimination between domestic and foreign investors, as well as among investors from different origins.
From the viewpoint of the capital importing country, what matters is to attract investment and obtain the positive externalities. From the perspective of the investing country the purpose of an agreement is to protect potential investors from instability and political risks.
Investment agreements often comprise protection to investors, similar treatment to foreign and domestic investors and the “most favored nation” clause, assuring same conditions to investors from different origins. They signal, therefore, a stable environment, in accordance with what has been negotiated at the international level. It is implicitly considered that this lower degree of uncertainty should stimulate investment flows.[4] The host country indicates its commitment to

[4] It goes without saying that investment flows are far more dependent upon structural conditions, such as the degree of qualification of the labor force, the quality of physical infrastructure, the domestic system of technology generation, the availability of natural resources and others. It is also dependent upon market conditions, such as the size of domestic market, the growth rate of the economy, the level of per capita income, the degree of income concentration, etc. Potential investors also take into account in their decision processes the indicators of productive efficiency, the cost to access the required inputs, transportation and communication costs, the number of preferential agreements that have been signed, etc.

universal clauses and its good will towards foreign investors. At the same time, the host country is led to adapt its domestic legislation and institutions with regard to foreign investment.

The traditional protection model relates neutrality in the settlement of disputes to the judgement by the ICSID (International Centre for Settlement of Investment Disputes) of the World Bank, by UNCITRAL (United Nations Commission on International Trade Law) or by some "ad hoc" tribunal accepted by both parts[5], hence eliminating the dependence upon judgements by domestic courts in the host country.

Another characteristic that is common to investment protection agreements is that – as different from trade preferential agreements – they do not indicate a specific institution to deal with dispute settlement, for the basic reason that this is an attribute of the multilateral agencies listed above. In so doing, however, these agreements lack an opportunity to signal to the investor a specific agency where most doubts and problems could be dealt with, hence reducing costs.

The same is true for multilateral negotiations related to investment policies. As different from merchandise trade and trade in services, there is not a single institution where the conditions could be defined for a basic template related to investment promotion and protection. Discussions on the related issues take place at the United Nations, at OECD and at the WTO. Most of the debates are now concentrated in a specific working group at UNCITRAL.

Since the WTO Ministerial meeting in 2017, however, a number of middle-income countries have submitted proposals regarding a change in the focus from protection to promotion of investment. Among other features, the logic should become to move from investor-State processes toward State-State negotiations to deal with specific disputes.

The arguments leading to such change of approach have to do with reducing the fiscal costs that have followed, in several cases, from decisions favoring the investing company in investor-State processes, but also to the fact that policies linked to public interest, such as health measures, norms regulating trade and the financial system might be affected by processes initiated by foreign investors, on the basis of the argument that a specific public policy might have affected the protection conditions that were formally agreed.

The proposed alternative comprises a joint committee to settle disputes, formed by representatives of the two or more governments involved in the agreement, as well as the creation of an institutional focal point to provide support to investors.

In a situation when most countries are facing the problems caused by a pandemic of the present proportions there is an increasing need for countries to avoid investor-State disputes. Lack of clarity about procedures risk stimulating lawyers and financiers to adopt speculative procedures, initiating actions in several countries at the same time.

The alternative focus on facilitation (instead of protection) of investment puts emphasis on a set of specific measures related to assuring transparency to investors, to making procedures more explicit, to improving coordination and cooperation among the relevant agents, such as the government of the hosting country, foreign investors and domestic companies, as well as representatives of the civil society.

As different from investment promotion – which involves specific agencies in charge of divulging the domestic comparative advantages, among other specific activities – investment facilitation is related to creating favorable conditions to foreign investors, from the moment the investment decision has been taken, that is, facilitating the implementation of the project, providing conditions

[5] An issue that has been strongly criticized, for the heavy costs imposed on host countries by some decisions. A very sensitive issue is the investor-state-dispute-settlement (ISDS) clause that allows for an investing company to make a legal case against public policies by the host country. Decisions favoring the investing company have meant too expensive fiscal penalties.

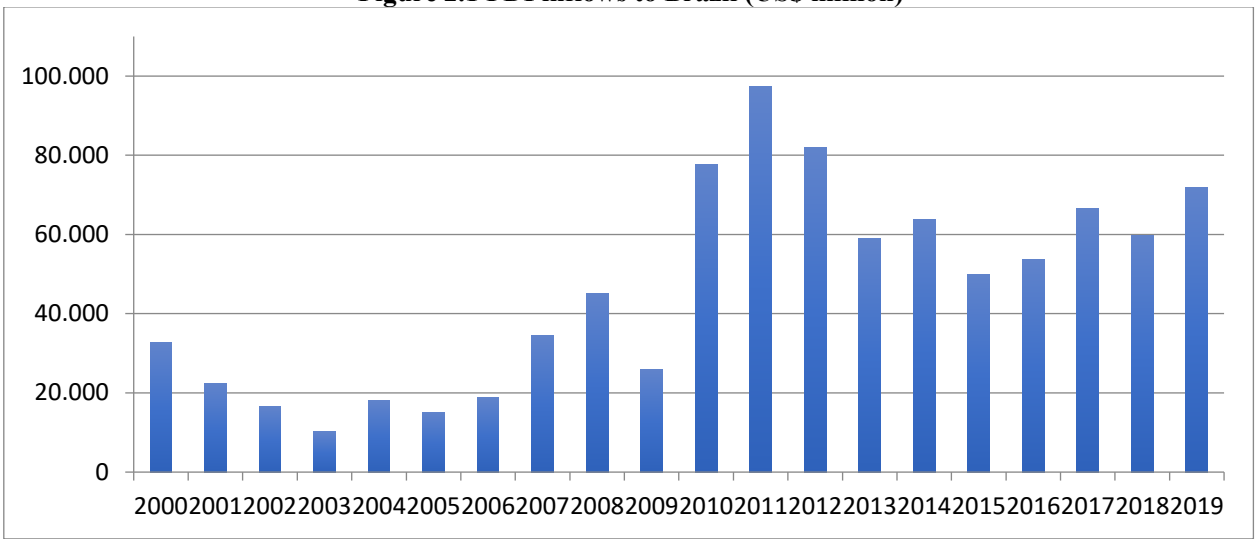
to assure the operation of the productive plants and stimulating reinvestment. This involves a number of different government agencies, so as to create a friendly regulatory environment.
The work aiming to establish a basic template to investment agreements in accordance with these new perspectives has been affected by the pandemic. But it is expected that joint efforts should resume and lead to a common understanding with regard to the treatment to be given to foreign investors in future investment agreements.

2. INVESTMENT-RELATED POLICIES OF BRAZIL AND CHINA

2.1 Brazil's Policies towards Two-ways FDI

During the last two decades Brazil has been a major recipient of foreign direct investment, frequently listed among the top five destinations for FDI in the world[6]. In the 2000's, inward FDI to the Brazilian economy averaged US$ 24 billion per year. In the last decade, inward FDI to Brazil has increased substantially, reaching around US$ 68 billion (annual average) between 2010 and 2019. In 2019 FDI inflow was worth US$ 72 billion (Figure 2.1)[7].

Figure 2.1 FDI inflows to Brazil (US$ million)



Source: UNCTAD

The following factors can be listed to explain the inflows of foreign direct investment in this period: economic and political stability, intensification of policies to attract capital, economic growth prospects, magnitude of the domestic market, availability of natural resources, opportunities for investment in infrastructure, and – more recently – emphasis on privatization policies.

Foreign direct investment has been encouraged due to its potential benefits to the hosting economy. The presence of foreign companies often leads to the strengthening of links in the production chain as well as among the several regions in the country and it tends to foster both imports and exports. Also, FDI is perhaps the most important channel through which advanced technology can be transferred to developing countries, including scientific processes and new organizational, marketing and management techniques, thus generating greater productivity for firms, particularly in the industrial sector[8].

In the last two decades, FDI inflows to the Brazilian economy have been mainly directed to primary-export sectors, with emphasis on mining and steel, oil and natural gas, and agriculture, in

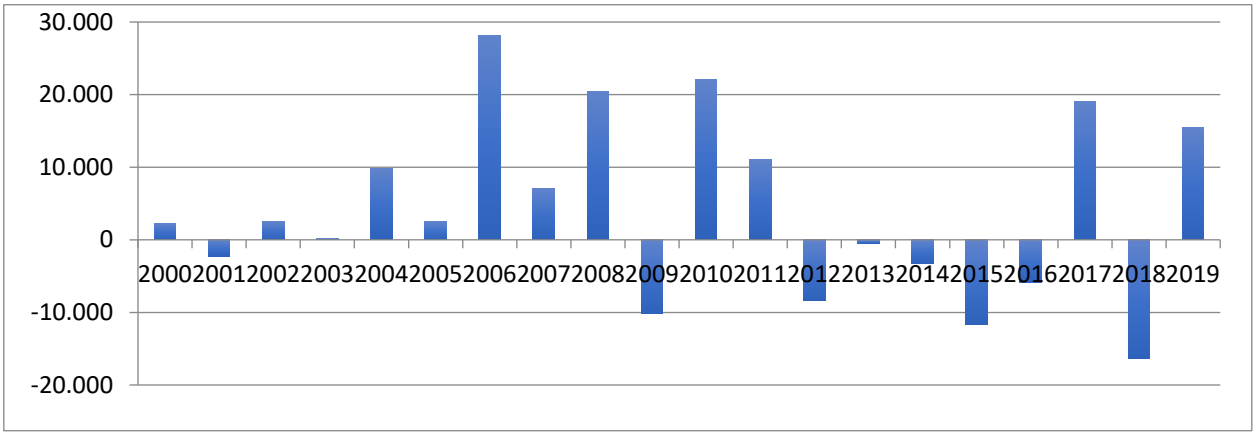
[6] Andrade, I., Silva Filho, E. and Leite, A. Análise da Regulação dos Investimentos Estrangeiros Diretos no Brasil. In: Messa, A. and Oliveira, T. A Política Comercial Brasileira em Análise. Brasília: IPEA, 2017.

[7] With a sharp reduction – US$ 34 billion in 2020 - thanks to the pandemic.

[8] Gregory, D. and Oliveira, M.F. O Desenvolvimento de Ambiente Favorável no Brasil para a Atração de Investimento Estrangeiro Direto. [s.l.]: mimeo, 2005

addition to the automotive industry, telecommunications and financial services.
In terms of outward direct investment Brazil has not performed as remarkably. The amount of Brazilian FDI is not as expressive, and it fluctuates sharply over time, with its net value (outflows minus remittances) being negative in several years. Outward direct investment from Brazil was worth US$ 15 billion in 2019 (Figure 2.2)[9].

Figure 2.2 FDI outflows from Brazil (US$ million)



Source: UNCTAD

The motivations for the encouragement of FDI outflows are related to the benefits associated with the internationalization of Brazilian firms. Such benefits comprise the decrease in external vulnerability – due to the potential increase in intrafirm exports and the inflow of profits in foreign currency – and competitiveness gains, given the increase in the scale of production and access to productive and managerial technologies, among other factors. Some of the main sectors and activities of Brazilian firms investing globally are mining, cement, steel, petrochemicals, oil and gas, meat processing, pulp and paper, textiles and footwear, construction and engineering, and financial services.
One of the most important aspects of FDI regulation is to assure fair and equitable treatment to foreign investors, in comparable conditions to the ones faced by national firms. Among other elements, fair and equitable treatment comprise the permission to purchase and transport raw materials, energy and fuels; to sell and transport goods within the country and abroad; and to purchase means of production and exploitation of any kind.
Since the 1990s, bilateral investment treaties have been signed between Brazil and other countries, being the main regulatory instrument to guide FDI in Brazil. It has been guided by the formulation and signing of Cooperation and Facilitation Investment Agreements (CFIAs). CFIA is a bilateral or plurilateral international treaty whose objective is to create favorable conditions for the promotion of investments between the signatory investors. This is a new model of international legal regulation of investments to promote the internationalization of Brazilian companies and to attract foreign direct investment to the country.
CFIAs pillars are institutional governance, risk mitigation mechanisms, mechanisms for the prevention and settlement of disputes, and the promotion and facilitation of investment through thematic agendas. In addition to typical elements of traditional bilateral investment treaties – such as a non-discrimination clause, direct expropriation, transfer of funds and compensation for losses

[9] It was minus US$ 16 billion in 2020

– CFIA innovates by adopting the concepts of cooperation and investment facilitation, and by presenting clauses on transparency, corporate social responsibility and anti-corruption mechanisms[10].

Thus, the legal structure offered by the CFIA model aims to establish a favorable environment for making investments in Brazil. In particular, it translates into institutional structures, such as:

(i) The Joint Committee, composed of government representatives from CFIA parties, whose main task is to promote the amicable and consensus resolution of conflicts involving investments, in addition to monitoring the implementation of the agreements, sharing investment opportunities and coordinating common thematic agendas;

(ii) The Ombudsman of Direct Investments, working under the Chamber of Foreign Trade (CAMEX), who aims to offer support to investors, answer queries and seek solutions to questions related to current CFIAs, in addition to receiving consultations from Brazilian enterprises about their investments in countries with which Brazil has cooperation agreements.

Lastly, the CFIAs comprise an agenda aiming to improve investment cooperation and facilitation between the Parties. This includes: (i) cooperation between the financial authorities to facilitate capital and currency remittances between the Parties; (ii) reciprocal efforts to facilitate the emission of visas and the free movement of managers, executives and skilled employees of economic agents, entities, businesses and investors of the other Party; (iii) the establishment of expeditious, transparent and agile procedures for the issuing of documents, licenses and certificates; (iv) the promotion of technological, scientific and cultural cooperation through the implementation of actions, programs and projects for the exchange of knowledge and experience.

Different mechanisms have been established in order to promote foreign direct investment in Brazil. These mechanisms relate to the financing of investment, tax-incentives, and special economic zones.

As for the financing of investments, the National Economic and Social Development Bank (BNDES) is the Brazilian government main instrument for long-term financing. The bank allocates special resources, preferably in the form of long-term funding and shareholdings, in addition to supporting undertakings that contribute to economic and social development. In recent years, BNDES financing has been mainly directed to sectors such as infrastructure and agriculture. By using its various support methods, the bank aims at prioritizing subsidized credit and benefit small businesses and strategic social areas, namely innovation, environment and renewable energies, urban mobility, sanitation, infrastructure, health, and education.

There are several tax-related incentives and special regimes to support and promote investments in Brazil at National, State and Local levels. These mechanisms are usually applied to promote investment in strategic sectors. Capital goods, infrastructure, clean energy, innovation, ICTs and high value-added industries (such as automotive and aerospace) are some of the priority sectors.

At the National level, the taxes most commonly eased by the government's incentive programs are Corporate Income Tax, the Tax on Manufactured Goods, and social contributions on gross revenue. Export and import tariffs may also be reduced to stimulate external sales and to reduce the costs of raw material imports to the industry. At the regional level, there are incentive packages and local development agencies to attract and stimulate investments in less developed areas. Investors may receive reductions in corporate tax and other incentives. At the state level, the most important tax is the State Goods and Services Tax (ICMS), which may be used as a tool for investment incentives, particularly for greenfield projects. Municipal authorities may also be able to encourage local

[10] AGU - Advocacia Geral da União. Segurança Jurídica do Investidor Estrangeiro no Brasil. Brasília: AGU, 2018

investment by conceding tax reductions on Municipal Services Tax and Urban Real State Tax, in addition to giving land grants, for projects with high impact on the local economy. Lastly, there are also sector-specific programs for investment promotion via tax alleviation. Some of the sectors benefited by special tax regimes are infrastructure, capital goods, IT services export, oil and gas, aerospace industry.

Export processing zones (EPZ) are also used as a tool for promoting investments in Brazil. They consist in free trade industrial districts designed to attract firms engaged in the production of goods to be exported. Brazil has now 19 EPZs, distributed in 17 states, in all regions of the country: North, Northeast, Midwest, Southeast, and South. The EPZ Regime provides several federal and state-level incentives, particularly regarding tax reliefs to purchases of capital goods, raw materials, intermediate products and packaging materials.

2.2 Brazil's Economic Reform and Development Strategies

The Brazilian economy has performed well in the beginning of the 21st century, according to several indicators. Between 2004 and 2011 economic growth reached almost 5% per year on average, after the "lost decades" of the 1980s and 1990s, when per capita income has been stagnant. The growth recovery in the 2000s was accompanied by moderate inflation, successive trade surpluses, continuous fall in unemployment rates, rise in real wages, improvement in income distribution and a significant reduction in poverty.

Such good performance can be explained by the combination of two "growth engines", one external and one domestic.

The first one is directly associated with the so-called "China effect". Brazil was positively affected by the growth of the Chinese economy in the 2000s, with intense demand for agricultural and mineral commodities, which led to a systematic growth of Brazilian exports, accompanied by a process of reprimarization of the country's exports. Since 2009, China has been Brazil's main trade partner, and its participation in Brazilian trade flows has grown sixfold in a period of just ten years. In general, the role of China for the Brazilian economy is associated with the generation of expressive trade surpluses, alleviating the external constraint. As a result, it helped to avoid balance of payments crises, recurrent in past periods of higher growth, and allowed for an improvement in the country risk indicators, with positive effects on the domestic interest rate.

On the other hand, the successful growth model of the Brazilian economy in the first decade of this century had an important domestic component. This "internal engine of growth" is mainly associated with the growth of household consumption, based on social inclusion, that is, on the rise in average income and incorporation of a previously marginalized population into the consumer market.

This is due to factors such as the expansion in social programs, the increase in the average real wage – mainly explained by the drop in unemployment but also by the policy of raising the real minimum wage – as well as the expansion of credit. One of the most visible reflections of this growth dynamic with social inclusion was the expansion of consumption of durable goods, such as automobiles, household appliances and electronics. Another visible aspect of the operation of the "domestic engine" of growth was the continuous improvement in income distribution until 2015.

This growth model operated well between 2004 and 2013, and reached its limits after that. On the one hand, there was the weakening of the "external growth engine", due to the deceleration of the world economy after 2008 and of the Chinese economy after 2013. One of the most immediate effects of the new international situation was the fall in the price of commodities that play an

important role in Brazil's export basket, such as soybeans, iron ore, coffee and oil.

On the domestic front, the weakening of the "internal growth engine" is associated with the limits to the continued expansion of consumption through social inclusion. Such limits were given by the growing indebtedness of households and by the political restrictions to the deepening of income distribution in Brazil. In other words, the possibility of continuing the cycle of GDP expansion based on domestic consumption would depend on the ability to continue the process of social inclusion, which would involve, among other elements, a progressive tax reform, which proved to be politically unsustainable.

In more recent years a new development strategy has been implemented in Brazil. In 2018, a new guideline was published, which proposes balanced national planning over a 12-year horizon (2020-2031), aiming to leverage opportunities and promote the removal of bottlenecks to Brazil's economic and social development. Described in the document "National Strategy for Economic and Social Development"[11], and reaffirmed by Presidential Decree #10531 in 2020[12], its central objective is to raise income and quality of life of the Brazilian population to the standards verified in developed countries by 2031.

The National Development Strategy is organized into five axes – economic, institutional, infrastructure, environmental and social – which include the driving sectors of economic development and social inclusion in the near future.

The Economic axis relates to the goal of sustained economic growth, focusing on productivity gains, ensuring the reduction of social and regional inequalities, and environmental sustainability. Achieving such objectives require the improvement of the business environment, stimulation of competition, technological development, qualification of the labor force and a qualified insertion of Brazil in the international market. Some of the proposed instruments and strategies to achieve these goals are: (i) the long-term fiscal adjustment and control of public debt, low and stable inflation rates; (ii) reform in the public pension system, and reform in the tax system; (iii) to improve long-term investment financing mechanisms and to focus the role of development banks in the transformation of the productive structure; (iv) to stimulate technological innovation, expanding the application of private and public resources in science, technology and innovation, and to encourage the development of the digital economy, expanding support for the diffusion of emerging technologies; (v) to expand economic and trade integration initiatives at the regional level, and through bilateral trade and investment agreements.

Regarding the Institutional axis, the goals are to develop state governance, to improve the business environment and competitiveness, to strengthen society's trust in public institutions and to promote the national interest and sovereignty. Some of the proposed instruments and strategies to achieve these goals are: (i) to promote periodic evaluation of the effectiveness of public policies and of state-owned enterprises; (ii) digitize and simplify public services, and disseminate good governance practices in public institutions; (iii) improve transparency and accountability mechanisms, and strengthen regulatory agencies; (iv) simplify and digitize the opening and closing of businesses, and facilitate access to credit and to public purchases for small and medium enterprises (SMEs); (v) to work towards a modern and balanced multilateral trading system, and to increase, via free trade agreements, the country's integration in global value chains; (vi) strengthen partnerships with countries that may contribute to technological development and to

[11] Ministério do Planejamento, Desenvolvimento e Gestão. Estratégia Nacional de Desenvolvimento Econômico e Social. Brasília, 2018

[12] Diário Oficial da União: Brasília, n. 206, seção 1, p. 3, 27 Oct. 2020

increased trade and investment flows; (vii) strengthen the development and diffusion of critical technologies, especially in the nuclear, aerospace and cybernetics sectors.

In terms of the Infrastructure axis, the main objective is to foster the development of infrastructure with a focus on gaining competitiveness, improving the quality of life and environmental sustainability, providing national and international integration. Some of the proposed instruments and strategies to achieve these goals are, among others: (i) to improve legislation, concession models and regulation of the provision of public infrastructure services, and to expand opportunities for private, domestic and foreign investment in infrastructure; (ii) to expand the national energy supply, and to increase the use of renewable energy sources; (iii) to support programs for the expansion of broadband infrastructure, satellite communication, e-government, data centers, mobile networks with 5G technology and optical fiber backhaul; (iv) to promote the conservation, recovery and rational use of water resources; (v) to implement and modernize research and technological development networks in technologies such as nanotechnology, biotechnology, photonics, synchrotron light and advanced materials, artificial intelligence, cyber security, ICT, and in the nuclear and aerospace areas; (vi) to develop the various modes of national and regional passenger and cargo transport, in order to promote territorial integration; (vii) to improve urban planning and territorial management, with a focus on orderly, sustainable and economically efficient growth of cities, and to enable smart city projects; (viii) to implement programs for the universalization of urban and rural basic sanitation, and to expand access to housing for low-income families.

The Environmental axis of National Development Strategy relates to the promotion of the sustainable use of natural resources in line with economic and social development. Some of the proposed instruments and strategies to achieve these goals are, among others: (i) to promote adequate monitoring of the quality of air, water, vegetation cover and land use, and to carry out actions to reduce air, water and soil pollution; (ii) to expand and strengthen instruments for promoting low-carbon activities (circular economy), low-carbon agriculture and integrated production systems, promoting the sustainability of agricultural and forestry production, and to advance new standards of clean technologies and low-carbon infrastructure; (iii) to encourage the conservation and sustainable use of biodiversity in national biomes and marine environments, of mineral and water resources and of the energy potential of Brazil; (iv) to encourage economic activities for the sustainable use of natural resources, and to expand the sources of funds for investments in these activities.

Lastly, regarding the Social axis, the main goal is to promote well-being and social inclusion, focusing on equal opportunities and access to quality public services, in education, health, and public security. Some of the proposed instruments and strategies to achieve these goals are: (i) to improve the management of the public education system, to promote training and support for teachers, and to expand the connectivity infrastructure in public schools; (ii) to promote the internationalization of higher education and to encourage joint research projects and university partnerships with educational institutions abroad; (iii) to improve the competitiveness of the health industry, reducing external dependence, with the development and production of vaccines, drugs, supplies and medical equipment, and to improve the management of the Public Health System, advancing the articulation between the public and private sectors; (iv) to strengthen the fight against organized crime, to promote crime prevention and investigation actions, and to modernize the prison system; (v) to improve support mechanisms for small farmers, to fight food insecurity, and to guarantee universal access to quality public services and social public policies; (vi) to encourage economic activities based on productive and innovative systems, at local and regional levels, that are environmentally sustainable and able to generate employment and income; (vii) to promote

equal opportunities for all, and to expand social protection networks to households and individuals. There are, hence a good deal of opportunities for a more intense Brazil-China cooperation.

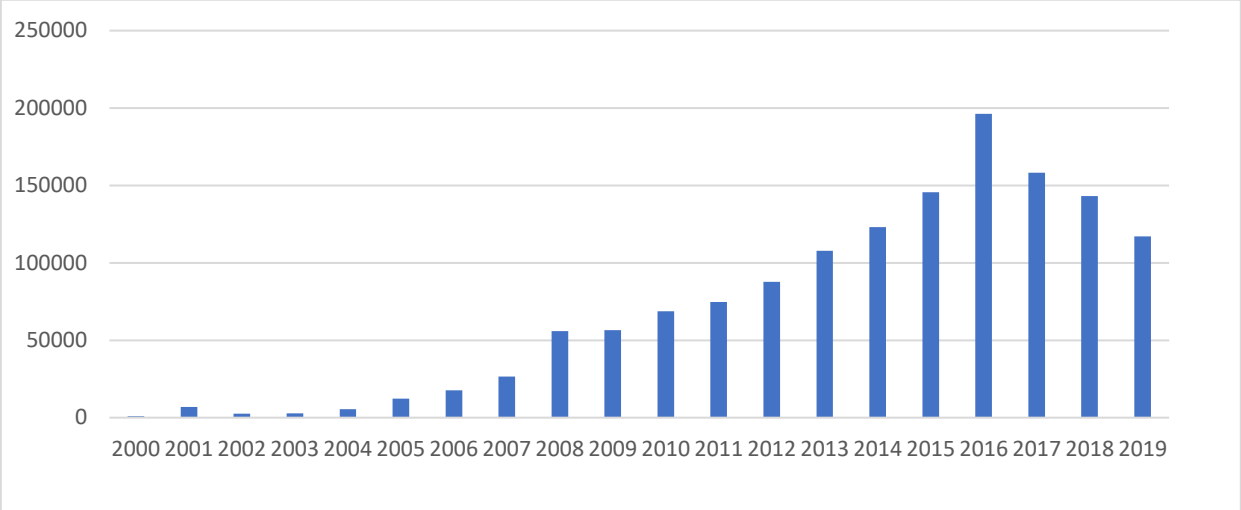
2.3 China's Policies towards Two-ways FDI

The Chinese government is constantly improving laws, policies and service systems to promote overseas investment and attract foreign investment in China.

2.3.1 Investment overseas

Since 2000, under the guidance of the Chinese government's "going out" strategy, China's foreign direct investment has shown rapid growth. In 2000, China's foreign direct investment flow was only US$ 916 million (Figure 2.3). In 2016, this number increased by 213 times to US$ 196 billion. In recent years, although the investment scale has declined, it still remains at the world's leading level, with flows ranking second after Japan and stock (US$ 2.2 trillion) ranking third after the United States and the Netherlands.

Figure 2.3 FDI outflows from China (US$ million)



Source: UNCTAD

According to the *Statistical Bulletin of China's outward Foreign Direct Investment,* China's investment covers 188 countries and regions around the world, and investment in countries along the "Belt and Road" has increased steadily. As of the end of 2019, more than 27,500 Chinese domestic investors had established 44,000 foreign direct investment companies in 188 countries (regions) around the world, and more than 80% of the countries (regions) around the world received Chinese investment. By the end of 2019, the total assets of overseas companies were US$7.2 trillion. More than 10,000 overseas companies have been established in countries along the "Belt and Road". In 2019, the direct investment reached US$18.7 billion and the year-end stock was US$179.5 billion. From 2013 to 2019, China's cumulative direct investment in countries along the route was US$117.3 billion.

China's foreign direct investment is diversified, and 80% of the stock is concentrated in the service industry. In 2019, over 70% of China's foreign direct investment flowed into the four major

industries of leasing and business services, manufacturing, finance, wholesale and retail. China's foreign direct investment stock in the service industry was concentrated mainly in leasing and business services, wholesale and retail, finance, information transmission/software and information technology services, real estate, transportation/warehousing and other fields.

China's foreign investment has contributed significantly to the taxation and employment of the host countries and achieved a win-win situation. In 2019, Chinese foreign companies paid a total of US$56 billion in taxes to the countries where they invested, and employed 2.3 million foreign employees, accounting for 60.5% of the total number of employees.

The outstanding performance of China's foreign direct investment is related to the promotion of government policies. In recent years, the Chinese government is committed to improving the overseas investment service system to promote enterprises to go global. In general, there are three types of policies:

2.3.1.1 Comprehensive policy

The Chinese government attaches great importance to improving administrative efficiency, saving time and costs for enterprises and improving the facilitation of overseas investment through online platforms. In 2009, the Ministry of Commerce (MOFCOM) issued the "Overseas Investment Management Measures" and launched the "Overseas Investment Management System" to issue certifications for overseas companies through the e-government platform. In 2015, relying on the "Overseas Investment Management System", the Ministry of Commerce began to implement paperless management of the filing of overseas investments by enterprises, and simplified the procedures for the cancellation of overseas investments. In 2017, China's National Development and Reform Commission promulgated the "Measures for the Administration of Overseas Investment by Enterprises", according to which Chinese enterprises can submit project application reports with relevant documents to the approval authority through the network system. The government has also relaxed the time requirements for investment entities to perform the approval and filing procedures, giving enterprises more time for flexible adjustments. In addition, the MOFCOM also provides a convenient public service platform for enterprises, on which companies can understand the environment of investment destinations through a series of documents like the *Guidelines for Foreign Investment and Cooperation*. The MOFCOM has also established an information service system to provide enterprises with data statistics, investment opportunities, barriers and risk early warnings.

2.3.1.2 Fiscal, Taxation and Financial Policy

The Chinese government has issued a number of fiscal, taxation and financial policies to promote overseas investment. The Ministry of Finance and the State Taxation Administration have reduced the burden on enterprises in terms of corporate overseas income tax credits. For example, high-tech enterprises can enjoy preferential policies for overseas income, and pay corporate income tax at a preferential tax rate of 15%[13]. The State Administration of Foreign Exchange has also simplified and improved foreign exchange management policies for direct investment. For example, foreign companies established or controlled by domestic investment entities do not need to go through foreign exchange filing procedures if they reinvest overseas or control new foreign companies.

Under the adverse impact of the COVID-19 pandemic, the China Development Bank CDB） is

[13] http://www.chinatax.gov.cn/chinatax/n362/c156647/content.html.

providing development financial support to projects and enterprises that are conducive to high-quality joint construction of the “Belt and Road”. Specific measures include: providing low-cost financing and foreign exchange special fund loans, setting a reasonable grace period for repayment, opening up a "green channel" for credit, and providing diversified domestic and foreign currency financing services. China Development Bank requires overseas companies to truthfully and accurately report the situation affected by the epidemic, and truly reflect their financing needs. After the implementation of the support policy, the supported overseas projects and enterprises should regularly report on the use and effect of funds to ensure that development finance is given full play to provide active support for the high-quality construction of the “Belt and Road”.

2.3.1.3 Industry Development Policy

On March 28, 2015, China’s National Development and Reform Commission, Ministry of Foreign Affairs and Ministry of Commerce jointly issued the *Vision and proposed actions outlined on jointly building Silk Road Economic Belt and 21st-Century Maritime Silk Road.* Investment cooperation is a major task in building the Belt and Road. The interconnection of transportation, energy and communication infrastructure is a key area of China's investment in countries along the Belt and Road. China will also deepen the cooperation with those countries in

a) agriculture, forestry, animal husbandry and fisheries, agricultural machinery manufacturing and farm produce processing;

b) marine-product farming, deep-sea fishing, aquatic product processing, seawater desalination, marine biopharmacy, ocean engineering technology, environmental protection industries and marine tourism;

c) the exploration and development of coal, oil, gas, metal minerals and other conventional energy sources; hydropower, nuclear power, wind power, solar power and other clean, renewable energy sources; deep-processing technology, equipment and engineering services in the fields of energy and resources.

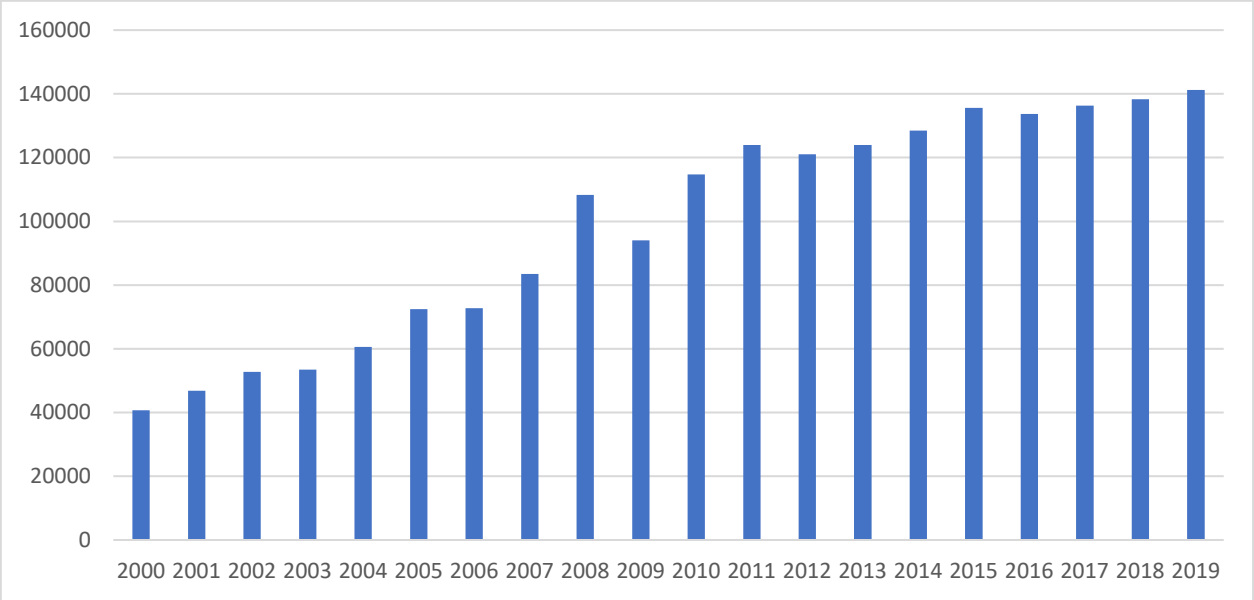
d) new generation information technology, biotechnology, new energy technology, new materials and other emerging industries.

In 2017, the National Development and Reform Commission issued the "Measures for the Administration of Overseas Investment", in which once again the government encouraged enterprises to invest in the above-mentioned areas that are conducive to the construction of the Belt and Road. The document also regulated the investment behavior of Chinese enterprises, such as restricting the investments that do not meet the requirements of the destination country's technical, environmental or safety standards.

2.3.2 Investing in China

Foreign investment is an important driving force for the rapid development of China's economy. FDI is the main way China uses foreign capital. After 2000, especially after China's accession to the WTO in 2001, the scale of foreign direct investment has grown steadily and continuously. In 2000, FDI flowing into China was US$ 41 billion. In 2019, China's actual use of foreign investment amounted to US$141 billion, ranking second in the world after the United States, accounting for 9.2% of the total global FDI that year (Figure 2.4). As of December 2019, in China 1,001,635 foreign-invested enterprises were established, the accumulated actual use of foreign capital reaching US$2290 billion.

Figure 2.4 FDI inflows to China (US$ million)



Source: UNCTAD

The main sources of investment in China are Asia, the European Union, North America and some free ports. According to *Statistical Bulletin of FDI in China*, in 2019, the top 5 countries (regions) in terms of newly established companies in China are Hong Kong (China), Taiwan (China), South Korea, the United States, and Singapore; the top 5 countries (regions) in terms of the actual investment amount are Hong Kong (China), Singapore, South Korea, British Virgin Islands and Japan.

From the industry perspective, foreign direct investment is mainly concentrated in manufacturing, real estate, leasing and business services, information transmission, software and information technology services, wholesale and retail, financial, scientific research and technical services; in 2019 the number of newly established foreign-invested enterprises in those 7 industries accounted for 89.0%, and the actual use of foreign capital accounted for 89.2%.

At present, the Chinese economy has shifted from a stage of rapid growth to a stage of high-quality development. In order to attract foreign investment, China has launched a series of new opening-up measures. China is continuously expanding the scope of opening-up, deepening the level of opening-up, and improving the quality of opening-up through innovative measures. The Chinese government is promoting the formation of a new pattern of comprehensive opening up.

2.3.2.1 Comprehensive policy

The Foreign Investment Law is an important measure for China to attract foreign investment. It is based on the actual situation of China's current economic development and the need to utilize foreign capital. Combined with international economic and trade rules, the Foreign Investment Law is committed to improving the investment environment and raising investors' expectations about the Chinese market. China will increase the transparency of foreign investment policies to ensure that foreign-invested enterprises participate in market competition on an equal footing. The government is also committed to strengthening foreign investment services, encouraging and guiding foreign investment in accordance with domestic laws and regulations.

According to the Foreign Investment Law, China implements a pre-access national treatment plus

a negative list management system for foreign investment. The 2019 version of the national foreign investment access negative list has been reduced from 48 entries to 40, and the 2020 version has further reduced to 33 entries; the 2019 free trade zone foreign investment access negative list entries have been reduced from 45 to 37, and in 2020 it is further reduced to 30 articles[14]. China is promoting an all-round expansion of opening up in all fields and continuing to relax market access for foreign capital.

The Foreign Investment Law establishes a special chapter to stipulate the investment protection system. The Ministry of Commerce has established and improved the complaint mechanism for foreign-funded enterprises at the provincial level. In strengthening the protection of intellectual property rights, the Chinese government has increased protection in legislative, judicial, and administrative law enforcement, improved the efficiency of intellectual property review, and introduced punitive compensation system to increase the cost of violations.

In addition, China is actively building an open platform to attract foreign investment. The State Council issued the "China (Hainan) Pilot Free Trade Zone Overall Plan", which has carried out a clear planning from aspects like the construction of a new open economic system, the development of the service industry, and the transformation of government functions, highlighting the Hainan Pilot Free Trade Zone as a test field for comprehensively deepening reforms and expanding opening up. The State Council has also made arrangements for national economic and technological development zones in order to promote the country's innovation, facilitate foreign cooperation and improve the quality of economic development.

2.3.2.2 Fiscal, Taxation and Financial Policy

In recent years, China has introduced a number of fiscal and taxation policies to promote tax cuts and fee reductions in order to reduce the cost of foreign-invested enterprises. With the tax-related services more standardized, the country's trade and investment facilitation level has been improved, and its opening up to the world is deeper and higher.

China is actively building an international taxation governance system that is compatible with the new pattern of opening up by upgrading its collection and management system. As of the end of June 2020, China has signed tax treaties with 108 countries and regions, which have played an active role in avoiding double taxation for cross-border taxpayers. The government continues to cooperate with countries around the world in taxation accuracy to facilitate capital, technology, personnel exchanges and promote the development of the global trade.

In 2018, the People's Bank of China issued the *Notice on Further Improving RMB Cross-border Business Policies to Facilitate Trade and Investment,* which stipulates that all cross-border transactions that can be settled by foreign exchange in accordance with the law can be settled in RMB; the Bank handles other current account RMB cross-border receipts and payments services for individuals to facilitate domestic individuals to remit legal overseas income for domestic use, and for overseas individuals to remit domestic legal RMB income abroad to support foreign investors to participate in domestic carbon emissions trading in RMB; the Bank will facilitate foreign investors' direct investment in RMB; the renminbi funds raised by domestic companies issuing bonds and stocks overseas can be transferred back to the country for use according to actual needs, further simplifying the management process and facilitating the daily operations of the company.

As per corporate income tax, China provides tax relief for enterprises engaged in agriculture,

[14] http://www.chinanews.com/cj/2020/06-25/9221838.shtml.

forestry, animal husbandry and fishery projects, public infrastructure projects, environmental protection, energy-saving and water-saving projects; high-tech enterprises are levied corporate income tax at a rate of 15%; enterprises in the western region engaged in government-encouraged industries enjoy a preferential tax rate of 15%; small and micro enterprises enjoy preferential income tax policies, etc[15].

In terms of personal income tax, the following incomes of foreigners in China are temporarily exempt from personal income tax: (1) Dividends and bonuses received from foreign-invested enterprises; (2) Wages and salaries of foreign experts in compliance with national regulations; (3) From January 1, 2019 to December 31, 2021, foreign individuals who meet the personal requirements of residents can choose to enjoy the preferential policy of housing subsidies, language training fees, children's education fees, food subsidies, relocation fees, laundry fees, business trips subsidies, or choose to enjoy the preferential policy of personal income tax relief. Subsidies for family visits and allowances can also choose to enjoy special additional deductions for personal income tax, but not at the same time. Once a foreign individual chooses, it cannot be changed within a tax year. But starting from January 1, 2022, the former preferential policies are no longer applicable, which means the foreign individuals can enjoy tax relief according to regulations[16].

2.3.2.3 Industry Development Policy

China attaches great importance to the positive role of foreign investment in the industrial chain, and has issued a series of industrial policies and measures to encourage foreign investment in China. According to the "Catalogue of Industries Encouraging Foreign Investment (2020 Edition)" promulgated by China's National Development and Reform Commission and the Ministry of Commerce, high-end manufacturing is a key industry for China to attract foreign investment, and producer services are the newly added investment scope. China is striving to enhance the resilience of the supply chain of important industry and attaching importance to the production of raw materials and key components.

In the field of terminal products, the new version of the industry catalog adds or modifies items such as integrated circuit test equipment, L3/L4/L5 autonomous driving hardware, laser projection equipment, ultra-high-definition televisions, ventilators, ECMO, and artificial intelligence assisted medical equipment.

As per R&D and design, the government has added or modified items such as fifth-generation mobile communication technology research, blockchain technology development, and sewage treatment facility design. In the field of business services, new items such as maintenance of high-end equipment, transformation and integration of digital production lines were added.

In modern logistics, items such as cross-border e-commerce retail, bulk commodity import and export distribution centers, and community chain distribution have been added or modified. In information services, new items such as online education, online medical care, and online office have been added[17].

For the above investment areas, China has implemented preferential policies to increase foreign investment. According to regulations, foreign investment that meets the industry catalogue can

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[15] http://fdi.mofcom.gov.cn/come-newzonghe.html?parentId=130&name=%E7%A8%8E%E6%94%B6%E7%AE%A1%E7%90%86&comeID=3.

[16] http://fdi.mofcom.gov.cn/come-newzonghe.html?parentId=130&name=%E7%A8%8E%E6%94%B6%E7%AE%A1%E7%90%86&comeID=3.

[17] https://www.ndrc.gov.cn/xwdt/xwfb/202012/t20201228_1260602.html.

enjoy the tariff exemption policy for imported self-use equipment within the total investment. Foreign-funded enterprises established in the western region and engaged in industries encouraged by the Chinese government can be levied corporate income tax at a reduced rate of 15%. For intensive land-use and encouraged foreign-invested manufacturing projects, priority can be given to land supply. When determining the floor price for land transfer, it can be implemented at no less than 70% of the national minimum price for industrial land transfer[18].

2.4 Other Policy Coordination Potentials

In addition to the above analysis, there is still policy cooperation potential for China and Brazil. For example, the two countries can actively promote the signing of bilateral investment agreements and improve bilateral investment protection mechanisms. Bilateral investment agreements are now playing an important role in protecting foreign investment and optimizing the host country's business environment. They have been widely adopted by many countries in the world and become the most important international legal system for investment protection.

As of June 2021, China has signed investment agreements with 108 countries and regions. In Latin America, China has signed bilateral investment agreements with 11 countries including Argentina, Chile, Peru, Uruguay, Ecuador and Cuba[19]. In April 1994, China and the Brazilian government signed the working text of the Agreement on Encouragement and Mutual Protection of Investment, but this agreement, like other bilateral investment protection agreements signed by the Brazilian government, has not yet been approved by the Brazilian Parliament. China and Brazil should actively promote the signing of the investment promotion agreement between the two countries, referring to the EU-China Comprehensive Agreement on Investment and other high-standard investment institutional arrangements, in order to reduce legal obstacles and promote healthy development of bilateral investment activities.

[18] http://www.ce.cn/xwzx/gnsz/gdxw/202012/29/t20201229_36168108.shtml.

[19] http://www.mofcom.gov.cn/article/b/fwzl/202106/20210603162407.shtml.

3. BILATERAL INFRASTRUCTURE INVESTMENT COOPERATION

3.1 Brazil's Infrastructure Connectivity Improvement Demand

China has invested quite significantly in Brazil since the early 2000s. Originally in the production of commodities, such as petroleum, minerals and soya, but soon diversifying investments into transportation, telecommunication, financial services, industrial sector and energy. Heavy investments took place in infrastructure, mainly energy generation and transmission.

In order to better understand the relevance of the Chinese investments in the Brazilian infrastructure sector one must assure that since the beginning of the 21st century Brazil has faced serious structural deficiencies, mainly with respect to the quality and quantity of its infrastructure, in transportation, energy, telecommunications, sanitation and housing. According to the World Economic Forum Global Competitiveness Report 2013–14, an infrastructure quality ranking, Brazil's overall standing was the 114th place, with the quality of its roads being ranked at the 120th place, its railroads at the 103rd place, its ports at the 131st place, its air transport at the 123rd place, and its electricity supply at the 76th place.

As a result, Brazil has a bewildering array of challenges concerning infrastructure issues that must be dealt with in order to provide for a sustainable growth. One of the most crucial Brazilian government priorities since the last decade has been, therefore, the search for investments in the infrastructure sector, as a tool to foster economic growth.

Due to the existence of such important infrastructure gap, investments with a long-term profile are quite attractive. The low level of investment by the Brazilian government (in average 2% of Brazilian GDP) also contributes to attract foreign investments in the infrastructure sector. Furthermore, the Brazilian legislation concerning the entrance of investments with technology transfer or implying technological improvement has been a relevant factor that has induced several big projects by Chinese companies, mainly in the energy sector. In 2010-2017, the total amount of Chinese investments in infrastructure in Brazil accounted for more than U$54 billion, with 76% of this total concentrated in the energy sector.

Several economic studies suggest that infrastructure investments contribute to the mobility of people, goods and capital inside a country, what may contribute to help developing countries avoid excessive concentration of economic activity in a small number of cities or regions. The Chinese investments in the Northern region of Brazil are one example of such decentralization.

In his keynote speech at the opening ceremony of the Belt and Road Forum for International Cooperation in Beijing, on 14 May 2017, President Xi Jinping emphasized that infrastructure connectivity is considered as the foundation of development through cooperation. Hence China should promote maritime, land, air and cyberspace connectivity, concentrate its efforts on key passageways, cities and projects in order to connect networks of highways, railways and seaports. This sort of cooperation provided by China has been adopted in several countries and represents a win-win cooperation.

Thus, in general, Chinese investments in connective infrastructure tend to produce positive economic spillovers that helps redesign the spatial distribution of economic activity in the host countries.

Infrastructure building is not only necessary in order to reduce regional transportation costs and scale up economic interactions but is also conducive to deepening the synergy of markets and industries and facilitate trade and stimulate investment.

By analyzing the cooperation between Brazil and China, one may identify infrastructure construction as one of the priorities of this bilateral cooperation, an area where both countries are highly complementary. Chinese enterprises have become major actors in Brazil's infrastructure construction, concentrating their operations on ports, electricity and transportation.

Two examples of this cooperation are:

- In port construction, the China Merchants Group and the China Communications Construction Group have established major logistics platforms in Southern and Northern Brazil, namely the Paranaguá Port and the São Luís Port, in order to increase the efficiency of those ports and facilitate transportation of goods – mainly China's import of Brazilian soybeans – and stimulate the economy of Brazil's Northeastern region.
- In electricity, the China Three Gorges Corporation and the State Grid Corporation of China have been operating and expanding influence in Brazil. Both enterprises entered the Brazilian market through the acquisition of stakes in Brazil's electricity companies.

According to international indicators, it is estimated that the infrastructure gap accounts for some 10-15 percent loss to Brazil's GDP per year, thereby creating a fragmented domestic market and poor external connectivity.

In order to concentrate its efforts, aiming at attracting investments in infrastructure, the Brazilian government has successively released three policy documents:

- The Logistics Investment Plan for 2015-2018
- The Electricity Investment Plan for 2015-2018
- The Multi-Year Plan for 2016-2019

Institutionally, the Investment Partnerships Program (PPI) was created in 2016 to expand and accelerate partnerships between the State and the private sector through PPP contracts and other privatization measures. It aims at: expand investment and employment opportunities and stimulate technological and industrial development, ensure the expansion with quality of the public infrastructure, with tariffs appropriate to the users, promote fair competition in the celebration of partnerships and the provision of services, ensure legal stability and security of contracts, and strengthen the regulatory role of the State and the autonomy of state regulatory entities.

Furthermore, the Government has sponsored four editions so far of the Brazil Investment Forum, an event where the highest authorities of the country present the basic economic policy guidelines and can be met by the most important investors.

The importance of relying upon Chinese investment in big infrastructure projects stem from a few characteristics of the Brazilian economy, such as a lack of adequate guarantee mechanisms for long-term investment, a relatively limited involvement of domestic private capital with long-term financing and expectations with regard to the fluctuations of the exchange rate in the long run.

China can provide the needed resources, experience and technology concerning infrastructure development, an additional reason for stimulating bilateral relationship.

3.2 China's Infrastructure Investment in Latin American[20]

Currently, Latin American countries, including Brazil, are committed to improving domestic infrastructure conditions and creating an environmentally sustainable, smart and comprehensive

[20] The data in this section comes from *China's Foreign Investment and Cooperation Development Report 2020., p109.*

urban system. There is a huge demand for infrastructure investment in Latin America. Infrastructure interconnection is an important area with huge growth potential of overall China-Latin America cooperation.

Contracted projects are the main form of China's investment in infrastructure in Latin American countries. In 2019, China's contracted engineering business (contract value) in Latin America increased. The value of new contracts signed by Chinese companies in Latin America was US$20 billion, with a year-on-year increase of 9.0%; the completed turnover was US$12 billion, with a year-on-year decrease of 2.8%, accounted for 7.6% and 6.7% of the newly signed contracts and completed turnover in the global market that year.

Transportation, power engineering construction, communication engineering construction, petrochemical projects and general construction projects are the main areas of Chinese enterprises' contracted projects. In 2019, of the newly signed contracts of Chinese companies in Latin American contracted projects, transportation construction projects accounted for 47.0%, general construction projects accounted for 14.9%, communication engineering construction projects accounted for 12.0%, petrochemical projects, 9.8%, and power engineering construction projects accounted for 7.7%. Among the completed turnover of contract engineering business, transportation construction projects accounted for 27.8%, communication engineering construction projects accounted for 17.1%, power engineering construction projects accounted for 16.8%, and general construction projects accounted for 10.5%.

According to the order of newly signed contracts, the main country markets include: Colombia (US$5.1 billion), Brazil (US$3 billion), Mexico (US$ 1.9 billion), Argentina (US$1.8 billion), Grenada (US$1.8 billion), Peru (US$1.7 billion) and Venezuela (US$1.4 billion). The total value of new contracts signed was US$15.3 billion, accounting for 76.8% of the Latin American market that year. In order of completed turnover, the main country markets include Brazil (US$2.3 billion), Argentina (US$1.6 billion), Bolivia (US$1.4 billion), and Peru (US$1.1 billion). The complete turnover totaled US$6.4 billion, accounting for the current year, and 55% of the Latin American market.

Brazil is the main market for Chinese companies to invest in infrastructure in Latin America. In recent years, the key investment projects of Chinese companies in Brazil include the Paranaguá Port and the São Luís Port, phase I and II of Belo Monte Hydropower ±800kV UHV DC Transmission, UPGN Natural Gas Processing Station Project, subsalt oil block exploration, etc. Huawei has also launched a telecommunications project, laying more than 100,000 kilometers of optical fiber in Brazil to serve two-thirds of the local population. Table 3.1 lists the major infrastructure investment projects of Chinese companies in Latin America in recent years.

Table 3.1 China's major infrastructure investment projects in Latin America in recent years

A. Transportation

Country	Project	Company
Brazil	São Luís Port	China Communications Construction Company, WTorre(Brazil),etc.
	Paranaguá Port	China Merchants Group
Argentina	St. Martin's freight railway renovation project	China Railway Construction
Peru	Corridor of Vial Lima - Canta - Huayllay - Dv. Cochamarca - EMP. PE.EN	China Road and Bridge Corporation
Colombia	Bogotá Metro Line 1 Project	China Harbour
	Regiotram project in Bogotá	Chinese enterprise consortium (the leader is China Civil Engineering Construction)
Chile	Civil Engineering Construction Project of Santiago Metro Line 2 Extension Line	China Railway Group
Panama	Engineering survey project of the 4th bridge over the Panama Canal	China Communications Construction Company
Bolivia	Rurrenabaque-Riberalta highway project	China Railway Construction
	ESPINO highway project	China Railway Group
	El Silla highway project	Sinohydro Corporation
	Yucumo-San Borja Road Construction Project	China State Construction
Ecuador	Access between the Quito city and the Airport	China Road and Bridge Corporation

Source: the author prepared according to the *Guidelines for Foreign Investment and Cooperation* (MOFCOM) and other materials.

B. Communication

Country	Project	Company
Brazil	Telecom Project	Huawei Technologies Co., Ltd
Mexico		
Peru		
Chile		
Colombia	Telecom Project	
	FTTH（Fiber to the Home) project	ZTE Corporation

Source: the author prepared according to the *Guidelines for Foreign Investment and Cooperation* (MOFCOM) and other materials.

C. Power engineering construction

Country	Project	Company
Brazil	Phase I and II of the Brazilian Belo Monte Hydropower ±800kV UHV DC Transmission Project	STATE GRID Corporation of China
Ecuador	Sinclair Hydroelectric Power Plant	POWERCHINA
	3X90MW Menas Hydropower Project	Harbin Electric Corporation
	Santa-Elena Project	China Three Gorges Corporation

Mexico	Pachamama 375 Mw Photovoltaic Project	Sinohydro Corporation, Prodiel (Spain)
Argentina	Cauchari 300MW Photovoltaic Power Project	POWERCHINA, Shanghai Electric Power Construction
	Kirchner Hydropower Station and Cepernic Hydropower Station	China Ge Zhou Ba Group Co.,Ltd.
Chile	500 kV voltage level transmission and transformation EPC project	Shanghai Electric Power Construction
Panama	Panama Natural Gas Power Station LNG Receiving Station Project	Wuhuan Engineering
Costa Rica	Chucas Hydropower Station	Sinohydro Corporation
Cuba	Mariel Solar Photovoltaic Power Station Project	Shanghai Electric Group Company

Source: the author prepared according to the *Guidelines for Foreign Investment and Cooperation* (MOFCOM) and other materials.

D. Petrochemical project

Country	Project	Company
Brazil	UPGN Natural Gas Processing Station Project	Kerui Group
	Subsalt oil block exploration project	Petrobras, China National Petroleum, China National Offshore Oil Corporation is

Source: the author prepared according to the *Guidelines for Foreign Investment and Cooperation* (MOFCOM) and other materials.

E. General engineering project

Country	Project	Company
Mexico	Mexico Industrial Park Project	China Ge Zhou Ba Group Co.,Ltd.
Grenada	Levera National Tourism Resort theme park and supporting facilities project, Levera National Tourism Resort Villa Area and Auxiliary Facilities Project, Super five-star hotel project in Levera National Tourism Resort	China Railway Construction
Trinidad and Tobago	Port of Spain	Shanghai Construction Engineering Group
	5000 sets of economically suitable housing projects	China Ge Zhou Ba Group Co.,Ltd.
Ecuador	Chone hospital (aid)	China Camc Engineering Co.,Ltd.

Source: the author prepared according to the *Guidelines for Foreign Investment and Cooperation* (MOFCOM) and other materials.

4. BILATERAL TRADE AND INVESTMENT COOPERATION

Since the establishment of diplomatic relations between China and Brazil, the bilateral economic and trade relations have made a great progress. In 2012, China-Brazil relations rose to a global strategic partnership. The two countries have made a comprehensive cooperation in the fields of economy and trade, energy, aviation, agriculture, finance, infrastructure and climate change response measures etc. The trade in services and goods between China and Brazil continues to grow, and the investment activities continue to be active. At the same time, Brazil has also begun to expand its own business in China.

4.1 Bilateral trade development and investment growth

In 2018, trade in goods between China and Brazil broke the US$100 billion mark for the first time. As of 2020, China has become Brazil's largest trading partner in goods for 12 consecutive years. China mainly imports agricultural products and iron ore from Brazil. From January to November 2020, more than 30% of Brazil's agricultural exports were sold to China, of which 74% of soybeans and 37% of cotton are exported to China. Brazil's crude oil and iron ore exports to China also accounted for 58% and 71.8% of their total exports respectively.

At the same time, the service trade between China and Brazil is still in the stage of exploration and development, and the structure needs to be improved. There is still a broad space for development and cooperation. China and Brazil should further adjust their positions in the international trading system and continue to diversify their trade structure. China and Brazil also need to adapt to each other to maintain the sustainable development of the trade structure and the steady growth of trade volume.

Brazil is China's largest investment destination in Latin America. However, due to the severe impact of the COVID-19 pandemic, Chinese new investment activities in Brazil became a little conservative. According to the "World Investment Report 2021" issued by the UNCTAD in June 2021, foreign direct investment in Latin America fell 45% in 2020, of which infrastructure investment has shrunk by more than 75%. Investment in Brazil and Peru was even worse, the lowest level in 20 years.

4.1.1 Analysis of the Growth and Structure of China-Brazil Trade

In recent years, bilateral trade in goods between China and Brazil has continued to grow, and China has a trade deficit with Brazil (Figure 4.1). Since 2018, the growth rate of the total bilateral import and export volume between China and Brazil has shrunk. In 2020, affected by the COVID-19 pandemic, China's exports to Brazil dropped -1.6%, but the scale of bilateral trade still achieved a low growth rate of 3.1%.

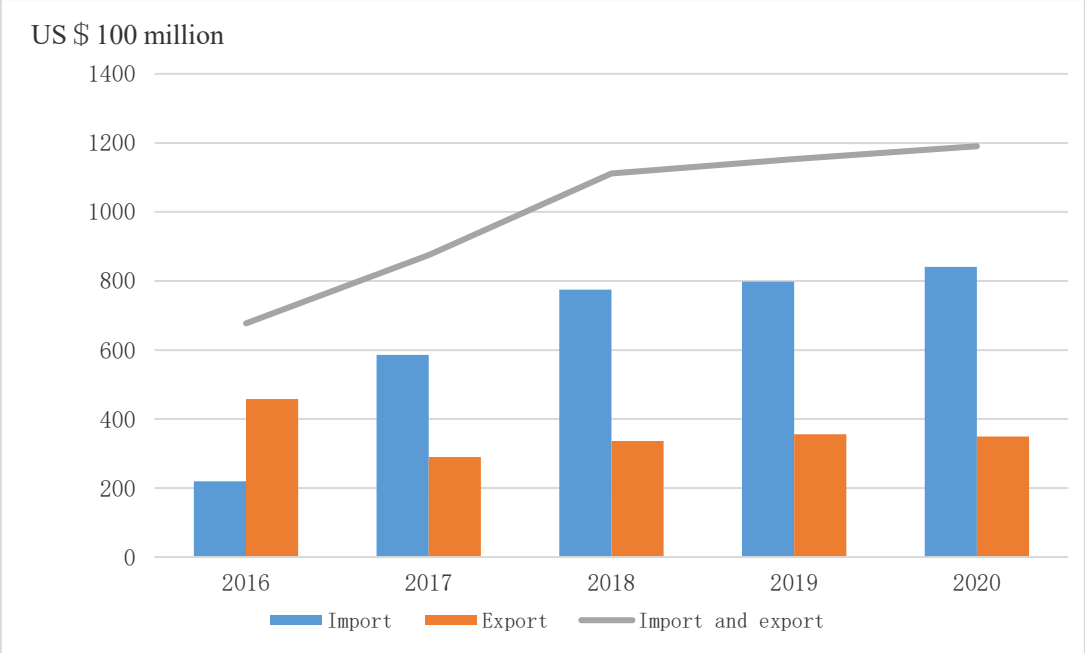
Total trade between China and Brazil in 2020 was worth US$102 billion, an increase of 3.1% over the same period last year. Brazil's exports to China were US$68 billion, a year-on-year increase of 6.8%; imports from China were US$34 billion, a year-on-year decrease of 3.5%. China-Brazil bilateral trade accounted for 27.6 % of Brazil's total foreign trade, of which China accounted for 32% of its total exports, and for 21.4% of total imports[21].

The reason for the decline in Brazil's imports is the reduced demand, due to the impact of the epidemic. Brazil's exports to China have risen nonetheless, mainly due to the increase in the export

[21] http://www.ccpit.org/Contents/Channel_3929/2021/0120/1322628/content_1322628.htm

of bulk products such as soybeans and iron ore. According to the latest statistics from China Customs, from January to May 2021, China's imports from Brazil reached US$ 39 billion and exports to Brazil were US$ 19 billion, an increase of 32.6% and 62.2% year-on-year respectively. The structure of bilateral trade in goods between China and Brazil has not changed significantly. The main export commodities to Brazil are ships, machinery, and electronic equipment, China mainly imported from Brazil soybean oil, iron ore, meat, oilseeds and seeds.

Figure 4.1 China's import and export trade growth from Brazil (2016-2020)



Source：China Customs Statistics

According to *China Service Trade Statistics 2019*[22] released by the Ministry of Commerce, and *Research for Trade in Services between China and Brazil*[23] the service trade between China and Brazil is under the guidance of the "Memorandum of Understanding on Cooperation in Service Trade (Two-year Action Plan)". The two sides consider various fields such as e-commerce, banking automation, tourism, culture, traditional Chinese medicine, engineering construction, and information consulting service.

In 2019, the trade value in services between China and Brazil was US$7.89 billion, a year-on-year increase of 3.7%, of which Chinese exports were US$ 750 million, a decline of 7.9%, imports US$ 7.15 billion, an increase of 5.0%. Compared with the previous year, China’s transportation and travel services exports decreased by 15.1% and 26.4% respectively, accounted for 46% and 11% respectively of China’s total services exports to Brazil. The ICT services has increased by 52.1%, accounted for 27.3% of total export. Meanwhile, China’s transportation services imports (the main import services) increased 6.0%, accounting for 94.3% of China's total services imports from Brazil.

[22] Published on September 2020.

[23] Published on November 2020, the joint team are CAITEC-MOFCOM and IPEA - Ministerio da Economia do Brazil

4.1.2 The Growth Trend and Distribution of China-Brazil Bilateral Investment

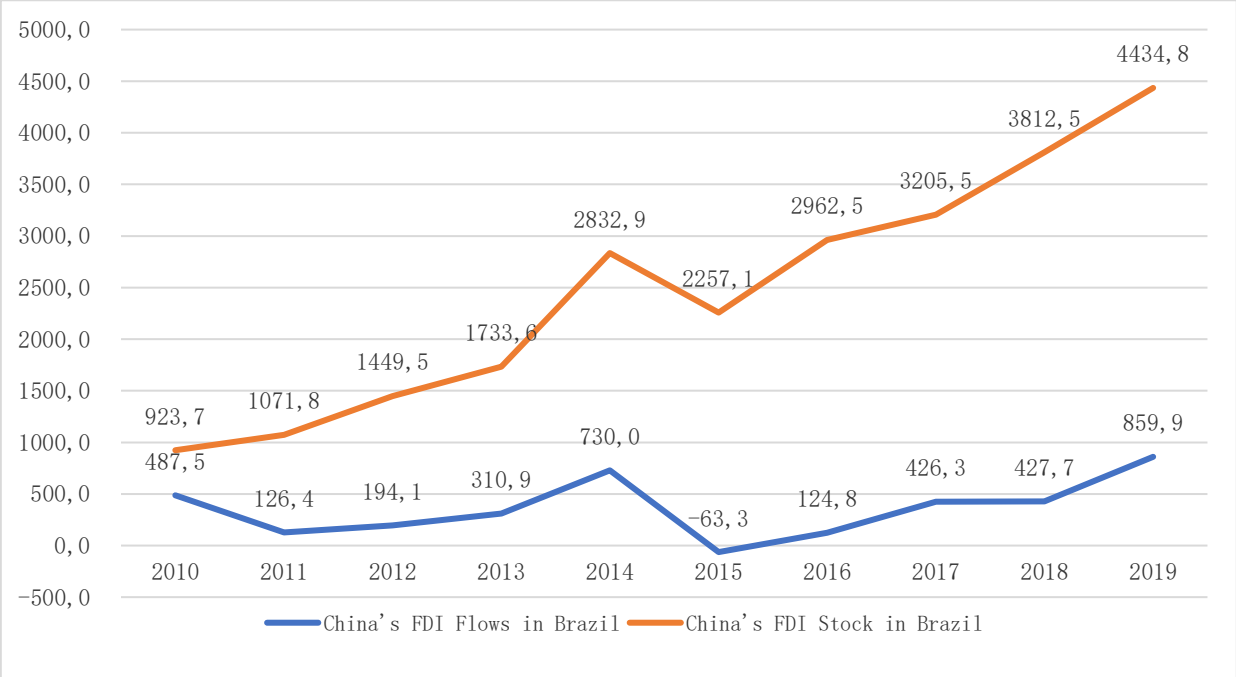
China and Brazil established diplomatic relations in 1974. The two countries established a strategic partnership in 1993. Since 2012, their bilateral relationship has been upgraded to a comprehensive partnership. With the help of the upgrading and development of bilateral relations, Chinese companies have been able to continue and expand their trade and investment opportunities in Brazil. Chinese companies have continued to expand investment in Brazil through acquisitions (mergers) and bidding for project franchise rights. Brazil is the largest investment destination country for China in Latin America. According to statistics from the Ministry of Commerce of China, the flow of China's FDI in Brazil in 2019 was US$859.9 million and the stock of China's FDI in Brazil was US$ 4434.8 million[24].

Since the outbreak of the Covid-19 epidemic, countries in Latin America, including Brazil, have been severely affected. Therefore, it is speculated that China's investment in Brazil might not be able to resume growth in the short term. By the end of 2020, the Brazil's investment stock in China was US$740 million, mainly in compressor production, coal, real estate, auto parts production, hydroelectric power generation, textiles and clothing, etc.[25]. China's investment in Brazil generally presents the following characteristics:

Investment distribution - the scale of investment concentration maintains growth

According to the "2019 Statistical Bulletin of China's Outward Foreign Direct Investment", from 2010 to 2019 the stock of Chinese investment in Brazil has shown a positive growth trend (Figure 4.2).

Figure 4.2 China's FDI flow and stock in Brazil (US$ Million)



Data source: 2019 Statistical Bulletin of China's Outward Foreign Direct Investment

[24] According to the third series of the Brazilian Foreign Investment Report of MEDIC in 2019, as of the end of the third quarter of 2019, the total confirmed investment of China in Brazil reached US$71 billion

[25] China's Foreign Investment (Region) Country Guide-2020 Edition, Brazil, P35

According to "Investimentos Chineses no Brasil", released by the CEBC – the Brazil-China Business Council, between 2007 and 2020 Chinese companies invested in 176 projects in Brazil, worth US$ 66 billion. Brazil was the destination of 47% of the Chinese investments in Latin America. The main investment areas of Chinese companies include electrical energy (48%), oil and gas extraction (28%), extraction of metallic minerals (7%), manufacturing sector (6%), infrastructure (5%), agriculture and related services (3%) and financial services (2%). The investment projects are mostly concentrated in São Paulo, Rio de Janeiro and Minas Gerais State (Minas Gerais), but there has been a significant regional diversification, with investments in States in the North and Northeast regions: Chinese companies now have investment projects in 23 out of the 27 Brazilian States. As per the number of projects between 2007 and 2020, 31% of them are focused in the electrical sector, being followed by the manufacturing sector (28%).

Investment field-diversified development is the main goal

Until 2010, China's investment in Brazil was concentrated in the fields of agriculture, minerals and petroleum. In recent years, investment has gradually shifted to the fields of transportation, communications, financial services, and manufacturing. According to statistics from the Brazilian Federal Internal Revenue, there are currently 1820 Chinese-funded enterprises operating in Brazil, covering a wide range of industries[26]. The oil and gas fields mainly include CNPC (China National Petroleum Corporation), Sinopec, CNOOC, etc., the information technology field includes Huawei, ZTE, and the infrastructure field includes State Grid, State Power Investment, CGGC, Three Gorges Corporation etc. A large number of manufacturing companies such as GREE Electric, XCMG, SANY, BYD, and Chery are also actively operating in Brazil. In the financial sector, more and more Chinese institutions have entered the Brazilian market in recent years. ICBC, China Construction Bank, Bank of China, and Bank of Communications have also set up subsidiaries or representative offices in Brazil.

The boom of Chinese direct investment in Brazil took place since 2010, but with a few different sectoral concentration over time. Up to 2010 most Chinese direct investment in Brazil was destined to the production of commodities, to meet the demand needs back at home. As in other Latin American countries, the production of petroleum, minerals, and soya concentrated most of the investment flows.

In 2010-2013 Chinese investment in Brazil was mostly of the market-seeking type, focused on industrial production. Yet the production of oil and gas still concentrated half of the Chinese investment in Brazil. This stage was followed by a significant shift, when Chinese investment became concentrated in the banking sector. This corresponded to the beginning of operation of several big Chinese banks in the Brazilian market. By that time Chinese investment also took place in transportation and telecommunication.

2014 has witnessed an impressive turning point in the sectoral concentration of Chinese resources. Heavy investments took place in infrastructure, mostly in energy generation and transmission. Big players, such as State Grid and Three Gorges entered the Brazilian market. Between 2014 and 2017 investment in the electricity sector (production and transmission) corresponded to no less than 77% of the total Chinese investment in Brazil. Apart from that, there have been massive investments also in the production of oil and gas, in the agribusiness and less but still relevant, in technology. In the production of oil and gas Chinese investment corresponded to some 82% of total. A similar share obtained also in the total investment in sanitation.

[26] See Hugo Iasco (2021), Investimentos Externos Diretos da China no Brasil: mapeando a presença de empresas chinesas na economia brasileira nos séculos XX e XXI, unprocessed

Since 2018 the economic and political scenario has motivated a strong retraction of the inflow of direct investment. In 2018 and 2019 the value invested corresponded to not much more than a quarter of the amount invested by China in 2010 and 2017, the two peak years.

Due to the shrinking global financial environment in 2018, the Chinese government has adjusted its foreign investment policies and strengthened the norms and guidance for enterprises to "go global". Chinese companies have begun to increase investment in clean energy, digital economy applications and other fields, exploring more investment development opportunities, with a view to making China's investment in Brazil more diversified and sustainable.

In 2019 the value of Chinese investment in Brazil increased 117%, reaching US$ 7 billion, despite the 8.2% fall in total global Chinese foreign direct investment, according to CEBC. Most (57%) of the investment in Brazil in 2019 was concentrated in the electricity sector, followed by investment in the extraction of oil and gas (23%) and infrastructure (15%).

In 2020 there has been a sharp (74%) fall in Chinese investment in Brazil, worth not more than US$1.9 billion, with only eight projects, 97% of them in the electricity sector and mostly (78%) in the Southeast region. This reduction is comparable to what happened in most countries, due to the peculiar constraints imposed by the pandemic.

Investment method-parallel mergers and acquisitions and Greenfield investment

Another major characteristic of the Chinese investments in Brazil is the predominance of mergers & acquisitions, which account for 70% of the total. Investment of the Greenfield (24%) and joint ventures (6%) types account for a minor share in Chinese investment.

According to the already mentioned CEBC report, in terms of number of projects in 2007-2020, 48% of the Chinese investments in Brazil are Greenfield, 40% via mergers and acquisitions and 12% via joint ventures. When it comes to the invested value, however, 70% of the investment is via mergers and acquisitions, with Greenfield projects corresponding to only 24%. According to the World Bank's PPI data (Private Participation in Infrastructure), large-scale projects are mainly based on BOT (Build-Operate-Transfer) type cooperation. A hydropower project with a total investment of US$ 3.7 billion is China's largest investment in Brazil.

Investors-state-owned as the main enterprises

Most of the large-scale investment projects between China and Brazil are completed or implemented by state-owned enterprises – there are 16 State-owned Chinese companies with investment in Brazil (electric energy, infrastructure, oil extraction, mining and agriculture), according to CEBC - but a considerable number of private enterprises have performed well in investment activities in Brazil, including XCMG, Shennong, Dakang, and BBCA Group in the agricultural sector; in the aviation sector HNA; Huawei, Qihoo, Baidu, Tiktok, ByteDance, Kuaishou in the field of information technology; BYD, Chery, Didi Travel in the manufacturing industry, and so on.

State-owned enterprises and large private enterprises are the backbone of the Latin American contracted engineering market. In addition to Huawei, Didi travel China and BYD are also very active in investment activities in Brazil. In terms of the amount of newly signed contracts, Sinohydro International Engineering Co., Ltd., Huawei Technologies Co., Ltd., and China National Petroleum Corporation Great Wall Drilling Engineering Co., Ltd. rank in the top three. In terms of completed turnover, Huawei Technologies Co., Ltd., China CGGC Group Co., Ltd., and China Hydropower Construction Group International Engineering Co., Ltd. ranked in the top three. State-owned enterprises and large private enterprises are the backbone of the Latin American contracted engineering market, playing an increasingly important role.

The main projects carried out by Chinese companies in Brazil include: Huawei Technologies Co., Ltd. undertook the construction of a good deal of telecom facilities, the construction of the first and

second phases of one Hydropower Station by State Grid, the two hydropower projects of the Three Gorges Group, Shandong Kerui Petroleum Equipment Co., Ltd. undertook the construction of Brazil's UPGN natural gas processing station project; China Communications Construction Co., Ltd. undertook the construction of one PETROBRAS project, etc.

4.2 Investment to Support Sustainable Bilateral Trade

In order to promote the sustainable construction of bilateral trade and related investment, China can simultaneously guide the orderly and healthy development of investment activities and improve a large number of related policies on the basis of continuously expanding the scale of trade. Circular development, the use of platforms such as the China International Import Expo to expand trade imports to create more bilateral trade opportunities, strengthen trade facilitation safeguard measures, and receive positive feedback in the fields of goods trade, service trade, investment activities, labor services, and engineering contracting are all concrete possibilities.

4.2.1 Investment for the sustainable trade development

Sustainable development, as an objective to be achieved through cooperation among countries, in order to protect the integrity of the global environment, was marked by the United Nations (UN) Conference on Environment and Development in Rio de Janeiro in 1992[27]", with the signing of the first letter of intent to promote, on a global scale, a new standard of development for the 21st century. In 2012 there was a new UN Conference (Rio + 20) to renew the global commitment to sustainable development. At this Conference, it was decided to launch a process to develop a set of Sustainable Development Goals[28] (SDGs), taking into account the Millennium Development Goals[29] (MDGs).[30]

According to UNCTAD (2014)[31], the SDGs are a more ambitious undertaking than the MDGs, representing a joint effort to transform the world economy, turning it towards more sustainable long-term development, requiring a major escalation in the investment financing structural changes in broad-based economic transformation, with an emphasis on vulnerable economies.

UNCTAD (2020)[32] pointed to an increase in the instruments for promoting the SDGs, as well as presenting an expansion of existing instruments with environmental, social and governance (ESG) integration practices. The Stock Exchanges have acted through dedicated segments of green bonds and Sustainable Stock Exchanges (SSE), Sustainable Funds, Exchange-Traded Mutual Funds (ETFs), ESG Funds in the Public Fund Markets and Securities in response to Covid-19.

In addition to the increase in project financing that involves both national and cross-border financing for public and private projects or through public-private partnerships (PPPs), there has been an alignment of Corporate Social Responsibility Initiatives (CSR) with the SDGs and the

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27 Report of the United Nations Conference on Environment and Development. Available in: <https://www.un.org/esa/dsd/agenda21/Agenda%2021.pdf>.

28 Sustainable Development Goals. Available in: <https://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf>

29 United Nations Millennium. Available in: <https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_55_2.pdf>.

30 The future we want. Available in: < https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E>.

31 UNCTAD. World Investment Report. Investing in the SDGs: An Action Plan. 2014. Disponível em: < https://unctad.org/en/PublicationsLibrary/wir2014_en.pdf>

32 UNCTAD. World Investment Report. International Production Beyond the Pandemic. 2020. Disponível em: < https://unctad.org/system/files/official-document/wir2020_en.pd f>.

introduction of issues of gender in the public and private sectors. This proves that the SDGs have the strength to shape the global discourse on sustainability, becoming a universally accepted reference.

Sachs *et al*. (2020)[33] formulated an SDG Index that summarizes the current performance and trends of each country in relation to the 17 SDGs, indicating the areas that require more rapid progress. China presented an "Overall score" for reaching the 17 SDGs (the higher this score, the shorter the distance that needs to be overcome in order to achieve optimal performance) higher than that of Brazil. However, in the case of externalities, Brazil presented a "Spillover score" (the higher this score, the less negative are the cross-border impacts) higher than that of China.

UNCTAD (2020), presented an action plan for the UN that serves as a milestone for the implementation of the Agenda 2030 Financing Strategy, in which a new set of global actions is proposed, which together can contribute decisively to the elevation of the financing for the SDGs, improving policies to support the impact of the SDGs and addressing channeling and impact challenges in developing countries.

Taking into account that foreign investment is considered fundamental to fill the investment gaps in the SDGs, it would be desirable to build a partnership between the two countries in order to find mutual ways and share knowledge to improve their performance in the greatest possible number of SDGs. China and Brazil should take integrated actions for the implementation of sustainable development, in all the ten sectors that make up the SDGs.

Amongst different objectives, one is associated with the adoption of wider environmental-friendly practices. China's 14th Five-Year Plan (2021-2025) is guided by the notion of making China a low-carbon economy. It intends to decrease the energy- and carbon-intensity by 13% and 18%, respectively, over the next five years (2021-2025). Moreover, it aims to increase from approximately 23% to 24% the forest coverage rate in the Chinese territory. There is, therefore, a clear commitment in the Chinese economic planning towards a greener economy, more sustainable or less harmful to the environment.

Accordingly, it becomes important to measure how environmental-friendly are the activities of Chinese firms in Brazil. Table 4.1 presents the number of Chinese operating firms in those sectors of the Brazilian economy classified as green (i.e., sectors whose activities reduce the existing environmental impact or do not cause any damage to the environment). The sectors correspond to those of CNAE (National Classification of Economic Activities), which is the official sectoral classification adopted by the Brazilian Government. The designation of a sector as green, or nongreen, is provided by Pereira Filho (2020)[34].

Table 4.1 indicates that only 8% of the Chinese firms are set up in green sectors in the Brazilian economy. Three sectors stand out in terms of share in relation to overall Chinese firms with activities in green sectors: *Engineering services* (9%), *Manufacture of audio and video reception, reproduction, recording and amplification devices* (7%), and *Manufacture of transmitting communication equipment* (6%). This indicates that the great majority of Chinese business expansion in Brazil, since the early 2000s, has been based on non-environmental-friendly activities. The presence of Chinese investments in green sectors is very limited. There is a long path to be established in order to support the sustainable investment cooperation between China and Brazil.

In order to expand the bilateral trade, the Chinese government has insisted on guiding enterprises

33 Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., Woelm, F. 2020. The Sustainable Development Goals and COVID-19. Sustainable Development Report 2020. Cambridge: Cambridge University Press

[34]For more details: https://www.teses.usp.br/teses/disponiveis/11/11132/tde-15072020-172914/pt-br.php.

to "go global" and "bring in" two-way development for a long time, continuously improving trade facilitation conditions, constantly innovating foreign investment methods, striving to expand the scale of foreign trade and increase foreign investment in a scientific, stable, fast and guaranteed manner, as well as improve the level of foreign investment and cooperation. After years of exploration and practical tests, the level of China-Brazil's trade and investment cooperation policies are gradually moving towards a scientific and sustainable direction. Huge efforts have been made in the integration of investment policies and in-depth financial integration.

China's economic development has entered a stage of high-quality development of structural adjustment and industrial upgrading. China's integration into globalization has shifted to participating in the formulation of global rules, integrating two-way investment into the global value chain, and realizing the coordinated development of foreign investment and foreign investment to enhance opening up the key to level. The improvement of the international competitiveness of enterprises and the promotion of the "Belt and Road" construction have made ´going global` into a stage of rapid development, and investment fields and regions have become more extensive.

The Chinese government actively encourages companies to devote themselves to Brazil's economic construction, promotes and expands trade opening, and welcomes Brazilian companies to develop in China. The Chinese government and the Brazilian government have mutually established investment promotion agencies or representative offices to serve various enterprises of the two countries. At the same time, the Chinese government actively regulates and improves the investment environment and has promulgated the new "Foreign Investment Law". The relaxation of regulations in these areas provides practical reference and convenience for foreign investment in China, including Brazil.

The Chinese government continues to open up trade and has been actively promoting the construction of a free trade zone network for many years. It has formed 17 free trade zones with signed agreements around the world. There are 10 free trade zones under negotiation, other 8 under study.

Chinese government is constantly seeking openness and simplification in commodity inspection and quarantine, tax rebates, especially agricultural product import and export inspection and quarantine. China and Brazil have already dealt with Brazilian beef, cooked beef, tobacco leaves, donkey meat, donkey skin, melons, and Chinese fresh pears. A relevant quarantine requirements protocol has been signed.

Up to now, Chinese enterprises have built 99 overseas economic and trade cooperation zones in 44 countries with a total investment of US$ 30.7 billion. Among them, a total of US$ 25.5 billion has been invested in 75 cooperation zones under construction in 24 countries along the "Belt and Road".

However, it should be recognized that China still needs to continue its efforts to improve in terms of regulating overseas mergers and acquisitions, enhancing international competitiveness, and regulating overseas business activities. China's investment and financing network has not yet been established. The foreign investment of enterprises is still mainly based on domestic loans or self-owned funds, and the proportion of overseas financing is still low. M&A transactions are mostly based on cash transactions, and there are few methods such as equity swaps. In addition, there is still much room for improvement in the construction of production and service networks.

Table 4.1 Chinese Firms operating in Green Sectors of Brazilian Economy (1997-2021)

	Number of Firms
Cultivation of soybean	1
Supporting activities for agriculture	1
Manufacture of laminated wood and plywood, pressed and chipboard sheets	2
Adhesive and sealant manufacturing	1
Manufacturing of industrial use additives	3
Manufacture of chemicals not otherwise specified	6
Manufacture of pharma chemicals	1
Manufacture of medicines for human use	3
Manufacturing of medicines for veterinary use	2
Glass packaging manufacturing	1
Glassware manufacturing	2
Manufacturing of refractory ceramics	1
Manufacturing of non-refractory products not specified above	2
Production of long rolled steel	1
Production of re-rolled, drawn and profiled steel	2
Production of sewn steel tubes	1
Production of stamped metal artifacts; powder metallurgy	1
Manufacturing of computer equipment	8
Manufacturing of peripherals for computer equipment	9
Manufacture of transmitting communication equipment	10
Manufacture of telephone devices and other communication equipment	1
Manufacture of audio and video reception, reproduction, recording and amplification devices	11
Manufacture of chronometers and watches	4
Manufacture of lamps and other lighting equipment	1
Manufacturing of household appliances not otherwise specified	1
Manufacture of engines and turbines, except for airplanes and road vehicles	2
Manufacture of hydraulic and pneumatic equipment, except valves	2
Manufacture of valves, valves, and similar devices	2
Compressor manufacturing	1
Maintenance and repair of electrical machinery and equipment	3
Maintenance and repair of machinery and equipment in the mechanical industry	1
Installation of industrial machinery and equipment	2
Electric power transmission	2
Wholesale electricity trade	2
Incorporation of real estate projects	1
Building construction	3
Works for electricity generation and distribution and for telecommunications	4
Custom computer program development	3
Development and licensing of customizable computer programs	1
Development and licensing of non-customizable computer programs	4
Portals, content providers and other information services on the internet	1
Legal activities, except notary offices	1
Engineering services	13
Technical activities related to architecture and engineering	2
Technical testing and analysis	2
Research and experimental development in physical and natural sciences	1
Advertising activities not previously specified	2
Professional, scientific, and technical activities not previously specified	8
Activities of employer and business associative organizations	1
Activities of social rights defense associations	2
Total	**143**

Source: Estimation using data from Brazilian Federal Revenue[35]

[35] https://www.gov.br/receitafederal/pt-br/assuntos/orientacao-tributaria/cadastros/consultas/dados-publicos-cnpj

China and Brazil have signed the Government Trade Agreement (1978) and Supplementary Protocol (1984), the Economic and Technical Cooperation Agreement (1990), the Phytosanitary Agreement (1995), the Animal Quarantine Agreement (1996), the Memorandum of Understanding on Cooperation in the Field of Trade and Investment (2004), animal health and animal quarantine (2015) and many other bilateral trade and investment agreements, which provide basic policy guidance and support for the development of related businesses in the two countries. With the continuous development of bilateral investment and trade activities, the two governments are also constantly exploring more scientific, efficient and pragmatic investment and trade cooperation mechanisms and policies.

The Chinese and Brazilian governments established a high-level coordination and cooperation mechanism in 2004 (COSBAN). So far, they have conducted 5 working meetings[36] and several sub-committee meetings. There are 12 sub-committees under COSBAN, covering politics, economy, trade, and finance, science and technology, agriculture, energy and minerals, aerospace, industry and information technology, inspection and quarantine, culture, education, health and other fields, under which special committees such as service trade and related industry guidance and promotion mechanisms have been established for the deepening of investment and trade between the two countries The cooperation has released positive signals. In May 2019, Wang Shouwen, Vice Minister of Commerce and Deputy Representative of International Trade Negotiations, Brazilian Deputy Foreign Minister Reinaldo Salgado and Assistant Minister of Economy Yana Dumaresq co-chaired the seventh meeting of the "China-Brazil Economic and Trade Subcommittee". At the meeting, opinions were exchanged on topics such as trade, investment, infrastructure, China International Import Expo, and multilateral cooperation.

The governments of China and Brazil decided at the fifth working meeting of the High Commission held in 2019:

The two sides agreed to strengthen exchanges and cooperation in various fields, promote trade facilitation, optimize trade structure, and promote high-quality growth of bilateral trade. Expand innovative cooperation and cultivate new growth points for China-Brazil an economic and trade cooperation. China invites Brazil to participate in the second China International Import Expo, and Brazil encourages Brazilian companies to participate in the Expo.

The two sides attach importance to the "Belt and Road" initiative and Brazil's "Investment Partnership Program" and other development plans to achieve the docking, agreed to promote two-way investment to promote energy mining, infrastructure construction and logistics, agriculture, finance, service industry, technological innovation, information technology, civilian use Iconic projects in satellite and other fields.

The two sides agreed to continue close cooperation under the UN, BRICS, WTO and other multilateral organizations and frameworks, jointly safeguard multilateralism and free trade, improve global economic governance, safeguard the multilateral trading system with the World Trade Organization as the core, and build an open-ended multilateral trading system[37].

The outlook for the future investment environment in Brazil is positive. Brazil has a vast territory, rich resources, and ranks first in Latin America in terms of economic scale and market size, and has great potential for development. Brazilian society is open and inclusive, and its multi-ethnic

[36] Meetings have been suspended since the impeachment of former Brazilian President Dilma Rousseff. However, some subcommittee activities are proceeding normally. In May 2019, Vice President Wang Qi Shan and Brazilian Vice President Mourão co-chaired the fifth meeting of the High-level Committee.

[37] https://www.yidaiyilu.gov.cn/xwzx/roll/91642.htm

characteristics determine that its people can accept and get along with foreigners with different customs, and there is little xenophobia or racial discrimination. Brazilian states have the right to formulate incentive policies that are conducive to local development and the introduction of foreign investment, and certain local tax reduction and exemption policies for foreign companies include free land transfer.

The “Investment Partnership Program (PPI)” (Programa de Parcerias de Investimentos) launched at the national level in Brazil attracts private capital to increase investment. It contains a list of 34 franchise projects, aiming to pass this approval of projects to improve the economic decline, increase employment, weaken the power of the central government, and stimulate the enthusiasm of private sector participation. In infrastructure construction, the "Smart Brazil" national broadband development plan issued by the Ministry of Communications of Brazil plans to invest R$ 1.85 billion (approximately US$529 million) by 2019, increasing the number of cities and towns with optic fiber networks in Brazil from 53% to 70%. The broadband network will cover 95% of Brazil’s population. The network will be laid in some areas of the Amazon. Six submarine optical cables will be built to connect Brazil with Europe, Africa and the United States to improve network data transmission capacity and ensure communication security, reducing the cost of Internet connections by 20%. The "Smart Brazil" plan will greatly increase Brazil's network coverage, thereby creating more convenient transportation and logistics conditions for Brazil's foreign trade.

The China-Latin America Industrial Cooperation Investment Fund (CLAIFUND） was established in 2015. It is a medium and long-term development investment fund jointly funded and established by the Export Import Bank of China and the State Administration of Foreign Exchange as the main sponsors, with an initial scale of US$ 10 billion. On May 30, 2017 the China-Brazil Expanding Production Capacity Investment Fund was officially launched, focusing on supporting Brazil productive capacity projects. According to the agreement, China would invest up to US$ 15 billion and Brazilian financial institutions up to US$ 5 billion. The fund should be used to support cooperation in infrastructure, agriculture, technological innovation and other fields through market-oriented operation[38]. All the projects should be in Brazil, and this would represent the third biggest source of resources for investment in the country. More than a typical investment fund, it was meant to be a mechanism to stimulate the proximity between the two countries, since decisions about the projects would be taken by a joint Steering Committee formed by vice-ministers by the two countries. This would mean that every approved project would correspond to the priorities of the Brazilian government, and to the business interests of the Claifund.

There has never been any prejudice about specific sectors that might be financed by the Fund. One possibility to try and revive this instrument could be to put emphasis in the financing of ´greener projects`, such as fighting deforestation and supporting environment friendly agricultural projects.

4.2.2 China’s trade related investment in Brazil

The investments by Chinese companies in Brazil are still concentrated in energy. China has been Brazil’s largest trading partner for eleven consecutive years and trade integration and development in related fields between China and Brazil are also thriving.

In merchandise trade**,** through mergers and acquisitions COFCO International has initially established a global strategic asset layout and has a complete industrial chain. COFCO International’s main business in Brazil is grain and oil production and processing (soybeans, corn,

38 People's network. China Brazil capacity expansion Cooperation Fund officially launched, http://world.people.com.cn/n1/2017/0601/c1002-29310173.html

wheat), 2 soybean crushing plants, 4 sugar mill with a crushing capacity of 15.5 million tons, producing raw sugar and ethanol, soft commodities and processing, including cotton and coffee; 2 docks with a transfer capacity of 3.1 million tons, and 19 grain depots with a storage capacity of 1.2 million tons, with a total number of 7,500 employees. COFCO International (Brazil) exported 12 million tons of soybeans to China in 2017, ranking first among soybean exporters; in 2018 this figure increased to 12.3 million tons (including third-party acquisitions), accounting for 18.5% of the total 66.1 million tons of China's imports from Brazil.

Regarding the import and export of traditional trade products, in 2020, due to the impact of the new crown epidemic, China's imports of mineral products from Brazil have experienced a slight decline of about 4.6% according to Chinese customs statistics, and total Chinese imports of mineral products from Brazil were RMB 281.9 billion (compared to RMB 295.7 billion in 2019). In the first half of 2021, total Chinese imports of mineral products from Brazil reached RMB 119.7 billion. The most important mineral export is iron ore. Over 85% of Brazil's iron ore is produced by Vale. Two-thirds of iron ore production are sold to China.

In service trade, Huawei Technologies Co., Ltd. has successively completed important projects such as the Presidential Government Information Service Project, Government Digital City Project, Safe City Solution, Brazil CAIXA Bank Information Construction, McKinsey University Data Center and other important projects in Brazil. Huawei's services provided reached 1,628 records, and this number is still increasing. China Ocean Shipping Group Co., Ltd.'s container freight volume has accounted for 10% of Brazil's imports, and has signed a long-term transportation service agreement with Brazil's Vale. China Development Bank, Bank of China, Construction Bank, Industrial and Commercial Bank, etc. are all established in Brazil. After the acquisition of CONCREMAT by China Communications Construction South America Regional Company, it will be used as an operating platform to cooperate with Brazilian WPR and other companies to build the Port of São Luis. The current large amount of design consulting work is completed by CCCC CONCREMAT.

In the past 10 years, more than 200 Chinese enterprises have opened branches or representative offices in Brazil. In the petroleum sector there are China's four major oil companies, including CNPC, Sinopec, CNOOC, and China National Chemical. In the banking industry, except for the Agricultural Bank of China, which is preparing to build representative offices, ICBC, China Construction Bank, Bank of China, and Bank of Communications have all established subsidiaries in Brazil, and the China Development Bank also has a representative office in Brazil. The hydropower infrastructure area include State Grid, State Power Investment, CGGC, China Power Construction, Three Gorges Corporation, National Nuclear Power, Dongfang Electric. Manufacturing industries include Gree Electric, XCMG, Sany, Liugong, BYD, Chery. The construction engineering category includes China Communications, China Railway, China Railway Construction. The aviation service industry includes Hainan Airlines. The agricultural sector includes BBCA Group[39], COFCO, CGGG[40] and Dakang. Information technology includes Huawei, ZTE, Qihoo, Baidu, etc. The Brazilian Association of Chinese Enterprises was established in July 2014 and has currently nearly 100 member units.

[39] In 2006, COFCO acquired 200 million shares of FENGYUAN Chemical, a subsidiary of FENGYUAN, and became its largest shareholder. FENGYUAN owns an overseas industrial company "BBCA Brazil Industrial & Investment Co. Ltd" (BBCA Brazil Industrial & Investment Co. Ltd) in Brazil. The company is located in Maracaju, Mato Grosso do Sul.

[40] Chongqing Grain Group was established in 2008. It is the largest grain enterprise group in Southwest China. It has farms in Brazil, including 780,000 mu (about 520 thousands m^2) of Brazil's Happy Plateau Farm and 250,000 mu (about 167 thousands m^2) of Sunshine Farm.

According to statistics from the Ministry of Commerce of China, in 2017 Chinese companies signed 102 new contract projects in Brazil, worth US$1.7 billion and a completed turnover of US$1.8 billion; a total of 206 laborers of various types were dispatched, and 558 laborers were in Brazil at the end of the year. Newly signed large-scale engineering contracting projects include Huawei Technologies Co., Ltd. to build Brazil Telecom; Jiangsu Hengtong Optoelectronics Co., Ltd. to build Brazil's one telecommunications transmission project; Wuhan Fiberhome International Technology Co., Ltd. to build Brazil's one telecommunications project, etc.

In 2018, Chinese companies signed 122 new engineering contracts in Brazil, worth US$2.6 billion, a year-on-year increase of 48.3%, and a completed turnover of US$2.6 billion, a year-on-year increase of 40.7%. The main business involved communication engineering construction, power engineering construction, petrochemical and other fields, accounting for 55.8%, 19.0% and 12.2% respectively. The main participating companies are Huawei Technologies Co., Ltd., Dongfang Electric Group International Cooperation Co., Ltd., China Power Technology Equipment Co., Ltd., China Power Construction Group Shandong Electric Power Construction First Engineering Co., Ltd., Offshore Oil Engineering Co., Ltd., Shandong Kerui Petroleum Equipment Co., Ltd. Company, Fujian First Electric Power Construction Company, Xizi Otis Elevator Co., Ltd., etc. A total of 136 laborers of various types were dispatched, and 649 laborers were in Brazil at the end of the year. Newly signed large-scale engineering contracting projects include Huawei Technology Co., Ltd.'s contract for Brazil Telecom; China Communications Construction Co., Ltd.'s contract for Brazil's San Luis Port project and Shandong Kerui Petroleum Equipment Co., Ltd.'s contract for Brazil's UPGN natural gas processing station project.

In 2019, Chinese companies signed 130 new engineering contracts in Brazil, worth US$ 303 million and a completed turnover of US$2.2 billion. A total of 232 laborers of various types were dispatched, and 487 laborers were in Brazil at the end of the year. Newly signed large-scale contracting projects include Huawei Technologies Co., Ltd. to build one telecommunications project, Shandong Kerui Petroleum Equipment Co., Ltd. to build Brazil's UPGN natural gas processing station project and China Communications Construction Co., Ltd. to build one oil company project.

4.2.3 Brazil’s trade related investment in China

JBS sales to China are mainly agricultural products, and the companies or offices established by Brazil in China mainly include JBS SA and SUZANO. JBS is the world's largest meat producer. Headquartered in São Paulo, Brazil, JBS was founded in 1953. Through expansion and acquisition of several food companies in Brazil and around the world, JBS has developed into the world's largest meat producer. JBS is a leader in the global food industry. Its main factories are in the world's four major beef producing countries: Brazil, Argentina, the United States, and Australia. It exports and sells processed chicken, beef, pork and other meat products. JBS also has other related businesses such as leather, biodiesel, collagen, personal hygiene and cleaning, natural packaging, solid waste management solutions, metal packaging and transportation. JBS S/A is the world's largest supplier of animal protein and the world's second largest food company. Its brands include Doriana, Friboi, Moy Park, Pilgrim's Pride, Primo, Seara, Swift, Gold'n Plump, etc. It has successively acquired famous brands such as Swift & Company, the third largest beef and pork processing producer in the United States, Smithfield Foods beef business, Brazilian Grupo Bertin food business, Pilgrim's Pride and other well-known brands, laying the full production and processing chain of beef, pork, and chicken.

Suzano Pulp and Paper Company is one of Brazil's long-established companies. It has operated

related businesses for more than 90 years and has sales representatives. It is the world's second largest producer of eucalyptus pulp and the largest paper seller in the Latin American market. The company is headquartered in São Paulo, with more than 8,000 employees and about 11,000 outsourcing employees. It has sales representative offices in China and subsidiaries in the United States, Switzerland, and Argentina.

In October 2020, Vale International SA, a subsidiary of Brazil's Vale, and Ningbo Zhoushan Port Co., Ltd., a subsidiary of Zhejiang Seaport Investment and Operation Group (Ningbo Zhoushan Port Group), established a joint venture to build, own and operate the West Third District Project located at the Shulang Lake Wharf in Zhoushan City, Zhejiang Province, China. The registered capital of the newly established joint venture company is RMB 1.6 million, of which Ningbo Port and Vale International Corporation contribute RMB 752.5 million each, holding 50% of the equity of the joint venture company. The total investment in the West Three District project is RMB 4.3 billion (approximately US$624 million). The construction of the project will start after the two parties pass the centralized application review and other relevant regulatory approvals in China, and the expected construction period is three years. In 2019, Ningbo Zhoushan Port completed a cargo throughput of 1.1 billion tons, ranking first in the world for 11 consecutive years, with a container throughput of 27.5 million TEUs, ranking third in the world. Vale said that by participating in the project, Vale will ensure that the company's total annual processing capacity at the Mouselang Lake terminal reaches 40 million tons, which will help Vale reduce overall supply chain costs.

4.3 Investment Cooperation in Agriculture and Manufacturing

Cooperation in agriculture and manufacturing plays an important role for both countries. Brazilian economy offers profitable opportunities for Chinese investments, embodied in a consumer market of almost 210 million people and in the future public service concessions to be carried out by the Government. Such opportunities become remarkable when one considers the ongoing deindustrialization of the Brazilian productive structure.

The installation of Chinese firms in key, technology-intensive sectors, may create a ripple effect in Brazilian productive structure, by fostering the resurgence of manufacturing activity via demand from Chinese firms. There could be complementarity and integration between Chinese and Brazilian companies in the domestic productive chain, with positive effects over the creation of better (formal) jobs in manufacturing sectors, with higher real wages and absorption of technology.

4.3.1 Investment incentive for a better trade relationship

In order to continue to expand bilateral trade and investment cooperation and promote a sustainable cooperative relationship, the governments of China and Brazil have made great efforts in many aspects such as industry promotion cooperation, bilateral financial support, mutual recognition of standards, and facilitation of personnel exchanges. The investment and trade enterprises of the two countries have created a relatively good business environment and investment atmosphere.

In terms of deepening industrial cooperation, the governments of China and Brazil have signed a number of cooperation agreements involving investment. In 1991, the two countries signed the Agreement on Avoidance of Double Taxation and Prevention of Tax Evasion, which provided a legal basis for investment companies in the two countries to avoid double taxation and protect profits. In 1994, the two countries signed the "Agreement on Encouraging and Mutual Protection

of Investments." In 2004, the two countries signed a memorandum of understanding on cooperation in the field of trade and investment. In 2014, the two countries signed the "Memorandum of Understanding between the National Development and Reform Commission of the People's Republic of China and the Ministry of Development, Industry and Foreign Trade of the Federal Republic of Brazil on the Promotion of Investment and Industrial Cooperation." In 2015, the two countries signed the Framework Agreement on Capacity Investment and Cooperation between the National Development and Reform Commission of China and the Ministry of Planning, Budget and Management of Brazil. On October 11, 2016, China and Brazil formally signed a memorandum of understanding on the China-Brazil capacity expansion cooperation fund with a scale of US$ 20 billion. On May 30, 2017, the China-Brazil Fund was officially launched to support cooperation in various fields such as infrastructure, agriculture, and technological innovation. In addition to investment agreements, the governments of China and Brazil have also signed a number of industrial promotion and industrial development agreements (see Table 4.2).

Table 4.2 China-Brazil Bilateral Cooperation Agreements (Industry Promotion)

Date	Name of the Agreement
1979.05	China-Brazil Maritime Agreement
1985.11	Protocol on Cooperation in the Iron and Steel Industry
1985.11	Cultural and Educational Cooperation Agreement
1988.07	Technical Cooperation Protocol
1988.07	Agreement on Science and Technology Cooperation in Electricity (including Hydropower)
1988.07	Industrial Cooperation Protocol
1995.12	Agreement on Phytosanitary
1996.02	Agreement on cooperation in animal quarantine and animal health (updated in 2015)
2006.06	Agreement on Strengthening Engineering Construction Cooperation in the Field of Infrastructure Construction
2009.02	Protocol on Energy and Mining Cooperation
2009.05	Memorandum of Understanding on Petroleum, Equipment and Financing
2012.06	Ten-year cooperation plan between the two governments
2012.06	Strategic planning on strengthening agricultural cooperation
2013.03	Memorandum of Understanding on Bilateral Cooperation on Macroeconomics, Fiscal and Financial Policies
2014.07	Memorandum of Understanding on Strengthening Cooperation in the Field of Railway Transportation
2014.07	Memorandum of Understanding on Strengthening Comprehensive Civil Aviation Cooperation
2015.05	Joint Action Plan from 2015 to 2021
2015.05	Memorandum of Understanding on Sports Cooperation
2017.09	Memorandum of Understanding on e-commerce cooperation

Sources: Chinese Ministry of Foreign Affairs website

In terms of bilateral financial support, the five major Chinese banks have successively entered the Brazilian market. ICBC, China Construction Bank, Bank of China, and Bank of Communications have all established subsidiaries in Brazil, and Agricultural Bank has established a representative office in Sao Paulo. China Development Bank also has a representative office in Brazil. As the only Chinese bank that can issue real guarantees, it continues to provide strong financial support for Chinese companies' investment and trade activities in Brazil. ICBC (Brazil) Co., Ltd. focuses on the connections between important merchants in China and Brazil to meet their needs in credit, settlement, and foreign exchange transactions, and continues to expand the scope of financial product supply, including letters of credit, guarantees, international calculations, foreign exchange

transactions, multiple categories, such as derivatives trading, provide a powerful service platform for trade between China and Brazil.

Bank of China (Brazil) Co., Ltd. has a comprehensive banking license and is committed to promoting China-Brazil cooperation in expanding production capacity, aligning cross-border connections between China-Brazil enterprises, and promoting the sustainable development of China-Brazil economy and trade. The Brazil branch of China Construction Bank[41] mainly serves SME financing and is the largest local Chinese bank in Brazil. Sub-branch of Bank of Communications[42], it has 8 staffs stationed in Brazil to serve the economic and trade activities of China and Brazil. The Export-Import Bank of China has agreed to provide Vale with US$5 billion to support the company's purchase or lease of equipment, boats, and related services provided by Chinese companies. Bank of China also signed a three-year global financing cooperation memorandum with Vale. In 2015, China Haitong Securities entered the Brazilian market through the acquisition of the Holy Spirit Bank (Besi). These favorable financial supports can enhance the confidence of Chinese investors to invest in Brazil. In addition, Brazil also expressed its desire to join the Asian Infrastructure Investment Bank.

As per bilateral local currency swap agreements, as the fluctuation of the RMB has become the norm, the exchange rate fluctuations between China and the major trading partners' currencies have become more frequent, and foreign trade companies face increased exchange rate risks. Therefore, the Chinese government has been actively promoting the scope of local currency swaps. China and Brazil signed a Real and RMB bilateral local currency swap agreement before 2013, but it has not been updated after its expiration in 2016. Therefore, there is currently no effective local currency swap agreement between China and Brazil to protect the interests and precautions of the companies of the two countries.

In terms of mutual recognition of standards， in October 2019 China and Brazil signed the "Arrangement between the General Administration of Customs of the People's Republic of China and the Federal Taxation Administration of the Ministry of Economy of the Federal Republic of Brazil on the Mutual Recognition of the Chinese Customs Enterprise Credit Management System and the ´Certified Operator` System of the Brazilian Customs". It means that China and Brazil have deepened mutual trust and recognition from the level of government management, and have opened a green channel for customs clearance certification and related audits for their respective certified companies. By reducing obstacles and improving work efficiency, they can achieve the goal of benefiting trade between the two countries.

In terms of personnel mobility, China and Brazil have signed the Agreement on Mutual Exemption of Visas for People Holding Diplomatic and Official (Official) Passports between the Governments of the Two Countries, the Agreement on Simplifying Visa Procedures for Business Persons between the Ministry of Foreign Affairs of the People's Republic of China and the Ministry of Foreign Affairs of the Federal Republic of Brazil, and the People's Republic of China. The Agreement between the Government of the Republic of China and the Government of the Federal

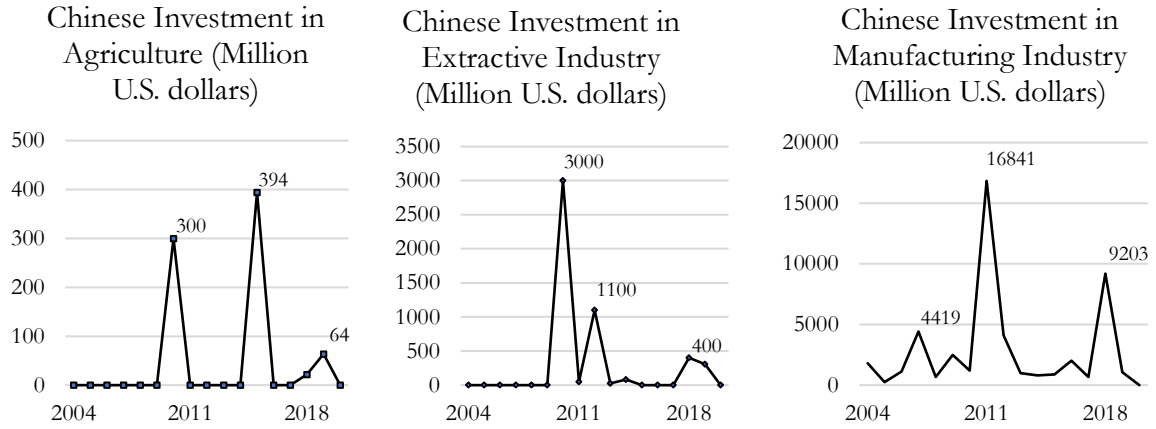
[41] Formerly known as the Industrial and Commercial Bank of Brazil (BANCO INDUSTRIAL ECOMERCIAL S.A, hereinafter referred to as BIC Bank). On August 29, 2014, China Construction Bank completed the acquisition and delivery of the controlling interest in BIC Bank; on December 16, 2015, it officially changed its name to China Construction Bank (Brazil) and has a subsidiary CCB Brasil Financiera

[42] Bank of Communications Co., Ltd. completed the settlement procedures on November 30, 2016 and acquired 80% of the original Brazilian BBM Bank. In 2018, after the approval of the regulatory agencies of China and Brazil, the sub-bank was renamed, the Chinese name is "Bank of Communications (Brazil) Co., Ltd." (Hereinafter referred to as the Brazilian subsidiary of Bank of Communications) and the Portuguese name is "Banco BOCOM BBM S.A."

Republic of Brazil on Simplification of Visa Procedures for Tourists provides great convenience for the flow of the above-mentioned specific groups of people. In addition, bilateral exchanges and cooperation provided support and encouragement policies for overseas students, higher education personnel, Chinese traditional medicine and other professional and technical personnel in different situations.

Chinese investment performance of firms in the agriculture and manufacturing sectors of the Brazilian economy between 2004 and 2020 is varied across sectors, as indicated in Figure 4.3. It is clear that the bigger investment values are concentrated in manufacture, at the expense of the extractive industry. The total value of Chinese investments in Agriculture for the entire period equals US$ 779 million, whereas it is worth US$ 4.9 million and US$ 48.5 million, respectively, in the Extractive and Manufacturing sectors.

Figure 4.3 Chinese Investment in Agriculture, Extractive Industry and Manufacturing (2004-2020)



Source: Estimation using data from the National Database of Information on Announced Investment in Brazil.[43]

The investment dynamic over time is similar to the three sectors, despite subtle differences. Figure 4.3 displays the existence of three Chinese investments waves in all sectors. The first wave of Chinese investments in manufacturing sectors occurred in 2007, with significant peaks in 2011 and 2018. As differently, the first peak of Chinese investments in agriculture and extractive sectors occurred in 2010. In agriculture, the most significant investment peak took place in 2015, with a small peak in 2019. In extractive industry, the most impressive peak of investment occurred in 2010, with two less significant peaks in 2012 and 2018.

Table 4.3 presents the number of Chinese firms operating in Brazil over the period 1997-2021 by sector. Interestingly, the majority (47%) of Chinese firms operate in financial activities. In turn, Table 4.3 also confirms the previous findings according to which Chinese investments are concentrated in manufacturing sectors: 16% of Chinese firms have economic activities in manufacturing sectors, while only 0.11% of Chinese firms operate in Agriculture and 0.5% in extractive sectors.

[43]https://app.powerbi.com/view?r=eyJrIjoiNjZmYzFmMTgtZDk4MS00NzAzLWJiYTYtNmM3ODE1NDQ2M2RiIiwidCI6ImNmODdjOTA4LTRhNjUtNGRlZS05MmM3LTExZWE2MTVjNjMyZSIsImMiOjR9

Table 4.3 Chinese Firms operating in Brazil by Sector (1997-2021)

	Number of Firms	(%)
Agriculture, livestock, and forestry production	**2**	**0.1%**
Extractive industry	**9**	**0.5%**
Manufacturing sectors	**302**	**16.5%**
Electricity and gas	5	0.3%
Building industry	14	0.8%
Retail and wholesale	**184**	**10.0%**
Transport, storage, and mail service	28	1.5%
Accommodation and food sector	1	0.1%
Information and communication	18	1.0%
Financial activities	**853**	**47.0%**
Real estate activities	3	0.2%
Scientific activities	34	1.9%
Complementary services	12	0.6%
Social and human health services	1	0.1%
Sports, recreation, and art-culture	5	0.3%
Other services	4	0.2%
International organizations and other extra-territorial institutions	4	0.2%
Not informed	343	18.8%
Total	**1822**	**100.0%**

Source: Estimation using data from Brazilian Federal Revenue[44].

An important aspect evidenced by Table 4.3 is the impressive presence of Chinese companies in activities of retail and wholesale. Although the presence of Chinese companies in agriculture may be limited, the disaggregated data reveal the existence of 7 firms operating in the wholesale trade of agricultural raw materials, live animals, food products, beverages, and tobacco. This suggests that Chinese investments in agriculture seem to be more associated with merchandising agricultural commodities than to produce them in Brazil.

4.3.2 Investment Cooperation in Agriculture

COFCO International has made active explorations on the establishment and improvement of the agricultural global supply chain for many years. Brazil is one of the world's most important exporters of agricultural products. The export volume of soybeans, corn, sugar, ethanol, coffee and other varieties ranks first in the world. China is the world's largest importer of agricultural products. With the continuous upgrading of China's consumption structure, China's demand for high-quality agricultural products is strong, and there is a long-term gap between supply and demand.

China-Brazil agricultural cooperation is highly complementary. As two important forces in the BRICS cooperation mechanism, China and Brazil are the representatives of the largest emerging market economies in Asia and the Americas. The two sides have established a good cooperative partnership in the agricultural field, and their cooperation in this field has continued to develop. The potential for agricultural cooperation between the two countries should be continuously released on the basis of benign interaction. In September and October 2013, General Secretary Xi Jinping put forward the cooperation proposal of the "New Silk Road Economic Belt" and the "21st Century Maritime Silk Road", which opened the curtain of the internationalization of state-owned

[44] https://www.gov.br/receitafederal/pt-br/assuntos/orientacao-tributaria/cadastros/consultas/dados-publicos-cnpj

enterprises and the globalization of state-owned enterprises. In response to the national initiative, COFCO has established an overseas platform through the acquisition of NOBLE AGRI and NIDERA in order to expand the upstream food sources of the entire grain industry chain. The total acquisition of these two companies is approximately US$4 billion.

COFCO completed the acquisition of NOBLE AGRI, an internationally renowned agricultural company, in two stages: in 2014 (US$1.5 billion) and 2016 (US$750 million). "Noble Agriculture is engaged in the procurement, processing, storage and distribution of agricultural products globally, involving the trade of grains, oilseeds, sugar, ethanol, cotton and coffee. Its logistics and processing assets are located in the main flow of global agricultural trade flows, and have been owned before the acquisition. At present, COFCO International's main business in Brazil is grain and oil production and processing (soybeans, corn, and wheat), 2 soybean crushing plants, 4 sugar mills with an annual crushing capacity of 15.5 million tons, producing raw sugar, ethanol, and soft commodities. And processing, including cotton and coffee; 2 docks with a transfer capacity of 3.1 million tons, and 19 grain depots with a storage capacity of 1.2 million tons, with a total of 7,500 employees.

In terms of food procurement in Brazil, COFCO International has formed a rivalry with the so-called ABCD[45], the four major international food merchants. The four major grain merchants once formed monopoly control over international grain trade in many fields such as international grain storage, logistics, shipping, finance, and trade. In the 2019 Fortune Global 500 list, except for Cargill, who did not participate in the rankings, COFCO ranked 134th, ADM ranked 155th, Bunge ranked 247th, and LDC ranked 302th.

COFCO International (Brazil) exported 12 million tons of soybeans to China in 2017, ranking first among soybean exporters; in 2018 this figure increased to 12.3 million tons (including third-party acquisitions), accounting for 18.5% of the total 66.1 million tons of China's imports from Brazil.

In 2017, CITIC Agricultural Industry Fund acquired part of Dow Agro Science's corn seed business in Brazil for US$1.1 billion. This is the second largest cross-border M&A transaction of a Chinese company in the Latin American chemical industry. The transaction includes seed processing plants and seed research centers, DOW Agro Science Brazilian corn seed library backup, use of the morgan seed brand, and use of the DOW Sementes brand license for 12 months. CITIC Agriculture Fund's acquisition of Dow Brazil is an important event in global agrochemical industry mergers and acquisitions in recent years, and it is also an important attempt by China to upgrade its agrochemical industry and compete globally. Brazil is the third largest corn producer in the world, and Dow, as the third largest supplier of corn seeds in South America, has a relatively high level in the corn seed industry. This acquisition will greatly enhance China's technological capabilities in corn seed research and development, and will help promote Brazilian seeds to the rest of the world so as to achieve a win-win situation for China and Brazil in the global agricultural product market.

4.3.3 Investment Cooperation in Manufacturing

Table 4.4 illustrates the relative share of Chinese firms operating in Brazil in the manufacturing sector. It provides a shred of evidence that a major share of the manufacturing companies is concentrated in technology-intensive[46] activities, such as: *manufacturing of computer equipment,*

[45] ABCD means ADM, Bunge, Cargill and Louis Dreyfus, which are the biggest four companies of Impo&Expo in Grain trading

[46] The sectorial classification according to technology intensity is provided by OECD: https://www.oecd-ilibrary.org/science-and-technology/oecd-taxonomy-of-economic-activities-based-on-r-d-intensity_5jlv73sqqp8r-en.

electronic and optical products, *machinery and equipment manufacturing*, *manufacturing of electrical machinery*, and *manufacturing of chemicals*. Nonetheless, there are other sectors, less technology-intensive, with relevant activity in terms of the number of Chinese firms, such as: *Manufacturing of textile products*, *Manufacturing of miscellaneous products*, *Manufacturing of clothing and accessories*, and *Metallurgy*, among others.

Table 4.4 Manufacturing firms by sector

	Number of Firms	(%)
Manufacturing of Food Products	1	0.3%
Manufacturing of Smoke Products	6	2.0%
Manufacturing of Textile Products	19	6.3%
Manufacturing of Clothing and Accessories	12	4.0%
Preparation of Leathers and Manufacturing of Leather Artifacts and Footwear	6	2.0%
Manufacturing of Wood Products	2	0.7%
Manufacturing of Coke, Oil and Biofuels Products	1	0.3%
Manufacturing of Chemicals	18	6.0%
Manufacturing of Pharmaceutical and Pharmaceutical Products	6	2.0%
Manufacturing of Rubber and Plastic Material Products	10	3.3%
Manufacturing of Non-Metallic Minerals Products	6	2.0%
Metallurgy	12	4.0%
Manufacturing of Metal Products, Except Machinery and Equipment	8	2.6%
Manufacturing of Computer Equipment, Electronic and Optical Products	73	24.1%
Manufacturing of Electrical Machinery	24	7.9%
Machinery and Equipment Manufacturing	67	22.1%
Manufacturing of Motor Vehicles and Trailers	5	1.6%
Manufacturing of Other Transportation Equipment, Except Motor Vehicles	5	1.6%
Furniture Manufacturing	1	0.3%
Manufacturing of Miscellaneous Products	14	4.6%
Maintenance, Repair and Installation of Machinery and Equipment	6	2.0%
Total	**302**	**100.0%**

Source: Estimation using data from Brazilian Federal Revenue[47]

China is the largest manufacturing country in the world. Because of its strong manufacturing base and advantages, it has long been dubbed the "World Factory" title. In recent years, Chinese companies Gree Electric, XCMG, Sany, Liugong, BYD, Chery and other companies have taken root in the Brazilian market and gradually integrated into the local industrial chain of Brazil.
China is deeply plowing the Brazilian market in light industry, resource processing, pharmaceutical manufacturing cooperation, mechanical and electronic equipment, small home appliance assembly, communication equipment and other fields. Huawei Technologies is in Brazil. It has won many communications equipment supply contracts and already has its own production plant. Zhuhai Gree Group has built an assembly plant with an annual output of 200,000 air conditioners in the Manaus Free Zone. Nanjing Jiangguang Group used to assemble optical instruments in Brazil and have also conducted more cooperative explorations on the assembly cooperation projects of motorcycles,

[47] https://www.gov.br/receitafederal/pt-br/assuntos/orientacao-tributaria/cadastros/consultas/dados-publicos-cnpj

color TVs, refrigerators, and tractors

XCMG Brazil is a special construction machinery developed by XCMG Group in Brazil. It has established its first overseas manufacturing base in Minas State, a large industrial state in Brazil. It has complete supporting resources for XCMG's construction in Brazil. The industrial park provides excellent geographical location and policy support. XCMG Brazil entered the market in May 2011 and operates since June 2014. XCMG actively fulfills its social responsibilities and rewards users and society with its powerful products and services. XCMG Brazil donated sweeper trucks to the local government for municipal cleaning; donated XCMG equipment to help the local government in rescue and disaster relief; established a school-enterprise alliance training project with local technical schools; organized employees to show love to disadvantaged groups in society. In 2014 and 2015, XCMG Brazil was named "Excellent Enterprise" by the Brazilian local magazine NEWS DIAS.

In 2017, the Central Bank of Brazil approved the establishment of XCMG Brazil Bank (Banco XCMG SA). It has created a milestone leap in the financial services sector of China's capital in South America. The bank has officially opened for business in July 2020. The launch of the consumer credit business by XCMG Brazil Bank not only helps to broaden XCMG's Brazilian manufacturing financing channels; it also helps companies to resume work and production and improve their ability to serve customers, as well as to further release consumer potential, increase the purchasing power of end customers, and hedge against the impact of the epidemic on Brazil's local economy.

In October 2019, XCMG Brazil Industrial Park was jointly confirmed by the Jiangsu Provincial Department of Commerce and the Department of Finance to become the fourth provincial-level overseas economic and trade cooperation zone in Jiangsu Province. It is also China's first overseas economic and trade cooperation zone focusing on construction machinery. XCMG Brazil Industrial Park is located in Minas Gerais. It covers an area of 1 million square meters and has a plant area of more than 100,000 square meters. The park is positioned on the basis of construction machinery and unites the upstream and downstream industrial chains to create a professional industrial park integrating R&D, design, manufacturing, sales, service, spare parts, logistics, finance, and leasing.

In addition to completing the prestigious cloud track project in Brazil (which went offline in April 2021), BYD has also extensively been involved in other fields of manufacturing. In 2015, BYD opened a pure-play facility in Campinas, São Paulo, Brazil. The electric bus chassis factory was put into production in 2017. A solar photovoltaic module factory was established in April 2017, and a memorandum of understanding was signed with the State University of Campinas in Brazil. It plans to invest R$ 5 million (approximately US$ 1.5 million) and has established the first overseas solar energy research and development center to conduct research and development of solar energy products and technologies. In 2020, BYD established a new battery (lithium iron phosphate) production plant and officially put it into operation in September, with an annual output of 18,000 battery modules. The new battery plant is located in Manaus. The plant is relatively small and covers an area of 5,000 square meters. The initial investment amount is R$ 15 million (approximately RMB 18.5 million). This is the first domestic lithium iron phosphate battery factory in Brazil. BYD is committed to cooperating with Brazilian clean energy companies to promote the electrification of buses in Brazil. The first batch of batteries from the Manaus Battery Plant will be delivered to São Jose dos Campos, São Paulo, for use in the urban rapid transit system.

4.3.4 Investment Cooperation on Digital Economy

The world's digital economy is entering a new industrial cycle. ICT digital technology and digital

infrastructure are widely used in all areas of life, and play a huge role in promoting economic development and benefiting people's livelihood. Huawei has been in Brazil for more than 20 years. Huawei and its operators have realized the interconnection of more than two-thirds of Brazil's population, especially the high-speed optical fiber network built in the Amazon rainforest. Huawei is advancing the construction of the "Cloud Service Data Center Project" in Recife and Manaus, and at the same time actively participates in the construction of Brazil's government cloud; at the same time, it also assists customers in various industries in Brazil, including finance, energy, and manufacturing, to accelerate their digitalization. For Brazil, the new cycle of the digital economy is a brand new opportunity, and ICT infrastructure will play an important supporting role. Digitalization of various industries will also usher in new opportunities for development and become a new driving force to help Brazil's economic development. In 2019, Huawei invested US$ 800 million in the state of São Paulo, for new smartphone factories and ICT skills programs. Prior to this, Huawei had a factory in São Paulo State that produced equipment for telecommunications infrastructure, with 2,000 employees.

Huawei will continue to invest in digital technologies such as "cloudification, 5G, big data, and AI" and build an ICT infrastructure platform with "device, network, and cloud" collaboration, so that ecological partners can innovate, develop and build an industrial ecology, promote social development and economic growth. Huawei works closely with Brazilian scientific research institutions, universities, and partners to create value and sharing mechanism for the entire industry chain, and promote the sound development of the industry by optimizing the business environment. As early as 2009, Huawei and INATEL University in-depth cooperation established the Capability Innovation Center (CIDC) to jointly provide advice and suggestions for the network development of Brazilian operators, and cultivated more than 30,000 ICT local talents. Huawei established with TIM and OI a joint innovation center to develop LTE and NFV, join local industry organizations, actively participate in and support the formulation of specifications and standards, and build a win-win ecosystem.

According to the official website of Huawei Marine, this company and its subsidiaries are a provider of submarine cable communication network construction solutions. At present, it is mainly engaged in the construction of global submarine cable communication network, providing customers with product technical solutions and end-to-end services including project management, project implementation and technical support. On October 14, 2015, the Cameroon-Brazil transatlantic submarine cable system project contracted by Huawei Marine, China Unicom and Cameroon Telecom was formally signed.

The submarine cable system spans the South Atlantic, connecting the coastal city of Kribi in Cameroon to the city of Fortaleza in Northeastern Brazil. The total length is about 6,000 kilometers, and the project value is about US$ 200 million. The MARS submarine cable project is the first submarine cable system connecting Mauritius and Rodrigues Island. After completion, it will provide Rodrigues Island with massive bandwidth. Despite the challenges of the November monsoon season, Huawei Marine successfully carried out the offshore construction plan for the 730km system to ensure that it was completed ahead of schedule to provide high-speed bandwidth for Rodrigues Island. After the MARS submarine cable system is completed, it will meet the bandwidth needs of local residents and enterprises in the next 25 years.

4.4 Other Bilateral Investment Cooperation

4.4.1 China's investment cooperation in Brazil with "concession rights"

The PPP mode is currently the main mode for the Brazilian government to implement infrastructure project financing. The Brazilian government has formulated the PPP Law, and the federal and state governments have also established a PPP Project Management Committee (CGP), which is responsible for the establishment of PPP projects, the establishment of standards, and the issuance of permits. The agency responsible for infrastructure planning in Brazil is the "Partnership in Investment Program" (PPI), which has privatized dozens of projects such as airports, highways, terminals, power, and sewage treatment.

In June 2020, the Brazilian National Development Bank (BNDES) announced 73 privatization projects with an investment of nearly R$ 190 billion, covering 19 industries, of which 32 projects are social infrastructure projects such as health and environment. Including 11 projects including railways, ports and urban transportation, the Brazilian government still has relatively strong demand for foreign investment. Brazil's PPP projects are mostly state-level and municipal-level projects, and there are few federal projects. The field has been gradually expanded from the initial environmental protection, sanitation, and non-profit public fields to infrastructure project financing. At present, the BOT/PPP projects carried out by Chinese companies in Brazil mainly include:

Table 4.5 The PPP projects in Brazil by Chinese Companies

Data	project	content	company
2014	Mira Mountain Hydropower Station	30 years of franchise rights for the first UHVDC transmission line in the Americas	Joint ventures: State Grid (51% of the shares), Electro bras (49% of the shares)
2015	Belomonte Hydropower Station II	30years	State Grid Corporation
2015	Jubia&Llha	30 years	Three Gorges
2019	Bahia Cloud Rail Project Phase 1 [48]	Vehicles, turnouts, conductive rails, etc.	BYD
2020			

Sources: World Bank PPI database

4.4.2 China's investment cooperation in Brazil's special economic zone

Brazil's special economic zones include Manaus Free Trade Zone (ZFM), Western Amazon Region (AMOC), Free Trade Zones (ALCs) and Export Processing Zones (ZPE). The purpose of establishing these special economic regions by the Brazilian Federal Government is to use fiscal, administrative and foreign exchange stimulus measures (mainly involving imports, purchase of domestic products or localization, exports to foreign countries, and sales to the Brazilian domestic market) to promote the activities in the North and Northeast regions and regional integration development in border areas.

Among them, the Chinese-funded enterprises that have settled in the Manaus Special Economic Zone (ZFM) are:

Gree Electric (Brazil) Co., Ltd. is an air-conditioning production base built by Zhuhai Gree Electric

[48] The overall design plan of BYD Bahia's cloud track was officially approved by the state government in January 2020, and the cloud track offline was completed in April 2021, which lasted only one year.

Co., Ltd. in Brazil with an investment of US$ 20 million. It was successfully completed and put into production in June 2001. A Chinese home appliance company and the first split air conditioner manufacturer in Brazil, Gree air-conditioning began to enter the Brazilian market in 1998. After years of hard work, it has become the second-largest air-conditioning brand in the local market. Gree Electric set up a sales company in São Paulo in 2002, which is responsible for sales and service in the Brazilian market. At present, its sales outlets in Brazil have spread across 24 states, with more than 200 distributors and more than 300 service outlets.

In August 2008, China's Chongqing Zongshen Group and the Brazilian Claudio Rosa family jointly invested and established CR Zongshen do Brasil S/A, which mainly produces and sells motorcycles, electric vehicles, general engines, marine engines and other products. The company plans a total investment of about US$ 80 million, mainly in the Manaus Economic Zone, to build factories and import production lines to form an annual production scale of 100,000 motorcycles. At present, the company has purchased land in Manaus Industrial Zone and is preparing for construction.

No Chinese-funded enterprises have settled in the Western Amazon Region (AMOC).

（ALCs）: The Brazilian government has created 8 free trade zones, of which LC de Cruzeiro do Sul has been merged into ALC de Basiléia, and ALC de Boa Vista has replaced ALC de Pacaraima, so there are actually 7 free trade zones in Brazil. It is understood that no Chinese-funded enterprises have settled in the free trade zone for the time being.

（ZPE）: Brazil has approved 25 export processing zones, of which 19 have been built, but so far no export processing zones have been officially completed and operate.

4.4.3 Major equity acquisition projects carried out by China in Brazil

In recent years, China’s equity acquisition projects in Brazil include State Grid’s acquisition of Brazil’s third-largest power company CPFL, Shanghai Electric’s acquisition of Brazil’s US$1 billion power transmission project, State Power Investment’s acquisition of the São Simão Hydropower Station, and China Merchants Group’s acquisition of TCP and CITIC Agricultural Industry Fund acquired Dow Brazil's seed business.

Table 4.6 China's large-scale acquisition of Brazil (partial)

Year	Acquiree	Acquirer	Industry	Value
2018	TCP	Hong Kong Merchants Group	logistic	90% holding US$ 930 million
2018	CPFL	State Grid International Development Co., Ltd.	Electricity, gas-water production and supply	100% holding US$ 3.5 billion
2018	San Norrenco Water Supply Co., Ltd.	CGGC	infrastructure	100% holding US$ 200 million
2018	99 taxi	Didi travel	technology	US$ 1 billion
2019	São Simão Hydroelectric Power Station	State Power Investment	electricity	

Source: Ministry of Commerce Investment Project Database

5 THE BELT AND ROAD INITIATIVE

The BRI is a global development strategy unveiled by President Xi Jinping in 2013 with the visions and action plan released in 2015. Since the Silk Road Economic Belt and the 21st Century Maritime Silk Road (hereinafter referred to as the Belt and Road Initiative, or BRI) was proposed in an attempt to carry on the Silk Road spirit, co-build an open platform for cooperation and generate new driving forces for the development of all countries, it has experienced rapid development and has achieved significant results. China had signed 206 cooperation agreements with 140 countries and 32 international organizations by the end of June 2021. When fully implemented, the BRI could increase global trade by up to 6.2 percent and global real income by up to 2.9 percent, and contribute to lifting 7.6 million people from extreme poverty and 32 million people from moderate poverty, according to a World Bank report.[49] It has truly become the world's broadest-based and largest platform for international cooperation. It has also contributed to the implementation of the UN 2030 Agenda for Sustainable Development. Over the past eight years, the BRI has evolved from a concept and vision into real actions and reality, and brought about enormous opportunities and benefits to countries around the world.

5.1 Introduction

Policy coordination, facilities connectivity, unimpeded trade, financial integration, and people-to-people bonds are the five main goals of the BRI blueprint. Over the past eight years, the Belt and Road Initiative has won positive responses from numerous countries and international organizations and has attracted worldwide attention.

5.1.1 Background and development

In December 2014, the Silk Road Fund was established and China contributed US$ 40 billion to set up this fund to provide investment and financing support for trade and economic cooperation and connectivity under the framework of the BRI.

In February 2015, The Chinese government set up the Leading Group for Promoting the Belt and Road Initiative with an administrative office under the National Development and Reform Commission. In December 2015, a total of 21 Asian countries inked a Memorandum of Understanding on the establishment of the Asian Infrastructure Investment Bank (AIIB) with an expected initial subscribed capital of US$ 50 billion.

In September 2016, China and the United Nations Development Program (UNDP) signed a memorandum of understanding on jointly promoting the construction of the Belt and Road, including many aspects of sustainable development. In November 2016, the UN General Assembly recognized China's Belt and Road Initiative in one of its resolutions.

In January 2018, the Second Ministerial Meeting of the China-CELAC Forum made a special announcement that the joint construction of the Belt and Road Initiative will inject new energy into the China-CELAC comprehensive cooperative partnership and open up new prospects. In August 2018, China's International Commercial Expert Committee was launched with a membership of 32 domestic and foreign experts.

In April 2019 the Belt and Road Initiative Tax Administration Cooperation Mechanism

[49] World Bank. 2019. *Belt and Road Economics: Opportunities and Risks of Transport Corridors.* Washington, DC: World Bank. https://www.worldbank.org/en/topic/regional-integration/brief/belt-and-road-initiative

(BRITACOM) was launched with the Wuzhen Statement and The Wuzhen Action Plan (2019-2021), to strengthen tax administration cooperation among BRI jurisdictions towards a growth-friendly tax environment. The Belt and Road Studies Network (BRSN) was inaugurated in Beijing. The BRSN is an open mechanism of academic exchanges and cooperation, to serve international think tanks, international and regional organizations and researchers of various countries, and promote the studies and academic exchanges on the BRI.

In 2020, COVID-19 swept the world, dragging the global economy into a deep recession. China and the countries participating in the Belt and Road Initiative have been striving to move forward with perseverance. In March 2021, China pledges the joint building of the BRI with high quality, pushing cooperation on major projects in an orderly manner, according to this year's government work report. China also vows to promote the high-quality development of the BRI during the 14th Five-Year Plan (2021-2025) period.

5.1.2 Principles and priorities

The Belt and Road Initiative upholds the principles of extensive consultation, joint contribution, and shared benefits. Extensive consultation means addressing issues that matter to all through consultation. This principle emphasizes equal participation and full consultation in the process, so as to reach consensus in understanding, achieve convergence for cooperation, and develop a focus for common development. Joint contribution means that all the parties are equal participants, builders and contributors, and share responsibilities and risks. Shared benefits take into consideration the interests and concerns of partners of cooperation, seek a convergence of interests with other countries, and expand common ground, so as to ensure that the cooperation is not only mutually beneficial but is beneficial to all parties.

During the first Belt and Road Forum for International Cooperation on 15 May 2017 in Beijing, the Leaders Roundtable highlight the following principles guiding the BRI cooperation, in accordance with respective national laws and policies:

a) Consultation on an equal footing: Honoring the purposes and principles of the UN Charter and international law including respecting the sovereignty and territorial integrity of countries; formulating cooperation plans and advancing cooperation projects through consultation.

b) Mutual benefit: Seeking convergence of interests and the broadest common ground for cooperation, taking into account the perspectives of different stakeholders.

c) Harmony and inclusiveness: Acknowledging the natural and cultural diversity of the world and recognizing that all cultures and civilizations can contribute to sustainable development.

d) Market-based operation: Recognizing the role of the market and that of business as key players, while ensuring that the government performs its proper role and highlighting the importance of open, transparent, and non-discriminatory procurement procedures.

e) Balance and sustainability: Emphasizing the importance of economic, social, fiscal, financial and environmental sustainability of projects and of promoting high environmental standards, while striking a good balance among economic growth, social progress and environmental protection.

5.2 Achievements

The BRI is a systematic project covering many fields including economy, politics, diplomacy and cultural exchanges. During the past eight years, great achievements in areas such as policy consultation, infrastructure connectivity, trade facilitation, financial connectivity, and people-to-people exchange have been completed, leading to a series of cooperation concepts and mechanism

norms to promote complementary advantages and joint development of countries along the route. So far, China has signed 206 cooperation agreements with 140 countries and 32 international organizations. The BRI and its core concepts have been incorporated into many important documents of the UN and other international organizations. Since the Belt and Road Initiative was proposed in 2013 to the end of 2020, the value of trade in goods between China and other BRI countries surpassed US$9.2 trillion. A general connectivity framework consisting of six corridors, six connectivity routes and multiple countries and ports has been put in place. A large number of infrastructure and cooperation projects have been launched. These efforts have stimulated local economies, improved people's livelihood, and created a path of win-win cooperation.

The Belt and Road Initiative has been incorporated into important documents of international organizations, such as the United Nations, G20, APEC, the African Union, ASEAN and other international and regional organizations.

Facilities connectivity is key to Belt and Road cooperation. China provides full support to participating countries in building trunk lines including ports, railways, highways, electric power, aviation, digital connectivity and e-infrastructure, in order to build a connectivity framework consisting of six corridors, six routes, and multiple countries and ports.

Significant progress has been made in the construction of international economic cooperation corridors and passageways. Major progress has been made in building inter-regional and intercontinental railway networks focusing on cooperation projects.

Trade is an important engine for economic growth. China has aided countries to improve their trade infrastructure and capacity, laying a solid foundation for Belt and Road participants to achieve unimpeded trade.

From 2013 to the end of 2020 countries along the Belt and Road established about 27,000 companies in China, with a total investment of US$ 59.9 billion. In 2020, there were 4,294 newly established enterprises receiving direct investment from countries along the Belt and Road (including investment in some China`s free ports), and foreign capital directly invested in China reached US$ 8.3 billion.

Chinese enterprises made non-financial outbound foreign direct investment of US$ 136 billion along the BRI countries from 2014 to 2020. Global cross-border investment experienced some decline due to the COVID-19 pandemic, but Belt and Road investment saw stable growth. In 2020, despite the 0.4 percent fall in the overall non-financial ODI, China's non-financial outbound direct investment in 58 countries participating in the BRI rose 18.3 percent to US$ 17.8 billion, accounting for 16.2 percent of the country's total ODI.

In terms of foreign contracting projects, during the same period, the value of its newly signed engineering contracts with involved nations amounted to US$ 941 billion, with business revenue of US$ 639 billion. In 2020, the accomplished business revenue from countries along the Belt and Road was US$ 91.1 billion, a decrease of 7.0 percent, accounting for 58.4 percent of the accomplished business revenue through contracted overseas engineering projects.

Since the first Belt and Road Forum for International Cooperation in May 2017, China has signed more than 100 cooperation agreements with other BRI countries, granting access to some 50 types of agricultural products and food after inspection and quarantine.

China has further expanded sectors accepting foreign investment to create a business environment of high international standards. It has opened 12 pilot free trade zones for global business and experimented with free trade ports to attract investment from participating countries of the Belt and Road Initiative.

Financial integration is an important pillar of the Belt and Road Initiative. China actively helps participating countries to improve their financial systems and build cooperation platforms for

financing, paving the way for financial integration.

Boasting huge cooperation potential in infrastructure construction and industrial capacity, the Belt and Road Initiative is in urgent need of finance. The sovereign wealth funds and investment funds of the participating countries are playing a bigger part. The China-EU Joint Investment Fund, which began operation in July 2018 with an injected capital of EUR 500 million from the Silk Road Fund and the European Investment Fund, has helped the Belt and Road Initiative to dovetail with the Investment Plan for Europe.

The Multilateral Cooperation Center for Development Finance (MCDF) was jointly established by China, the World Bank, the Asian Infrastructure Investment Bank, the Asian Development Bank, the Development Bank of Latin America, the European Bank for Reconstruction and Development, the European Investment Bank, the Inter-American Development Bank, and the International Fund for Agricultural Development. The MCDF aims to promote connectivity among international financial institutions and relevant partners, and attract more investment in the Belt and Road through sharing information, supporting project preparation and building capacity.

People-to-people bond is the cornerstone of sound state-to-state relations, and heart-to-heart communication holds the key to deeper friendship. Over the past eight years or so, the BRI countries have carried out diplomatic activities and cultural exchanges of various forms in wide fields, enhancing mutual understanding and recognition and laying a solid cultural foundation for furthering the initiative.

China has held joint year of tourism with many other BRI countries, initiating cooperation mechanisms such as the Silk Road Tourism Promotion Union, Maritime Silk Road Tourism Promotion Alliance, and Tea Road International Tourism Alliance.

Since the first Belt and Road Forum for International Cooperation, China has provided RMB 2 billion in emergency food assistance to developing countries participating in the initiative, injected an additional US$1 billion to the South-South Cooperation Assistance Fund, and implemented 100 Happy Home Projects, 100 Anti-Poverty Projects, and 100 Health Recovery Projects. China has participated in 8 joint programs for the protection of cultural relics with 6 countries, and 15 joint archaeological activities with 12 countries.

5.3 Related Cooperation and Mechanisms

China had also established a lot of bilateral and multilateral cooperation mechanisms within the Belt and Road Initiative framework with related countries and international organizations, which shows that the initiative has been widely recognized and is being actively participated in by the international community.

Since 2016, the Asian Infrastructure Investment Bank (AIIB), which was established in accordance with a proposal from China, has played a role of increasing importance in the international multilateral development system. As of the end of 2020, the membership of AIIB had grown from the 57 founding members to 103, spread across five continents. By January 2021, the bank has provided over US$ 22 billion in infrastructure investment for its members and approved 108 projects.

In November 2014 the Chinese government pledged US$ 40 billion to establish a Silk Road Fund, and in May 2017, it announced an additional RMB100 billion contribution to the fund. As of the end of 2018, the contracted investment under the fund had reached about US$ 11 billion, with actual investment adding up to US$ 7.7 billion; the fund had also allocated US$ 2 billion to set up the China-Kazakhstan Industrial Capacity Cooperation Fund.

The World Trade Organization predicts digital technologies will boost global trade volumes by 1.8

percent to 2 percent per year by 2030. The digital economy has contributed a staggering two-thirds of China's GDP (US$ 15.7 trillion in 2020, up 2.3 percent over 2019).
Major global economies have put forward green recovery plans and initiatives, and building the green Silk Road has become a new driving force for economic recovery. Upholding the Paris Agreement, China actively advocates and encourages the integration of green development into the joint efforts to build the Belt and Road. China has signed a MoU on building green Belt and Road with the United Nations Environment Programme, and agreements on cooperation in ecological conservation with over 30 countries along the routes.
In 2016, under China's presidency of the G20, green finance became a key agenda item for the first time. A Green Finance Study Group was set up, which released the "G20 Green Finance Synthesis Report". In April 2019, the BRI International Green Development Coalition was formally established at the Belt and Road Forum, and the "big-data service platform for BRI eco-environment protection" was launched with three initiatives, namely the "Green Efficient Refrigeration Initiative", the "Green Lighting Initiative", and the "Green Go Global Initiative". The coalition is open to multilateral organizations, government agencies, global businesses and think tanks, allowing stakeholders to share experiences and policy solutions for sustainable development. It aims to integrate sustainable development (environmental sustainability in particular), international standards and best practices into the BRI.

5.4 Brazil's Attitude towards BRI

Brazil already has comprehensive bilateral cooperation with China and hosts a significant number of Chinese infrastructure projects. This has raised doubts about what can actually be classified as a BRI project.
BRI encompasses five cooperation priorities: policy coordination, facilities connectivity, trade facilitation, financial cooperation, and people-to-people bonds. Given the existence of an infrastructural gap in Brazil, this is the field requiring most attention in the Brazilian context.
The basic question that this debate leads to is whether there is a need for Brazil – as well as other Latin American countries – to adhere to the BRI, given the potential geopolitical implications of such movement, given that there are plenty of opportunities for Chinese investment and that Chinese companies remain attracted to pursue those opportunities.
In October 2019, during Bolsonaro's official visit to China, Brazil and China addressed the feasibility to connect the BRI with Brazil's Investment Partners Plans. If successful this could contribute to improve the Brazilian infrastructure (ports, airports, highways and electricity), thereby leading to a reduction in the Brazilian logistics costs. In addition, some local governments in Brazil have also made efforts at attracting Chinese investments.
Since 2020, with the worldwide spread of the Coronavirus, Brazil-China relations experienced some adjustments. The pandemic has caused a significant reduction in Chinese investments, thereby affecting supply chains, mostly in the manufacturing sector, as well as the movement of people and goods.
At the same time, though, the coronavirus pandemic has created new opportunities for further cooperation with China, such as the Health Silk Road (HSR) and the Digital Silk Road (DSR), both areas that have a huge potential in Brazil as well as in other Latin American countries. This is in accordance to the Chinese XIV Five-Year Plan.
As per the DSR, the 5G technology is of paramount importance to Brazil, for its impact on the business environment and the multiple applications it facilitates. Furthermore, intercontinental communication benefits from the recent connection made possible by the consortium formed by

China Unicom, Cameroon Telecom and Huawei Marine Networks having installed the South Atlantic Inter Link (SAIL), a subsea optic fiber cable that connects Africa to the Americas (Cameroon to Brazil).

The HSR emerged as a consequence of the coronavirus outbreak. Several countries, including Brazil, have received donations and/or purchased medical supplies from China. HSR connections are of utmost relevancy given that Chinese vaccine and other pharmaceutical ingredients have been responsible for a large portion of Brazil's immunization program against Covid-19.

There are, hence, strong and improving economic links between the two countries, with an increasing importance of Chinese investment in Brazil. Whether this is part of the BRI is a matter of different views. China sees these activities as part of the same Initiative. The Brazilian view is that adhering to BRI would require a formal signing of a commitment, something that has not happened so far, and the country refrains from doing so. One of the reasons is that it does not identify additional benefits in so doing, given that Chinese companies have benefitted from market-driven opportunities in Brazil. Brazilian diplomacy prefers to maintain its traditional approach as a "global player", hence avoiding specific commitments to individual partners.

6 PERSPECTIVES FOR POST-PANDEMIC INVESTMENT COOPERATION

6.1 Cooperation for Post-pandemic Recovery

A post-pandemic context will be characterized by the need to foster competitiveness of the Brazilian economy. Brazil and China should strengthen cooperation on trade, energy, and scientific innovations. New technologies, cybersecurity issues, trade in services, and new energy technology could contribute to enhance the bilateral cooperation. The development of new cooperation platforms such as clean energy, smart agriculture, digital economy, telemedicine, smart cities, 5G communications, and big data is seen by both countries as relevant for a development strategy.

Bilateral economic relations will certainly be affected by the central lines of the XIV Five Year Plan, approved in October, 2020 by the Chinese government. The so-called ´dual circulation` for the five years comprise a few relevant dimensions with likely consequences for the bilateral relationship.

Chinese option for a "high quality development growth model" implies new consumption patterns, incorporating lower income strata, hence creating opportunities for middle income economies, like Brazil, who might exploit new market segments, as well as the different demand patterns in different regions of China, provided that there are no barriers to trade.

The Plan also aims at increasing agricultural production, in order to reach basic self-sufficiency of grain and security of staple food. There is, so far, a short term mutual dependence: an important share of total Brazilian exports is soybeans to China; at the same time, an important share of the Chinese consumption of soybeans is provided by Brazil. This might imply a demand for technology for agricultural production, and Brazil has comparative advantage in this area.

The Plan also aims at fostering the development of more sophisticated, high efficiency machinery for agricultural production, for grain processing and for the production of edible oils. This might be good news for Brazilian producers, to the extent that it might contribute to foster global competition in that sector.

Another area considered in the Plan that is bound to have significant impact is the health sector. There will be incentives to basic research in the development of cure to a number of serious diseases, applying high technology. From the viewpoint of Brazil, the emphasis in the health sector and in the industries that manufacturing equipment to this sector creates opportunities for most welcome investment in this area.

The Plan refers to research in technological innovation in synthetic biology, manipulation of genetic cells, the development of new vaccines, new medicines, as well as the creation of new varieties of agricultural microorganisms. This emphasis in biotechnology should benefit from more intense relationship with Brazil, one of the countries with the highest degrees of biodiversity.

Another dimension in the development of high technology is the emphasis given to the space program. Research in this area should contribute to the joint development of new initiatives, thus intensifying a successful relation.

The China-Brazil Earth Research Satellite (CBERS program) is a remarkable joint initiative of Brazil and China. In December 2019, the Program launched its 6th satellite, the CBERS4A, co-developed by the two countries. In August 2020, the Alya Nanosatellites Constellation of Brazil and the Beijing Tianlian Space Technology of China agreed to collaborate on the construction of a ground control station in Bahia for communication with and control of space vehicles.

The focus on investment in high technology, including artificial intelligence and its practical use, shall lead to the development of knowledge and the production of new equipment. This might affect

the international market for machinery, with impact on productive processes in general. Brazilian producers might benefit from this movement.
The XIV Plan indicates ambitious targets to reducing emissions up to 2030, via the control of consumption of fossil energy and the emission of carbon, and the promotion of safe, efficient use of energy as a contribution to the implementation of the UN Climate Convention and the Paris Agreement.
The importance for the bilateral relationship follows from an intended South-South cooperation, relative to measures associated to climate change. China signals the adoption of a proactive position in the financing of ´green activities`, as a way to contribute more explicitly to reaching the objectives of the 2030 Agenda. It could, therefore, provide support to the preservation of forests in Brazil, as well as stimulate environmental friendly agricultural activities.
Both countries agree on that the recovery from the coronavirus pandemic will open a plethora of opportunities and will also encourage greater business ties at all levels between Brazil and China. In this sense, the reestablishment of COSBAN in 2019, is an element that corroborates this joint vision with respect to the improvement of cooperation in order to foster the economic recovery in the aftermath of the pandemic, as well as help build sustainable basis for future development.

6.2 Improvement on the Resilience of Supply Chain

Production chains in East Asia, North America, and Western Europe have become a source of competitiveness, in a new model of production. Participating in global value chains (GVCs) has, therefore, become a policy issue, even if a controversial one[50].
Middle-income and transition economies often participate in this new model via the provision of raw materials. Basic sources of gain for developing countries following from their participation in GVCs are the possibility of diversifying their export bill, the possibility of absorbing gains from scale, and the corresponding increase in employment in the export sector. Furthermore, exporting more elaborated goods with (presumably) higher income-elasticity of demand might provide also gains from improved terms of trade.
The decision to produce offshore is a cross-border movement of a production activity requiring a particular type of input and/or a specific kind of skilled labor. From the perspective of the developing economy this means an inflow of capital, coupled to the transfer of some segments of production processes, more skill-intensive than the average standard prevailing in the host country. The demand for labor becomes skewed towards higher skilled labor, thus raising the average wage.
A precondition to participate in GVCs is to allow for the free movement of inputs and final goods. Participation in GVCs demands also a friendly domestic productive environment. Furthermore, the need for building/reinforcing domestic capability in innovation and marketing is a necessary condition to entry into higher value-added segments and hence to assure a transition to higher income.
Participating in a GVC is not a universal attribute: it does not make sense for every productive sector. Complementary production makes sense only for those processes that can be sliced in different stages. Hence, it does not apply for continuous processes. This is particularly important for economies that are rich in natural resources.

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[50] For a more detailed discussion of this issue see R.Baumann, Global Value Chains, Preferential Trade, and the Middle-Income Trap, in J.A. Alonso, J.A. Ocampo (eds), Trapped in the Middle? Developmental Challenges for Middle-Income Countries, Oxford University Press, 2020

The geographical dimension tends to gain importance in this process. Consequently, there is a natural tendency for sliced production to take place within limited geographical distance. It is increasingly more a regional than a global phenomenon.

Notwithstanding the presumed positive outcomes, McKinsey (2019)[51] presents some recent empirical indicators that call for a cautious approach. Cross-border services are growing more than 60 percent faster than trade in goods. GVCs are becoming more intensive in knowledge and high-skill labor, as well as more regionally concentrated: production is increasingly being in proximity to demand.

These trends seem to favor advanced economies, given their strengths in innovation and services, and their skilled workforces. Developing countries with geographic proximity to large consumer markets may, however, benefit as production moves closer to consumers.

Hence, from the perspective of developing economies the chances of maximizing gains from the participation in GVCs are not homogeneous: not only geography matters; the role played by the degree of sophistication of domestic supply conditions is also a basic condition.

As Antràs (2019)[52] emphasizes, participation in GVCs is ultimately a firm-level phenomenon. Hence, trade costs have a disproportionate effect on the GVC component of trade flows, be it for production delays associated with impediments to trade (as experienced in the present pandemic), or to cost pressures from an increase of imported intermediate inputs.

External shocks are often dealt with by changes in relative prices. But GVCs weaken the effects of movements in exchange rates on the trade balance, by increasing the cost of the imported inputs used in production.

At least since the 2008 crisis there has been an accommodation period of the extremely high rates of growth of GVCs, even before the shocks imposed by the pandemic. As Antràs (2020)[53] recalls, this was to be expected, given that those initial high rates are not sustainable, since they have been an outcome of convergent positive effects, such as the cost reduction in transportation, telecommunication, and data processing, together with large labor supply shock benefitting companies in advanced economies.

The rate of technological change is not slowing down, but sustaining the initial pace is increasingly challenging. There are diminishing returns in some technological developments that played an important role, and at the same time some new technologies – such as the 3D printer – might reduce the profitability of slicing production processes.

More recently, the rapid spread of the disease is clearly a consequence of the globalized nature of economic activity and of GVC activity. It remains to infer the initiatives required so as not to face additional negative shocks.

As for improving the resilience of supply chains the above considerations would indicate, as basic conditions, the free access to inputs, what implies the reduction or inexistence of barriers to imports, as well as less protectionism abroad. Action is also required to allow for the flow of goods – inputs and components in particular - to recover its pace, as before the pandemic, to not impose

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[51] McKinsey Global Institute (2019): Globalization in Transition: The Future of Trade and Value Chains, January

[52] Pol Antràs, CONCEPTUAL ASPECTS OF GLOBAL VALUE CHAINS, NBER Working Paper 26539, http://www.nber.org/papers/w26539, December 2019

[53] Pol Antràs, DE-GLOBALISATION? GLOBAL VALUE CHAINS IN THE POST-COVID-19 AGE, NBER Working Paper 28115, http://www.nber.org/papers/w28115,November 2020

constraints on the production processes. Technology plays a central role in this process. Hence, a convergent path with non-restricted technology transfer is fundamental to allow for identifying new possibilities for productive complementarity.

6.3 Promote High Value-added Manufacturing

In recent years, Brazil, like other Latin American economies, has been facing a process of deindustrialization. However, despite the decrease in its share of GDP, the manufacturing industry continues to be essential for long-term economic development, due to its role in the dynamism of innovation systems and technological advancement.

For an economy with large domestic market the manufacturing sector is one of the "engines" of economic growth, due to the existence of high economies of scale in this sector and its importance in the generation and propagation of technological progress. In addition, the intrinsic characteristics of this sector might lead to gains in international competitiveness, via the generation of demand through exports, hence less external restriction on growth.

From this perspective, catching-up processes are an important part of the development process, and are possible as a result of imitation mechanisms, learning-by-doing, reverse engineering, and the incorporation of technologies via imported capital goods, among others. The process of imitating existing technologies represents an alternative path of development for technologically backward countries, so that they do not depend exclusively on their innovative capacity, but also on their performance as an imitator. As the relative cost of absorbing existing technologies would be lower than that of generating new technologies, backward countries would tend to have higher productivity growth rates, which would allow for catching up. Mechanisms for generating and diffusing technological innovation are essential for economic growth and development, and they are more strongly present in the industrial sector.

The strategies for post-pandemic economic recovery are based on the principle that the resumption of development on a sustainable basis requires an effort to reindustrialize the Brazilian economy, in line with the new tendencies of industry at global level. To achieve this goal, a well-defined set of industrial policies coordinated with adequate macroeconomic policies is essential.

Currently, industry and services – now immersed in a new digital substrate – tend to operate in an increasingly integrated way and supported by advanced automation processes. Some of the most prominent characteristics of modern manufacturing and its role in economic dynamics are as follows (Arbix *et al*., 2017)[54]: (i) New industrial processes are based on the deepening of productive interdependence in world industry, with greater diversification of the origin of added value in the general flow of goods and services; (ii) By participating in global value chains, the industry is driven by innovation systems, by facilitating the flows of knowledge and enabling learning, and by encouraging the elevation of quality standards; (iii) The globalization of production and services puts pressure on changing the competition patterns of national economies and questions institutional strategies, pushing them to expand their synergies with other social agents, in search of knowledge diversity and results-oriented cooperation; (iv) New manufacturing is strongly labor-saving, but industry still occupies a special place in maintaining the adaptability of economies and in the metabolism of innovation systems.

Due to the importance of industry for the economy as a whole, Brazil must increase the specific weight of innovation processes, both to face the pandemic crisis and to pursue long-run economic

[54] Arbix, G. et al. O Brasil e a Nova Onda de Manufatura Avançada. Novos Estudos CEBRAP, v. 36 (3), p. 29-49, 2017

and social development, guided by the recognition of the weight of technological innovation in raising productivity. The new industrial cycle is based on complex digital systems that, by integrating into a network and automating processes, bring physical and virtual objects together and shape an even more flexible and customized industrial production. Due to its characteristics, the changes have a strong impact on manufacturing, but also on services and agriculture, with consequences for the economy as a whole.

In sum, the Brazilian industrial policy agenda needs to be focused on transforming the industrial structure, with an increase in productive gains supported by new technologies, and on the diversification of sectors and activities that have greater economic value. In this case, the main issues to be faced are: (i) how to adopt, adapt, absorb and generate new technologies in order to increase the economy's productivity; (ii) what dynamics are needed in order to change the current production structure and expand connections with global value chains.

The absorption and generation of new technologies depend upon the expansion and strengthening of the National System of Science, Technology and Innovation. Some of the policies and actions required in order to achieve this goal involve promoting science and technology research, increasing investments in research infrastructure (labs, equipment, and so on), investing in human resources, and promoting intrafirm technological innovation (Brasil, 2016)[55].

Regarding the change in productive structure, and the promotion of high value-added manufacturing, some of the required policies are: (i) to add value to existing domestic production chains, in sectors such as agribusiness and services; (ii) to strengthen innovative segments as possible development axes, such as the creative economy, the digital economy, the green economy and the bioeconomy; (iii) to invest in enabling technologies capable of radically changing production methods, with potential impact on the manufacturing industry, such as biotechnology, nanotechnology and ICT, as well as additive manufacturing and advanced materials; (iv) to promote international cooperation in innovation, to speed up the domestic process of learning and absorbing technologies, with the signing of international agreements involving both companies and research institutions; (v) to attract foreign investors to technology-based companies in Brazil, within the scope of a company internationalization program, in order to support cooperation and the formation of joint ventures in strategic areas.

In sum, Brazilian industrial policy needs simultaneously to emphasize the incorporation of new technologies, to develop new products, and to promote the diversification of sectors and activities with greater complexity and value. Cooperation with China might be an important tool in this regard, in particular in helping to implement environment and social-friendly projects.

6.4 Digital Economy

Section 4 has already mentioned the main trade and investment cooperation between China and Brazil, showing the significant Chinese investments in infrastructure, in the industrial sector and in agriculture. These initiatives should be maintained, as they are a major contribution to help overcome the excess demand, in the Brazilian economy, for basic investment.

To these it should be added a new dimension: the coronavirus pandemic had worldwide impact, not only on health conditions, but also by accelerating existing trends in the digital economy. Digital solutions to maintain business and consumption emerged as a natural response to cope with social distancing and restrictive measures. In Brazil, whereas governments and private entities took

[55] Brasil. Ministério da Ciência, Tecnologia, Inovações e Comunicações. Estratégia Nacional de Ciência, Tecnologia e Inovação 2016-2022. Brasília, DF: 2016

several measures in order to mitigate the spread of the virus, including lockdowns and movement restrictions, and consumers practiced social distancing to prevent contagion, a significant share of domestic and international trade in goods and services was redirected through digital means.
Digital transactions skyrocketed, as did the number of people buying online. This happened both in established e-marketplaces and among traditional enterprises of all sizes, forcing them to set up their own online stores or develop digital sales channels in collaboration with delivery platforms. The socioeconomic profile of online consumers also changed, with electronic purchases by lower income households showing high growth rates. The consumption patterns of digitally traded services changed drastically.
The digital economy has been the newest challenge for industrial and technology policies at the national and global level, given that it has set new competitive standards for manufacturing and services and has modified the context in which global value chains operate. Policies in this sector must unite national objectives of upgrading industry and services through digital and information technologies and the setting of benchmarks in diverse sectors such as semiconductors, artificial intelligence, and electric vehicles.
The digital economy has generated a host of new business models, even more intensely during the coronavirus pandemic. From social media and platform economy to cloud computing and data centers, such businesses would not have come into existence without the internet. This forces governments to embrace new business models, create a facilitating environment for digital firms to thrive, and actively promote their digital activities in order to succeed in attracting investments. Furthermore, supporting digital competitiveness may foster economic recovery in the post-pandemic period, since FDI can bring technology, know-how and more better-paid jobs.
The Chinese experience with digital economy aims at technologically upgrading several productive sectors but at the same time retrofitting laggard sectors. As from the Brazilian perspective, this experience should be added to the investments already taking place in several sectors. It is worth mentioning that in the White Paper on China's Policy on Latin America and the Caribbean, published in 2016, digital cooperation was highlighted as an important part of China's cooperation with the region.
Brazil and China should foster cooperation in digital issues, given that the development of a digital economy looks like a good option to provide a post-pandemic recovery. Some of the needed measures in domestic policy are:

- Introduce long-term digital infrastructure plans and provide a regulatory framework that might foster public-private coordination to ensure universal affordable access to high quality internet.

- Improve trade facilitation and logistics to sustain the growth of cross-border e-commerce, including capacity building and the adoption of new technologies, such as artificial intelligence and blockchain, in order to automatize and modernize risk assessment and other custom procedures.

- Modernize regulatory and legal frameworks for electronic and digital payments, especially cross-border digital payments, including innovative ways to deepen the penetration of electronic and digital payment systems while preserving privacy and ensuring trust, thus contributing to a higher integration between banking institutions and digital companies.

In June 2017 Brazil adopted a national plan for the Internet of Things (IoT) aimed at promoting the development and adoption of IoT applications throughout the Brazilian economy by fostering free

competition and free flow of data. This plan represents an ambitious initiative to drive digital transformation across the Brazilian economy, and it is also a useful model for other countries seeking to achieve similar results.

The plan can be applied to a multiplicity of fields, what reinforces its importance. IoT can improve urban life, via enhancing mobility, public safety, and sustainability. It can also be used in health care, given that the plan envisioned the use of IoT to increase access to hospitals through integration of patient information and better efficiency in the healthcare ecosystem, such as the use of smart medical devices to improve the delivery of telemedicine. In the manufacturing sector IoT can play a pivotal role in promoting the integration and cooperation in supplier chains of goods, components, services, and inputs.

Post-pandemic cooperation should comprise, therefore, more investments in those sectors that have already been previously nominated, but with the addition of more intense relationship also in the realm of the digital economy.

7. SUGGESTIONS

The potential areas for the two-ways investment of China and Brazil need the participation of both governments and other related entities, which is extremely important after the pandemic. There are at least six initiatives that might contribute to foster bilateral investment flows.

7.1 Set out clear signals of cooperation

Both China and Brazil should set out clear signals to show the willingness to encourage enterprises to carry out investment cooperation, making them understand that the bilateral investment cooperation between China and Brazil has been and will be important for the two countries and will be encouraged by the governments. The pandemic changed our environment a lot. Apart from strengthening the confidence of enterprises, the two countries should also provide a comparatively stable environment for investment cooperation.
Bilateral investment cooperation between China and Brazil could be projected and designed within a given time horizon, in order to reduce uncertainties. This should involve actively the central government as well as local governments.

7.2 Provide exact information for enterprises' decision-making

There are two different, extreme situations in gathering information. One is that the enterprises do not have enough channels or ways to get the information they want or need to have. The other extreme situation is that there is so many different information that this may cause confusion in dealing with conflicting information or hidden facts.
Government agencies, intermediate organizations and professional entities must use their resources in order to help facilitate the access to the required information, thus reducing the margin for companies to take decision on the basis of fake news. The governments of the two countries should therefore divulge with as much detail as possible the investment data, as well as investment opportunities and policies in both economies.

7.3 Facilitate investment by reducing costs

Investment is, by definition, a risky activity. Hence, whatever measures are adopted aiming at reducing costs are a good contribution to foster investment flows, thus benefiting both the investors and their partners. Less cost can help increase the rate of success.
Investment costs comprise as diversified set as labor costs, tax structure, inadequate infrastructure, access to dear raw material, energy costs and others, that might affect expectations of return from the viewpoint of potential investors. Directly dealing with such elements might positively influence investment flows.
Long-term foreign investments are subject to the normal business risks, but also to the fluctuations of the exchange rate. The pandemic has imposed some unprecedented variations to the Real-Renminbi parity, and this might influence investment decisions.
To the extent that these investments are needed in the Brazilian economy, there should be a way of dealing with this issue, via reducing the exchange rate risk. One possibility is the use of domestic currency in financing the projects.
Furthermore, it is understood that the exchange rate risk can also be reduced ex-ante via more transparent transaction, financing, legislative, accounting and data management. To these it should

be added the need for clear, stable rules and support during the operation of the projects.

7.4 Encourage two-ways investment by promoting good practices

Good examples can be useful for stimulating potential investors. It might, therefore, be helpful to compile a database of successful cases so as to help other companies to better understand the situation in the host economy, and help them deal with specific issues in proper ways.
In the transformation to digital economy, good practices can be important not only to improve the hardware, but also to persuade the stakeholders to adapt their habits. Very much like in the process of greening activities, both qualified materials and services should be incorporated into the system, and changes will probably not happen naturally. They require continued efforts for update and revision. Good practices can provide the investors and governments possible better solutions. While the situation keeps on evolving, it is important to remind the investors to try to understand the ways and methods of these good cases instead of copying them without proper adaptation.

7.5 Establish risk alert and prevention mechanism

As forecasted by IMF in its update of World Economic Outlook, global output will pick up to around 6% in 2021. The recovery is divergent and there may be stronger pressure for rebalancing. In the two-ways investment cooperation between China and Brazil, mechanisms for alerting the companies could be very important and useful. Since investment's life cycle is usually much longer than trade, situations might appear, which can bring more uncertainty. A risk alert mechanism can help the market to take necessary actions more promptly in order to prevent losses or reduce them whenever risks are unavoidable.
Systematic evaluation of country risk evaluation is very useful, in this regard. Researchers and think tanks can also take part in the tracing and analyzing risks and divulging this information. This is not enough, though. Governments and financial sectors should cooperate to provide solutions like the insurance to cover losses when they happen. Hence, enhanced dispute settlement mechanisms should be designed in order to resolve and reduce the risks incurred by companies and prevent the spill-over effect to stakeholders.

7.6 Promote investment in more diversified areas

As explicitly mentioned throughout this report, there is a need for investment to take place in specific sectors in Brazil. Chinese investors could consider these opportunities more carefully.
These sectors comprise, first, the strongly required investment in infrastructure. Transportation (railways, water transportation, ports, airports and improvement of several roads, all rank high in the agenda), as well as telecommunications and clean energy generation and transmission.
But there is also need of improving competitiveness in the industrial sector as a whole, via investment in information technology and machinery manufacturing.
Apart from these sectors with rather well-known demand for additional resources, there is a set of other possibilities where foreign capital can play a decisive role. The pandemic has shown the importance of investments in the health sector (in both new products as well as in equipment), and the evidence of climate change has exposed the strong need of more direct action in sustainable initiatives. Thus, investment in environment-friendly agricultural production, forestry, biotechnology, initiatives in ´green` sectors should become part of the bilateral agenda.
Including more explicitly these varied possible destinations into the agenda of inter-governmental

mechanisms for the negotiation of investments, for instance at COSBAN, might turn out to become a major contribution to bilateral relations.

ANNEX: BRI SPECIFIC COOPERATION MECHANISMS AND PLATFORMS

Coordination and cooperation in specific fields of the Belt and Road Initiative have progressed steadily.

Intellectual Property
Having hosted two High-Level Conference (s) on Intellectual Property for Countries along the Belt and Road, in 2016 and 2018, China has established a regular cooperation system on intellectual property with Belt and Road countries. China and 49 BRI countries published the "Joint Statement on Pragmatic Cooperation in the Field of Intellectual Property among Countries along the Belt and Road" in August 2018.

Tax Cooperation Mechanism
The long-term mechanism for tax cooperation between BRI countries is maturing. China co-organized the Belt and Road Initiative Tax Cooperation Conference (BRITCC) in May 2018, which published the "Astana Proposal by BRITCC Participating Jurisdictions for Enhancing Cooperation in Tax Matters", signaling that the cooperation network has expanded to 111 countries and regions. A nonprofit multilateral tax cooperation mechanism under the Belt and Road Initiative, the Belt and Road Initiative Tax Administration Cooperation Mechanism (BRITACOM) was established in April 2019. It aims to facilitate cross-border trade and investment along BRI routes by helping resolve tax disputes.

Science and Technology Exchange Mechanism
China has signed 46 agreements on cooperation in science and technology with other BRI countries, and launched China-ASEAN and China-South Asia science and technology partnership programs. It has built five regional platforms for technological transfer with ASEAN, South Asia, Arab States, Central Asia, and Central and Eastern Europe, and proposed and co-established the Alliance of International Science Organizations in the Belt and Road Region. A multilevel and diverse exchange mechanism in science and technology and humanities has been formed through various means, such as short terms of research in China by young scientists and the training of science and management personnel from other B&R countries. In 2018, China hosted 500 young scientists from such countries to carry out research, and trained more than 1,200 science and management professionals. China actively conducts cooperation with other BRI countries in space technology and makes its BeiDou Navigation Satellite System, satellite communication systems and satellite meteorological remote sensing technologies available to them.

Silk Road Think Tank
China and other relevant countries have jointly established the Silk Road Think Tank Association, Silk Road Think Tank Network, and University Alliance of the Silk Road. The UK, Japan, Korea, Singapore, Kazakhstan and other countries have established research institutions on the Belt and Road and held a variety of forums and symposiums. Universities in China and other countries have jointly established research centers on the Belt and Road, schools for Belt and Road cooperation and development, and training centers, with the aim of cultivating international talent to build the Belt and Road.