

Asymmetries in Brazil-China Economic Relations



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ASYMMETRIES IN BRAZIL- CHINA ECONOMIC RELATIONS

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INTRODUCTION

This study examines the evolving economic relationship between Brazil and China through the lenses of economic growth theory, trade and foreign direct investment as potential vectors of structural transformation, balance-of-payments-constrained growth and macroeconomic interdependence, and international relations theory—with emphasis on Brazil’s role as a middle power. As Brazil’s principal trade and investment partner, China plays a growing role in the Brazilian economy—most notably through commodity-driven trade, infrastructure investment, and selective technological engagement.

The analysis focuses on identifying the extent to which these bilateral ties align with or constrain Brazil’s long-term economic growth potential. Drawing on theories of structural change, balance-of-payments-constrained growth, and the political economy of middle powers, the report explores how trade composition, foreign direct investment (FDI), and sectoral patterns influence Brazil’s productive structure and external sustainability.

Special attention is given to evidence from Computable General Equilibrium (CGE) and GTAP-based studies, which illustrate how externally driven commodity booms and investment flows affect sectoral resource allocation and long-term productivity and growth. The study also reflects on Brazil’s foreign policy strategy as a middle power—seeking to secure strategic autonomy while engaging in global trade and investment regimes.

The analysis identifies key structural patterns that define Brazil–China economic relations, including export concentration in low-complexity goods, limited spillovers from FDI, and sectoral asymmetries in technology-intensive activities. Risks include worsening balance-of-payments constraints, macro-financial exposure, weak integration into global value chains, and erosion of policy space due to tied financing arrangements. Policy recommendations focus on promoting productive diversification, enhancing domestic value added and technological absorption in FDI, strengthening governance over external finance, and preserving Brazil’s strategic autonomy through economic and diplomatic diversification.

The structure of the report is organized to provide a progression from theoretical foundations to applied analysis and, finally, policy guidance. The first section presents the conceptual and analytical framework, outlining the principal theoretical approaches employed to examine China's influence on Brazil's economic trajectory. This is followed by an empirical assessment of Brazil–China economic and diplomatic engagements, with a focus on trade flows, investment patterns, technological exchange, and foreign policy dynamics. Building on this analysis, the study then synthesizes key structural patterns and identifies associated risks. The final section offers policy recommendations aimed at enhancing Brazil's capacity to manage asymmetries, promote diversification, and align external engagements with long-term economic growth objectives.

CONCEPTUAL AND ANALYTICAL FRAMEWORK

Economic growth, trade, and foreign relations form a mutually reinforcing triad. Trade is a driver of growth, granting countries access to broader markets, technological innovation, and opportunities for productive specialization. However, trade patterns and outcomes are not neutral — they are shaped by a country's production structure, diplomatic strategies, its position in the global system, and the institutional frameworks that govern international engagement. For middle powers like Brazil, foreign policy and diplomacy are essential tools for securing favorable trade terms, attracting investment, and maintaining autonomy in a competitive global landscape. In turn, sustained economic growth enhances a country's international leverage, enabling it to play a more assertive role in shaping multilateral rules and development agendas.

This section provides the theoretical underpinnings for the study, focusing on four interrelated themes: (i) the drivers of economic growth and structural interdependence (2.1), (ii) the role of trade in shaping structural transformation and growth (2.2), (iii) external constraints imposed by the balance of payments (2.3), and (iv) Brazil's positioning and behavior as a middle power in a multipolar international system (2.4).

THEORIES OF ECONOMIC GROWTH AND STRUCTURAL INTERDEPENDENCE

The evolution of economic growth theories has transitioned from classical models emphasizing capital accumulation to more nuanced frameworks that incorporate technological innovation, human capital development, and institutional factors. The Solow-Swan model laid the groundwork by identifying capital accumulation and technological progress as key drivers of growth. However, it treated technological advancement as an exogenous factor, prompting the development of endogenous growth theories. Romer (1990) and Aghion & Howitt (1992) introduced models where technological change results from intentional investment in research and development, emphasizing the role of knowledge spillovers and innovation.

Further expanding on these ideas, Galor (2011) proposed the Unified Growth Theory, which integrates economic and demographic factors to explain the transition from stagnation to sustained growth. This theory underscores the interplay between human capital accumulation, technological progress, and institutional evolution over the course of history. Similarly, Acemoglu and Robinson (2012) highlighted the significance of inclusive institutions in fostering economic development, arguing that political and economic institutions shape the incentives for innovation and investment.

The role of foreign direct investment (FDI) in economic growth has been extensively studied. Yao (2021) investigates the influences of FDI on economic growth in selected Latin American and Asian countries, finding that FDI impacts growth both directly through capital accumulation and indirectly via technology and knowledge transfer. However, the effectiveness of FDI is contingent upon the host country's ability to absorb new technologies, which is closely linked to the level of human capital. The study also notes that trade openness enhances the positive effects of FDI, while countries with low human capital may experience limited benefits or even negative impacts.

Keohane and Nye (1977) introduced the concept of complex interdependence, emphasizing that states and their fortunes are linked through multiple channels, including economic, environmental, and social ties. They posited that this interdependence can lead to both cooperation and conflict, depending on the distribution of power and the nature of the relationships. Building on this, Baldwin (2016) discussed how global value chains have intensified interdependence, making economies more susceptible to ex-

ternal shocks while also providing opportunities for specialization and efficiency gains.

The literature also explores the implications of economic interdependence for national development strategies. Rodrik (2016) cautioned against premature deindustrialization in developing countries, where integration into the global economy without adequate domestic capabilities can hinder long-term growth prospects. He emphasized the need for policies that balance openness with the development of domestic industries and institutions.

Applied General Equilibrium Approaches to Growth

While analytical growth models offer theoretical insight into the drivers of long-run growth, Computable General Equilibrium (CGE) models provide a policy-relevant framework to simulate how these mechanisms interact across sectors, agents, and markets in a consistent economy-wide setting. Rooted in neoclassical general equilibrium theory, CGE models extend the traditional Solow or endogenous growth frameworks by allowing for:

- Multiple production sectors and heterogeneous factor intensities
- Linkages between household behavior, labor markets, government, and external trade
- Capital accumulation and technological change over time
- Policy shocks, such as FDI, tariffs, subsidies, or exchange rate changes

CGE models are useful for modeling medium to long-term growth scenarios where structural features — such as comparative advantage, sectoral productivity, and institutional constraints — determine dynamic trajectories. CGE models serve as a bridge between growth theory and empirical policy design. They capture the general equilibrium feedback effects that static or partial-equilibrium approaches, especially in open economies undergoing structural transformation.

One of the core advantages of CGE models is their ability to simulate structural transformation. For example, a calibrated model of the Brazilian economy can estimate how Chinese FDI in infrastructure or agro-industry might shift capital and labor across sectors, influencing productivity, exports, and income distribution. These models can also embed learning effects or externalities (e.g., technology diffusion from FDI), making them suitable for assessing growth strategies that go beyond input accumulation.

While analytical growth models provide valuable insights into the endogenous and exogenous drivers of long-term expansion, they often abstract from how countries mobilize external resources and reshape their productive structures. In open economies, sustained growth is tied to the capacity to access foreign markets, attract investment, and upgrade the composition of production and exports. These dynamics are explored in the following section, which examines how trade contributes to structural transformation and economic growth.

TRADE, STRUCTURAL TRANSFORMATION, AND CONTRIBUTION TO GROWTH

The evolution of trade theory offers critical insights into how international exchange can contribute to economic growth, particularly through its effects on specialization, productivity, and structural transformation. It reflects the shift from classical assumptions of static comparative advantage to dynamic models that account for market imperfections, scale economies, and technological capabilities. The classical model, developed by David Ricardo, posits that countries benefit from trade by specializing in goods for which they have comparative advantage—determined by relative labor productivity. The Heckscher–Ohlin (H-O) model later extended this logic by linking comparative advantage to factor endowments: countries export goods that intensively use their abundant factors (capital or labor).

However, empirical anomalies—such as the Leontief Paradox¹—and changing global trade patterns led to the rise of New Trade Theory (NTT) in the 1980s. Scholars like Paul Krugman introduced models based on increasing returns to scale, product differentiation, and network effects, explaining why countries with similar factor endowments still engage in large volumes of trade. These models underscore the role of industrial structure, firm heterogeneity, and path dependency in shaping trade outcomes.

1. The Leontief Paradox revealed that real-world trade patterns do not always conform to theoretical expectations based on factor endowments—highlighting the importance of technological differences, human capital, and firm-level dynamics in trade analysis.

Building on this, New New Trade Theory (NNTT) integrates firm-level heterogeneity into trade models, marking a major departure from previous assumptions of sectoral uniformity. Melitz (2003) demonstrated that only the most productive firms can absorb the fixed costs associated with entering export markets, making firm-level productivity a critical determinant of trade participation. Beyond this foundational insight, NNTT shows how trade liberalization drives resource reallocation within sectors—where less productive firms contract or exit, and more productive firms expand. This selection effect leads to aggregate productivity gains. Moreover, by introducing endogenous markups, pricing-to-market behavior, and labor reallocation dynamics, NNTT provides a powerful framework to understand how trade affects wage inequality, employment composition, and industrial evolution—issues that are particularly salient for developing economies undergoing structural transformation. For developing countries, these modern trade theories offer two critical insights:

- Trade is not inherently beneficial unless it contributes to learning, technological upgrading, and diversification into higher value-added activities.
- The composition of trade matters as much as the volume. Exporting unprocessed commodities may generate foreign exchange but often contributes little to technological advancement or employment-intensive growth.

These points are reinforced by scholars such as Hausmann, Hwang, and Rodrik (2007), who show that “export sophistication” (EXPY) is positively correlated with future growth. Similarly, UNCTAD (2002) emphasizes that trade policy should be designed for openness and development-oriented structural change.

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2. Emerging in the early 2000s, NNTT builds on Krugman's New Trade Theory by introducing firm-level heterogeneity and microeconomic foundations into trade models. Unlike earlier models that assumed all firms within a sector were identical, NNTT—pioneered by Melitz (2003)—recognizes that only the most productive firms can overcome the fixed costs of exporting. Key contributions include:
 - Reallocation effects: Trade liberalization shifts market shares toward more productive firms, raising aggregate productivity.
 - Selection and exit: Less productive firms shrink or exit, increasing efficiency but possibly generating adjustment costs.
 - Endogenous markups: Firms set prices strategically across markets, affecting competitiveness and welfare.
 - Extensions: NNTT has been expanded to examine global value chains, multinational production, labor market frictions, and the distributional consequences of trade shocks.

For developing countries, NNTT underscores that industrial capacity, policy design, and firm competitiveness—not just comparative advantage—shape trade outcomes and development paths.

Institutional and regulatory dimensions are crucial in shaping trade performance. Exchange rate misalignments can distort trade competitiveness by effectively altering tariff protections, thereby impacting market access (Thorstensen, Marçal, and Ferraz, 2014; Staigner and Sykes, 2010; UNCTAD, 2012). Persistent and significant misalignments can undermine the effectiveness of WTO rules, including those related to tariffs, antidumping, and subsidies. Building productive capacity and ensuring fair regulatory environments—particularly concerning trade remedies, subsidies, and currency alignment—is essential to making trade an engine for technological upgrading and structural transformation (Thorstensen et al, 2014).

Trade Balance, Public Accounts, and Interpretive Nuances

The trade balance—the difference between the value of exports and imports—is a key component of the current account within the balance of payments framework. While commonly interpreted as a health indicator of an economy's external position, a trade deficit is not inherently negative, nor is a surplus always positive.

Classical and neoclassical models often assume intertemporal neutrality: deficits may reflect rational borrowing to finance investment, while surpluses may indicate under-consumption or missed domestic investment opportunities. In developing countries, trade deficits can be used to import capital goods, technology, and inputs necessary for structural transformation—particularly in early industrialization phases.

What matters is not solely the trade balance per se, but:

- What is being imported (capital vs. consumption goods).
- How the imports are financed (FDI, debt, reserves).
- Whether exports are diversifying or upgrading in content.

Empirical work supports this nuanced view; Freund and Spatafora (2008) show that commodity-exporting developing countries often run deficits during boom periods if capital inflows or exchange rate appreciation encourage imports. But if these imports include machinery or infrastructure inputs, they can support medium-term growth.

The composition of exports affects long-run sustainability. Hausmann, Hwang, and Rodrik (2007) argue that the complexity and productivity of a country's export basket are strong predictors of future growth. A trade

deficit dominated by capital goods imports and offset by rising export sophistication poses far fewer risks than one driven by consumer goods with stagnant or regressive exports.

Thus, policy evaluation should go beyond headline numbers. A growing body of literature—including work by Rodrik, Cimoli, and Thorstensen—emphasizes structural trade analysis: disaggregating the current account by sector and technological content and aligning trade rules with long-term goals.

BALANCE OF PAYMENTS AND EXTERNAL CONSTRAINTS ON GROWTH

The balance of payments (BoP) plays a central role in shaping the long-term growth trajectories of open economies. While traditional growth models often abstract away from external sector constraints, more recent theoretical and empirical research has shown that the sustainability of growth strategies is deeply influenced by external balances. In particular, balance-of-payments-constrained growth models (BPCG) argue that a country's growth rate cannot persistently exceed the rate compatible with equilibrium in its external accounts (Thirlwall, 1979; McCombie & Thirlwall, 2004).

At the core of this framework lies Thirlwall's Law, which asserts that a country's long-term growth is determined by the ratio of its export growth to the income elasticity of demand for imports (Thirlwall, 1979). This creates a "BoP ceiling": when import growth—driven by domestic income expansion—outpaces export growth, external adjustment becomes unavoidable, often manifesting in contractionary fiscal or monetary policies, exchange rate depreciation, or reliance on volatile capital inflows (Moreno-Brid, 1998; Dávila-Fernández & Sordi, 2019a).

This approach is particularly relevant for developing and commodity-exporting economies, such as Brazil, that rely heavily on imported capital goods, intermediate inputs, or foreign technologies. In these contexts, growth can be derailed not by lack of investment, but by a scarcity of foreign exchange³

3. Brazil's Structural Vulnerability Despite Foreign Exchange Reserves: While Brazil maintains substantial foreign exchange reserves (e.g., \$340 billion in 2024), its reliance on primary commodity exports (e.g., soybeans, iron ore) and dependence on imported capital goods expose the economy to balance-of-payments (BoP) risks rooted in trade composition, not liquidity. Commodity price volatility (e.g., a 35% drop in iron ore prices in 2023) and high income elasticity of demand for imports (1.8 vs. 0.6 for exports) create structural imbalances, as import growth outpaces export earnings during expansions. Reserves mitigate short-term currency crises (e.g., 2024's 25% real depreciation) but do not resolve chronic vulnerabilities tied to low-value-added exports. Even with diversification efforts (e.g., processed agro-exports rising to 28% of agricultural trade), Brazil's BoP remains constrained by its export profile, validating critiques of commodity-dependent growth models (Cimoli & Porcile, 2014; ECLAC, 2024; Hiratuka, 2023).

. Consequently, the structure and technological composition of trade become critical. Exporting low value-added or price-volatile goods (e.g., primary commodities) generates unstable or insufficient foreign exchange, making economies vulnerable to external shocks and exchange rate pressures.

Empirical studies (Moreno-Brid, 1998; McCombie and Thirlwall, 2004) have confirmed that many Latin American economies, including Brazil, have historically grown at rates below their potential due to BoP constraints. This constraint has also been exacerbated by episodes of capital flight and procyclical capital flows, which intensify volatility and limit the effectiveness of domestic counter-cyclical policies.

The BoP constraint has led some scholars and institutions to advocate for growth strategies that reduce external vulnerability through:

- Export diversification and upgrading (Hausmann, Hwang, and Rodrik, 2007);
- Strengthening domestic supply chains to lower import dependence;
- Strategic management of exchange rates and capital flows (UNCTAD, 2022);
- Building international reserves and regional financial safety nets.

INTERNATIONAL RELATIONS: MIDDLE POWERS IN THE INTERNATIONAL ARENA

The concept of "middle power" occupies a central place in international relations theory as a means of understanding how states that are neither superpowers nor marginal actors exert influence in global affairs. Unlike major powers, middle powers often lack global military reach or overwhelming economic might, but they play vital roles in shaping international norms, supporting multilateral institutions, and mediating global conflicts. Rather than being defined solely by material capabilities, the classification of middle powers often rests on their behavior, strategic preferences, and normative identity.

Andrew Cooper, Richard Higgott, and Kim Nossal (1993) argue that middle powers exhibit a distinct behavioral pattern in international politics: they favor multilateral solutions and seek to strengthen global governance

frameworks. Eduard Jordaan (2003) refines this understanding by distinguishing between "traditional" and "emerging" middle powers. Traditional middle powers, such as Canada or Australia, tend to reinforce existing global structures, while emerging middle powers, such as Brazil, India, and South Africa, seek reform within the international system to reflect their growing political and economic weight.

Constructivist approaches to International Relations Theory emphasize how middle powers conceive their international role and how they are perceived by others. In this view, middle powers derive their identity through normative commitments and diplomatic activism, often pursuing autonomy and legitimacy through participation in multilateral forums. Middle power diplomacy is, therefore, not only a matter of capacity but also of intentionality and self-perception. Adam Chapnick (1999) further underscores that middle powers often work to uphold international order not through coercion, but through persuasion and norm entrepreneurship.

In economic terms, a middle power can be defined as a country that possesses significant, but not dominant, economic capabilities that allow it to exert regional or selective global influence. Middle powers often play a bridging role between major and smaller powers and use their economic resources to gain diplomatic leverage, multilateral visibility and normative influence.

Economically, middle powers generally exhibit a moderate-to-high GDP, often ranking among the top 20–40 economies globally and are usually active members of international economic groupings such as the G20. Their degree of trade openness and integration into global value chains allows them to benefit from global commerce, even while remaining vulnerable to external shocks. Many middle powers simultaneously serve as both recipients and emerging providers of foreign direct investment (FDI), particularly in regional infrastructure and development initiatives (UNCTAD 2022; World Bank 2023).

Their economic influence also stems from a relatively advanced human capital and technological base, which enables participation in global innovation networks. These states often exhibit institutional maturity, with credible macroeconomic frameworks, central banks, and public finance systems that contribute to international credibility (Cox 1987; Hurrell 2006).

Middle powers frequently act as regional economic anchors. Brazil, Indonesia, South Africa, and Turkey, for instance, play leading roles in their respective regions by facilitating trade integration, offering development co-

operation, and participating in regional security or infrastructure initiatives (Cooper, Higgott, and Nossal 1993). These roles extend to South–South cooperation platforms, where economic diplomacy is deployed to build strategic coalitions.

Economic middle powers also prioritize strategic autonomy⁴, seeking to diversify trade and investment partners and avoid dependency on any one major power. They often implement industrial or innovation policies to strengthen domestic economic capabilities while navigating complex geopolitical landscapes (Jordaan 2003). Their ability to act as norm entrepreneurs in economic governance—advocating for equitable trade rules or institutional reform—enhances their visibility and legitimacy in multilateral settings.

The economic attributes of middle powers include not only quantitative indicators such as GDP size and trade volumes but also their qualitative capacity to deploy economic tools for diplomatic influence, regional leadership and multilateral engagement. This makes their economic profile both a foundation and an instrument of their broader international positioning.

In sum, middle powers tend to:

- Use multilateral channels and institutions to mediate or solve conflicts;
- Act as “stabilisers” and “legitimisers” of the world order, while seeking for reform of key decision fora;
- View international law as instrumental to securing their interests;
- Make relevant use of international cooperation channels, as a way to gain legitimacy in the global arena.

4. Tullo Vigevani and Gabriel Cepaluni define strategic autonomy as a country’s capacity to preserve decision-making sovereignty and policy space despite external pressures. Maria Regina Soares de Lima adds that it also involves active participation in multilateral institutions to shape global norms. See Tullo Vigevani and Gabriel Cepaluni, *A Política Externa Brasileira: A Busca da Autonomia, de Sarney a Lula* (São Paulo: Editora UNESP, 2007); and Maria Regina Soares de Lima, “Instituições multilaterais e política externa: os desafios da autonomia,” *Revista Brasileira de Política Internacional* 44, no. 1 (2001): 67–97.

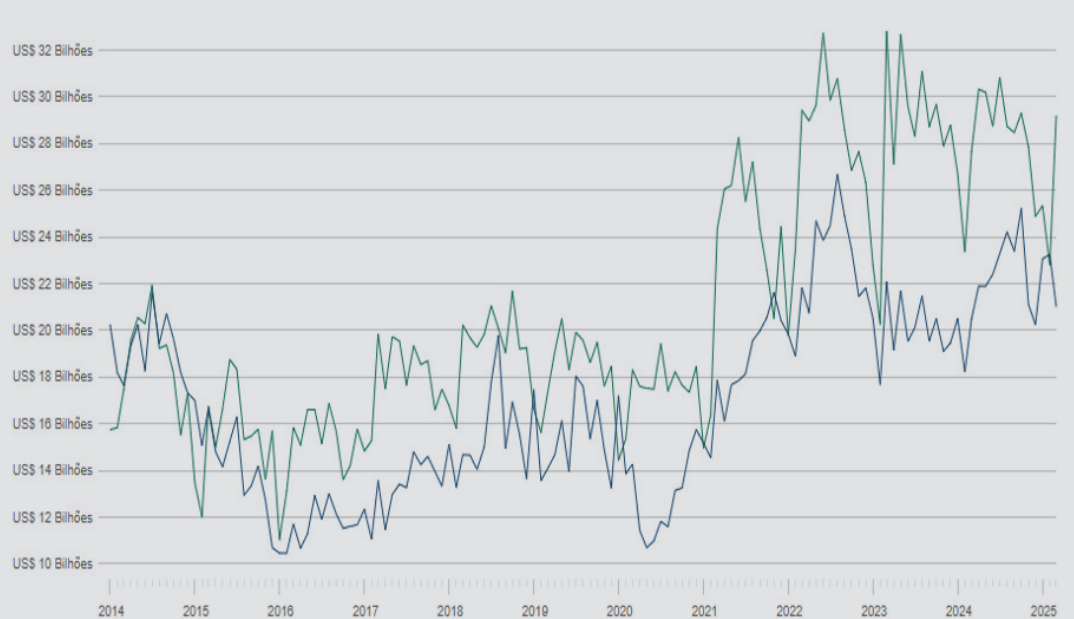
BRAZIL-CHINA ECONOMIC AND INTERNATIONAL ENGAGEMENTS: KEY FINDINGS

TRADE STRUCTURE AND GROWTH CONSTRAINTS

While Brazil has diversified its trade partners and maintained strong export performance in certain commodities, its overall trade openness has remained relatively low and stable over the past decade, both in absolute terms and compared to peer economies⁵. Between 2014 and 2024, Brazil's trade flows exhibited significant volatility, shaped by both domestic economic cycles and shifts in global demand. Export values (green line) declined markedly between 2014 and 2016 amid a global commodity downturn and domestic recession, then stabilized at moderate levels through 2019. A sharp increase followed in 2021–2022, driven by the post-pandemic recovery and a surge in commodity prices, but this momentum softened by 2023 and plateaued throughout 2024. Imports (blue line) fell during the 2015–2016 crisis, recovered gradually thereafter, and have shown a steady upward trend since 2021. While nominal trade values reached record levels in recent years, the pattern remains asymmetrical: export performance remains heavily tied to commodity cycles, while imports have grown more consistently. This decade-long trajectory points to a structurally constrained integration into global markets, with persistent reliance on low value-added exports and limited diversification—factors that may weigh on Brazil's long-term growth potential.

5. Brazil's trade openness, measured as the sum of exports and imports relative to GDP, has exhibited fluctuations over recent years. According to the World Bank, the trade-to-GDP ratio for Brazil was 33.85% in 2023, a decrease from 38.82% in 2022. This indicates that while there was a peak in 2022, the overall trend does not reflect a significant or sustained increase in trade openness over the past decade. Comparatively, Brazil's trade openness remains below the global average. In 2023, the world average trade-to-GDP ratio stood at 95%, highlighting Brazil's relatively lower integration into global trade. This is further underscored by Brazil's limited participation in global value chains and a trade profile heavily reliant on commodity exports. For more information, please refer to: The Global Economy.

FIGURE 1 - OVERALL BRAZILIAN TRADE EVOLUTION



Source: COMEXStat.

UNCTAD's 2023 data underscores this concentration: Brazil's export concentration index (HHI) stood at 0.196 and its diversification index at 0.626—figures significantly lower than those of G20 peers like Germany or the United States (Table 1 - Export Concentration, 2022). The country comparisons confirm that Brazil maintains one of the least diversified export portfolios among G20 countries.

TABLE 1 - EXPORT CONCENTRATION, 2022

Country	HHI (Export Concentration)	Diversification Index
Italy	0.061537	0.847293
France	0.070156	0.834209
Germany	0.096694	0.826031
United States	0.097264	0.822756
China	0.084092	0.793553
United Kingdom	0.139462	0.788664
Japan	0.156533	0.764572
Republic of Korea	0.168325	0.748139
Mexico	0.133967	0.736228
Turkey	0.171805	0.710379
India	0.070156	0.834209
South Africa	0.143293	0.705828
Canada	0.158691	0.681014

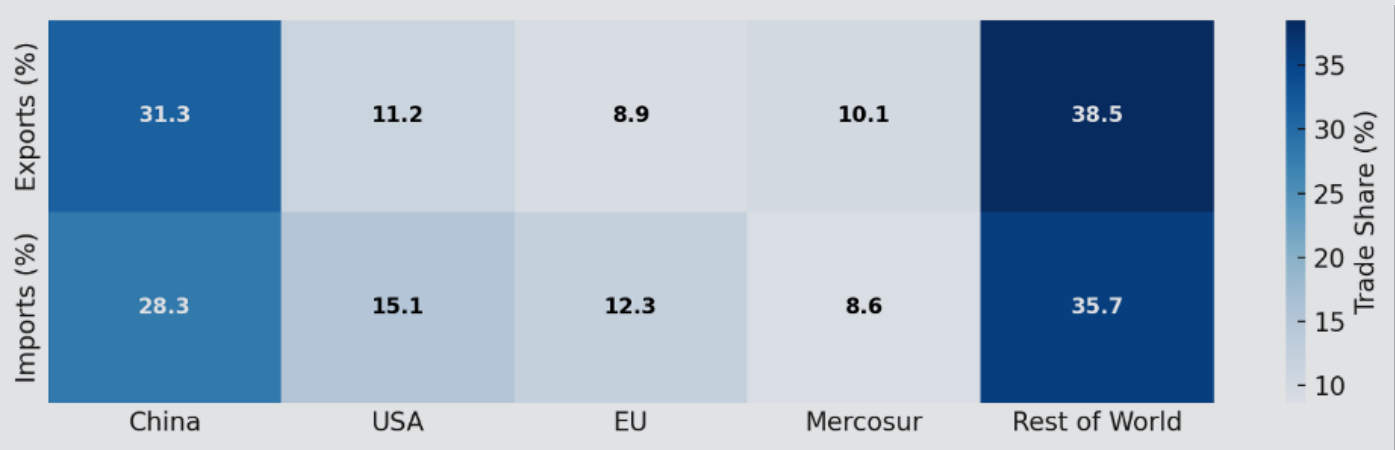
FIGURE 3 - MAIN GOODS EXPORTED BY G20 MEMBERS



Note: Prepared by SECEX/MDiC based on data from Comtrade/UN and the Standard International Trade Classification (SITC). The main SITC divisions exported/imported by G20 members are presented. Export data considers the values reported by exporters. Likewise, import data considers the values reported by importers.

Source: COMEXStat.

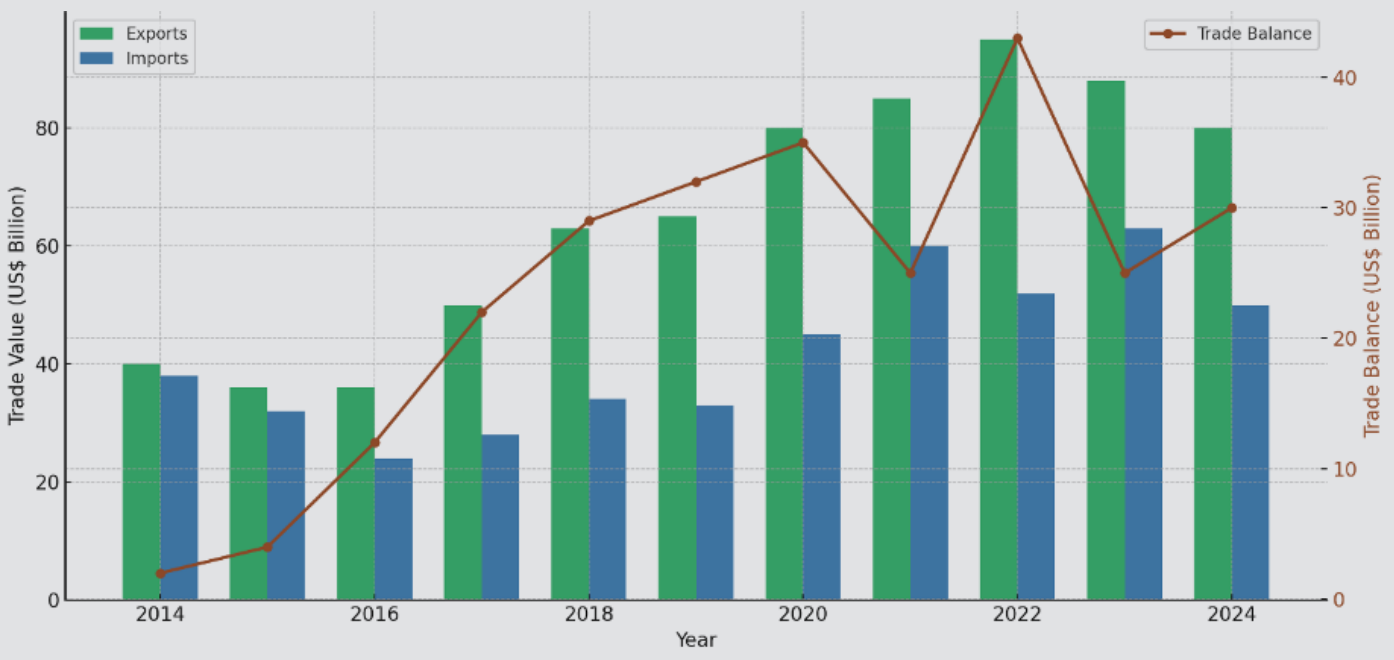
FIGURE 3 - MAIN GOODS EXPORTED BY G20 MEMBERS



Source: author elaboration based on COMEXStat.

Notably, China has emerged as Brazil’s dominant trade partner, accounting for over 31% of exports and nearly 30% of its imports in early 2025 (Figure 4 - Brazil's Trade Shares by Partner (2025 Q1)⁶. The bilateral trade balance, once clearly in Brazil’s favor, is narrowing—evidenced by a modest US\$ 744 million surplus in Q1 2025 following a sharp increase in imports from China (Figure 5 - Brazil-China Trade: Exports, Imports and Balance (2014-2024). Compositionally, Brazil’s exports to China remain concentrated in primary commodities: metalliferous ores (18.7%), oilseeds (13.9%), and petroleum products (13.6%) - Figure 6 - Brazil's Exports to China (2024). Conversely, imports from China are dominated by high-value manufactured goods, such as electronics and machinery.

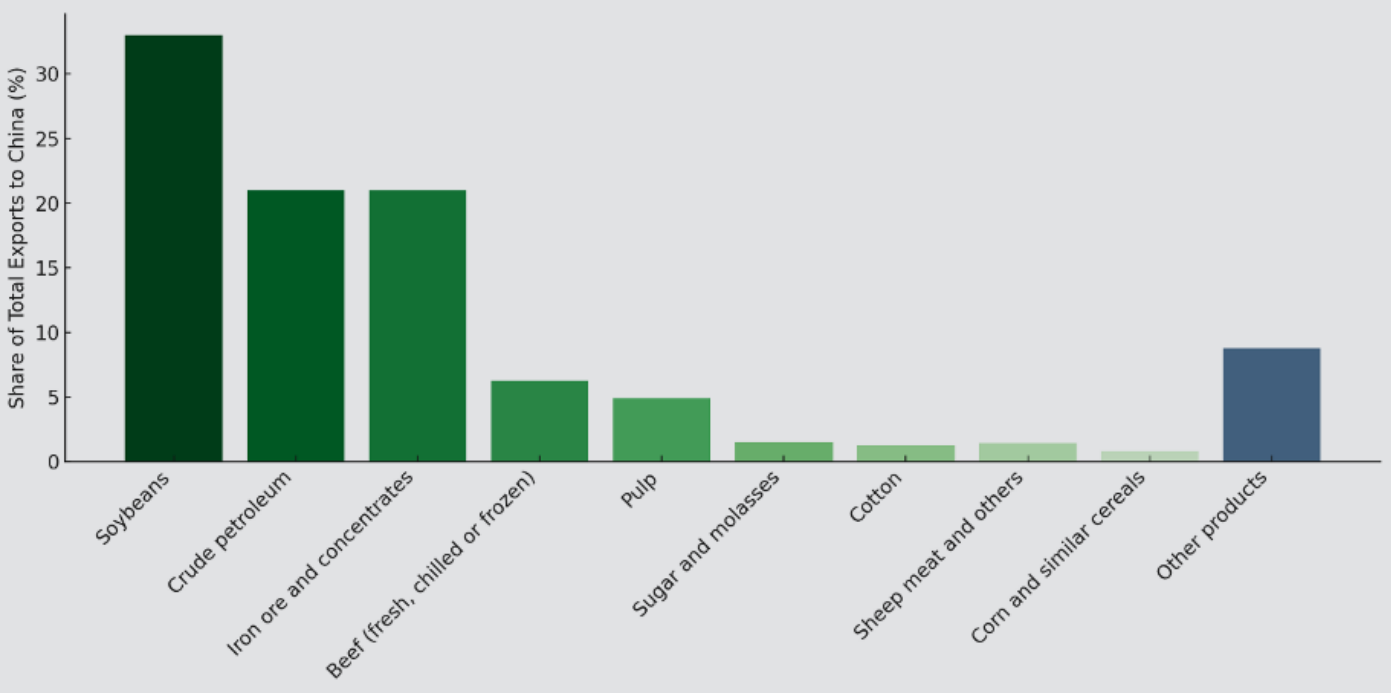
FIGURE 5 - BRAZIL-CHINA TRADE: EXPORTS, IMPORTS AND BALANCE (2014-2024)



Source: author elaboration based on COMEXStat.

6. Important to note that China’s relative share to other commercial partners does not significantly change between accumulated 2024 values and 2025 Q1 values – please refer to COMTRADE for detailed data.

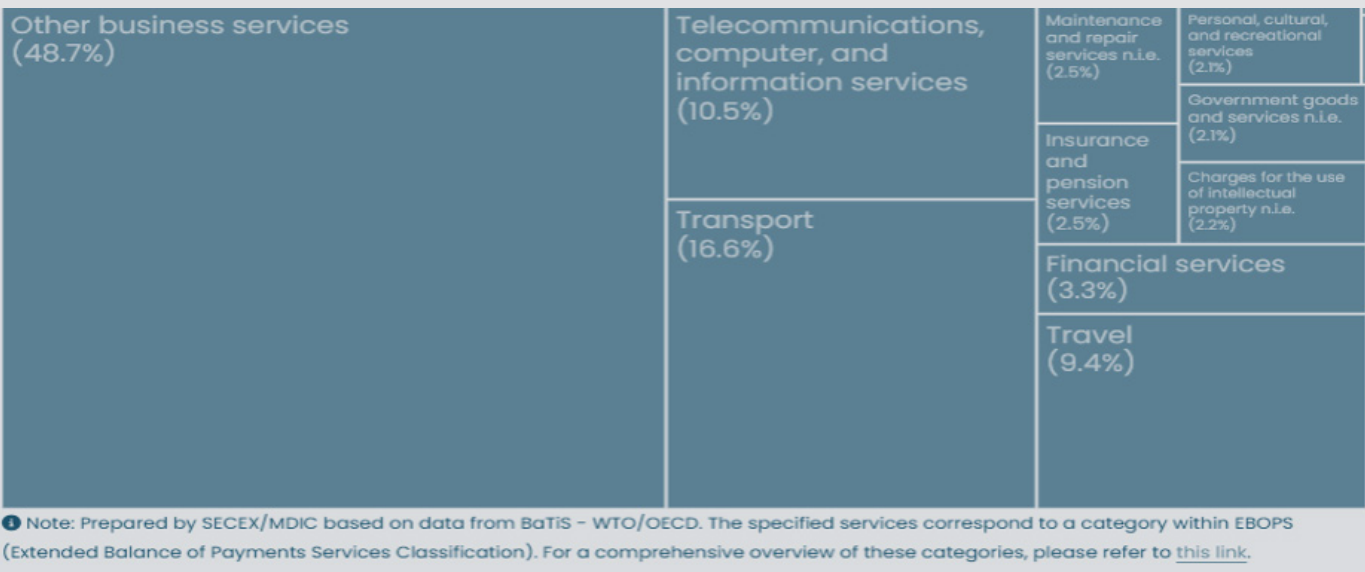
FIGURE 6 - BRAZIL'S EXPORTS TO CHINA (2024)



Source: author elaboration based on COMEXStat.

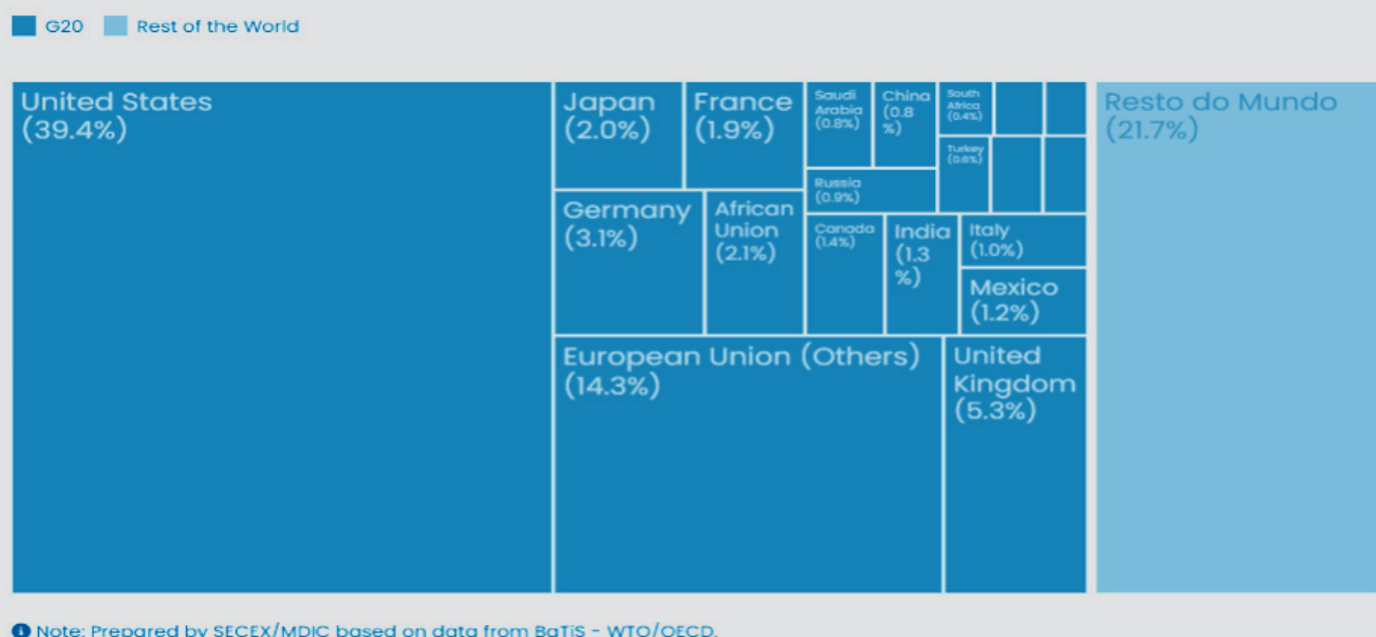
Beyond goods, Brazil’s limited engagement with China in services trade further reinforces this pattern of narrow sectoral integration. Most Brazilian service exports are concentrated in business services and transportation, with the U.S. and the European Union (EU) as dominant partners (Figure 6). China’s limited role in this domain points to a sectorally narrow trade relationship that offers little diversification potential or technological spillover benefits (Figure 7).

FIGURE 7 - MIX OF EXPORTED SERVICES



Source: COMEXStat.

FIGURE 8 - COMPOSITION OF SERVICE IMPORT COUNTRIES TO BRAZIL



Source: COMEXStat.

From a theoretical perspective, this trade pattern poses a constraint on Brazil's long-term growth. Thirlwall's Law (1979) posits that an open economy's growth is constrained by the rate of export expansion relative to the income elasticity of demand for imports. In Brazil's case, the need to import capital and intermediate goods to support domestic production—combined with a reliance on volatile commodity exports—creates structural balance-of-payments (BoP) vulnerabilities. These vulnerabilities are compounded by terms-of-trade cycles, which subject fiscal revenues and external earnings to high variability.

CGE and GTAP-based studies reinforce this structural concern. For instance, Willenbockel (2007) employs a 34-sector CGE model to demonstrate that China's increased demand for Brazilian exports has led to a significant reallocation of resources toward commodity sectors, raising alarms about deindustrialization. Similarly, Paz (2016) analyzes household survey data to reveal that higher import penetration from China correlates with reduced employment in Brazil's manufacturing sector. This finding is consistent with the Dutch Disease framework (Corden & Neary, 1982) and Latin American structuralist critiques (Prebisch, 1950; Cimoli & Porcile, 2014), which argue that over-specialization in raw materials inhibits industrial upgrading and dynamic productivity gains.

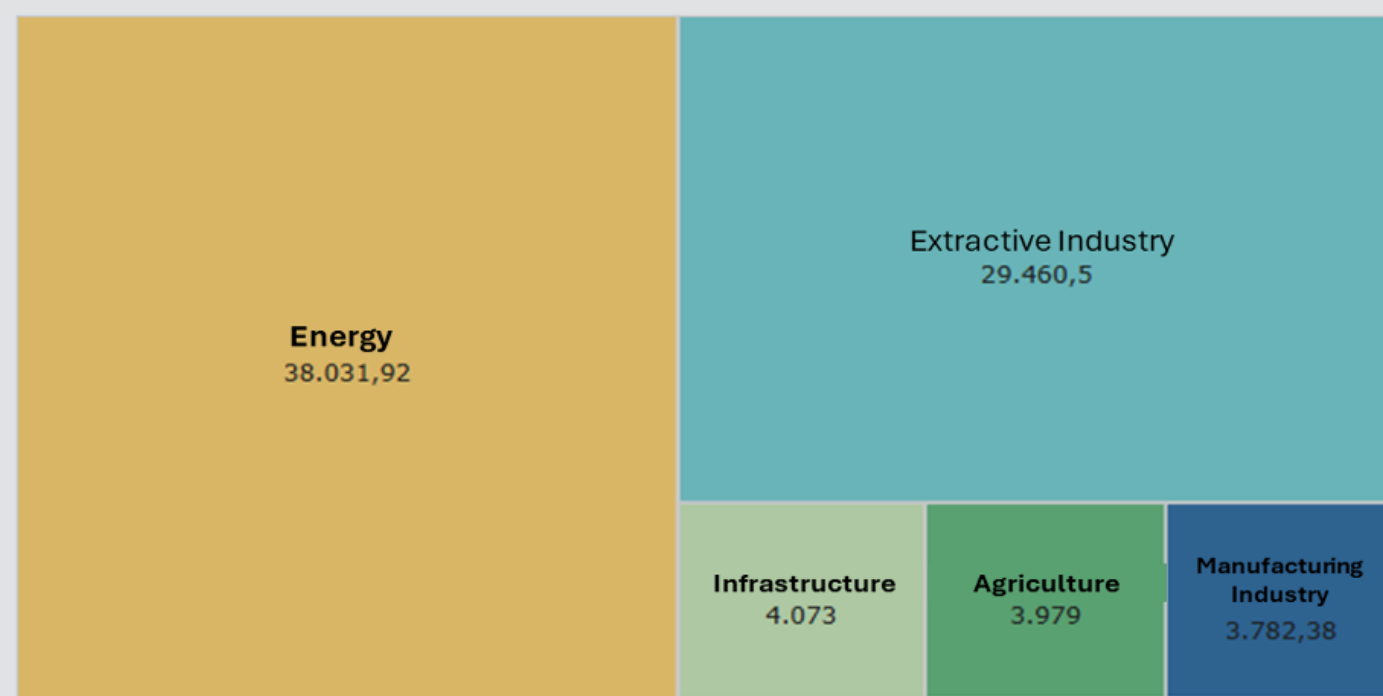
GTAP simulations and structural gravity models also suggest that Brazil's current export mix limits the long-run gains from trade liberalization or regional integration. Hausmann, Hwang, and Rodrik (2007) show that the “export sophistication” of a country's trade basket is positively correlated with future growth. Brazil's performance in this regard remains modest, reflecting insufficient integration into higher-productivity sectors.

Despite the increase in trade volume and China's growing role as Brazil's principal trading partner, the current structure of trade offers limited support for long-term growth. High concentration in low-complexity exports, weak integration into value-added chains, and persistent balance-of-payments vulnerabilities constrain Brazil's ability to leverage trade as a driver of structural transformation. Without a significant shift toward diversification—both in products and trade partners—Brazil risks reinforcing patterns of specialization that limit productivity gains and technological advancement. The capacity to reorient trade policy toward learning-intensive sectors is fundamental in ensuring that deeper commercial ties with China contribute to sustained economic growth rather than dependency.

INVESTMENT PATTERNS AND PRODUCTIVE SPECIALIZATION

Chinese investment in Brazil has surpassed US\$ 80 billion, with more than 80% concentrated in energy (US\$ 38 billion) and extractive industries (US\$ 29.4 billion) (Figure 9 - Accumulated Amount of Investments by Sector (US\$ Million)). These investments are predominantly brownfield operations, involving the acquisition of specific assets—such as electricity grids, oil infrastructure, and mining concessions—by Chinese state-owned enterprises (SOEs) like State Grid Corporation and China National Petroleum Corporation (CNPC). This investment profile is consistent with China's global resource security agenda, reflecting a broader pattern observed across Latin America.

FIGURE 9 - ACCUMULATED AMOUNT OF INVESTMENTS BY SECTOR (US\$ MILLION)



Source: BRICS, PainelChina.

Investment flows have occurred in identifiable waves, peaking in 2010, 2017, and 2019—coinciding with favorable macroeconomic conditions and moments of enhanced diplomatic convergence (Figure 10 - Evolution of Total Chinese Investments in Brazil). While greenfield projects have historically been scarce, recent developments such as BYD’s electric vehicle plant in the state of Bahia suggest a gradual shift toward industrial capacity-building. Even so, brownfield investment still dominates (Figure 11 - Chinese Investment by Sector and Form (Brownfield vs Greenfield, US\$ million), raising concerns about the extent to which Chinese capital contributes to expanding Brazil’s productive frontier or fostering innovation spillovers.

FIGURE 10 - EVOLUTION OF TOTAL CHINESE INVESTMENTS IN BRAZIL

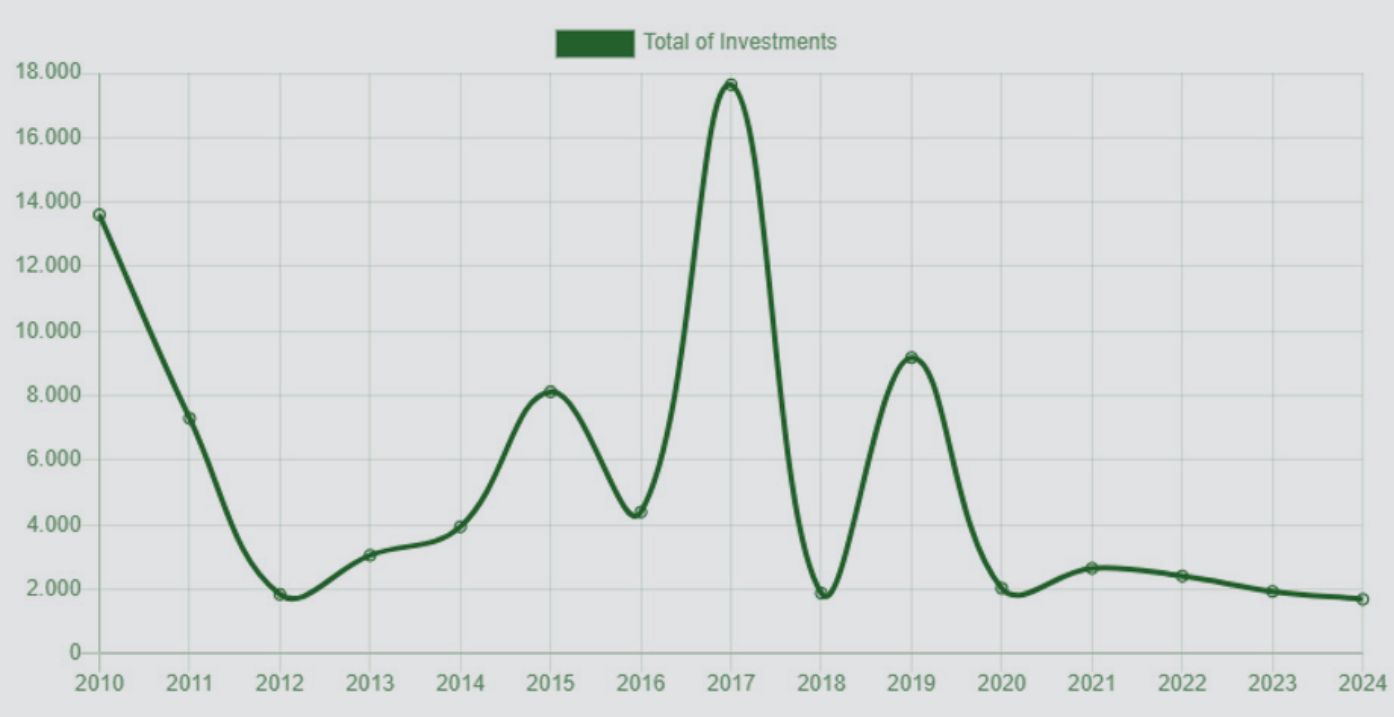
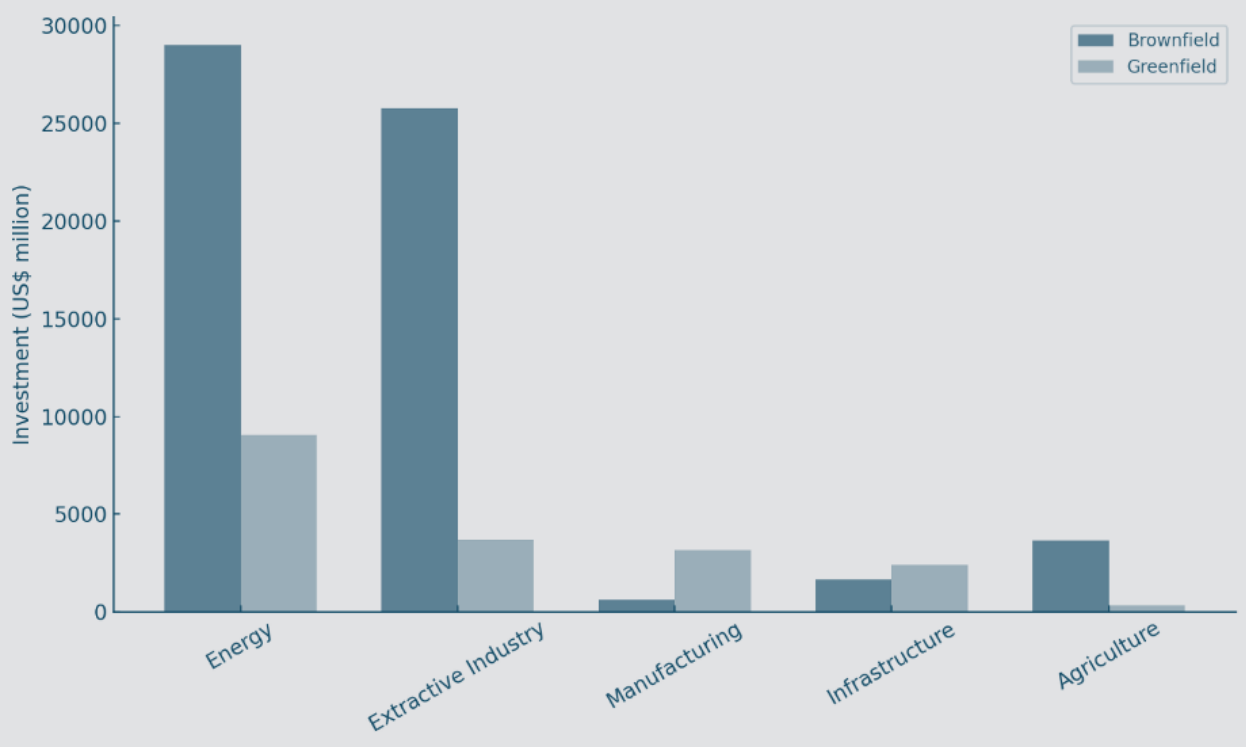


FIGURE 11 - CHINESE INVESTMENT BY SECTOR AND FORM (BROWNFIELD VS GREENFIELD, US\$ MILLION)



Source: BRICS, PaineiChina.

China's infrastructure investments—spanning energy, transportation, and digital sectors—have helped address critical bottlenecks in Brazil's development. Major projects include hydropower plants, port expansions, and 5G networks led by firms such as State Grid and Huawei (Gallagher & Myers, 2021; ECLAC, 2021). These investments are aligned with China's resource security objectives, exemplified by logistical corridors facilitating soybean exports to Asia. The partnership between Brazil's National Development Bank (BNDES) and Chinese entities on projects such as the Ferrogrão railway reflects a pragmatic convergence of interests, albeit reinforcing Brazil's specialization in primary commodities (Abeliansky & Martínez-Zarzoso, 2019).

From a structural growth perspective, the sectoral concentration of investment reinforces Brazil's commodity-based specialization. Computable General Equilibrium (CGE) models calibrated for Brazil–China dynamics (Delgertsetseg, 2019) demonstrate that Chinese FDI, by prioritizing natural resource sectors, induces a reallocation of capital and labor toward extractive activities. This process reflects a classic Dutch Disease trajectory (Corden & Neary, 1982), weakening the competitiveness of domestic manufacturing and constraining industrial diversification. Such findings are echoed in Latin American structuralist critiques (Prebisch, 1950; Cimoli & Porcile, 2014), which underscore how externally driven growth can entrench low-complexity equilibria when not accompanied by active domestic policies.

The financial architecture supporting this engagement compounds the specialization bias. China's policy banks—including the China Development Bank and the Exim Bank—extend concessional or tied finance to projects aligned with Chinese industrial strategies and Belt and Road Initiative (BRI) priorities. Additional mechanisms, such as the China–LAC Cooperation Fund, reinforce the nature of these flows. While these instruments have supported essential infrastructure upgrades in Brazil, they raise concerns about alignment with national development priorities. The IMF (2023) warns of growing risks when concessional loans are guided by geopolitical objectives rather than commercial viability or development effectiveness.

Nonetheless, signs of diversification have emerged. Investment in renewables, transport electrification, and digital connectivity—including Huawei's role in Brazil's 5G deployment—suggests evolving opportunities. Green hydrogen hubs, solar and wind infrastructure, and smart mobility initiatives backed by Chinese capital signal Brazil's potential to anchor Chinese investment in sustainability-oriented growth. However, value-added spillovers remain weak. Research by Hiratuka (2022) and the Peterson Institute (2022)

highlights the absence of contractual requirements for enhancing domestic value added, technology transfer, workforce training, or R&D collaboration. Without such provisions, these ventures risk reinforcing external dependence rather than building domestic capabilities.

From a balance-of-payments and macroprudential perspective, Brazil has thus far maintained limited debt exposure to China, especially when compared to lower-income countries that have relied heavily on financing from Chinese policy banks. However, international financial institutions and credit rating agencies have expressed growing concern over Brazil's increasing engagement with tied financing arrangements—such as export credit facilities, state-to-state lending, and public–private partnerships supported by Chinese concessional instruments. While these mechanisms can accelerate infrastructure delivery and ease short-term financing constraints, they also risk creating contingent liabilities outside the formal budget, potentially compromising fiscal transparency and limiting long-term policy flexibility.

Although Chinese concessional lending represents a relatively small share of Brazil's external liabilities, the opaque nature of certain project-level agreements—particularly those involving equipment procurement from Chinese suppliers or embedded conditionalities—raises questions around procurement competition and institutional oversight. In contrast to loans from traditional multilateral creditors, infrastructure agreements co-financed by institutions such as the China Development Bank or Exim Bank have not consistently adhered to standardized disclosure practices, complicating sovereign risk assessment.

The IMF (2024) and World Bank (2024) underscore that such financing modalities can undermine national debt sustainability when not accompanied by transparent reporting and consistent regulatory safeguards. Furthermore, the absence of robust environmental, social, and governance (ESG) conditionalities in several Chinese-financed projects presents reputational and regulatory risks—particularly when activities intersect with Indigenous lands or environmentally sensitive areas, as noted by CPI (2023) and ISA (2022). These risks are amplified by the limited alignment of many project designs with Brazil's emerging green finance taxonomies, weakening the potential for strategic synergy between foreign investment flows and national sustainability objectives.

These insights point to a growing sophistication and diversification in Chinese financial engagement in Brazil. However, the Brazilian government's capacity to channel these investments toward domestic priorities—especially productivity gains through value-added sectoral development and technological upgrading—will determine the long-term benefits of this partnership.

MACROECONOMIC INTERDEPENDENCE AND BALANCE OF PAYMENTS DYNAMICS

Brazil's balance of payments (BoP) trajectory over the past three decades reflects a dynamic interplay between trade integration, capital flows, and persistent structural constraints. Since the liberalization of the 1990s, the country has alternated between periods of current account deficits and surpluses, shaped by fluctuations in global commodity prices, shifts in exchange rate regimes, and evolving trade partnerships.

In the early 2000s, surging commodity prices and expanding exports to China contributed to robust trade surpluses and a temporarily favorable current account position. This period also saw significant inflows of foreign direct investment (FDI), particularly in infrastructure and extractive industries. These dynamics enabled a build-up of international reserves—reaching over USD 380 billion in the 2010s—providing Brazil with important buffers against external shocks (Banco Central do Brasil, 2023).

However, structural vulnerabilities have persisted. Despite consistent trade surpluses, Brazil's current account has remained in deficit for most of the post-2014 period, largely due to persistent outflows from the income account—driven by profit remittances and interest payments. Portfolio capital has grown more volatile, with inflows and outflows influenced by changing global liquidity conditions, interest rate differentials, and domestic macroeconomic uncertainty.

FDI inflows have remained strong, averaging over USD 60 billion annually since 2010 (Banco Central do Brasil, 2024). Yet, these flows are concentrated in brownfield investments and capital-intensive sectors, with limited contribution to export diversification or productivity spillovers—raising questions about the sustainability and developmental quality of these investments.

Structurally, Brazil's income elasticity of imports continues to exceed that of its exports, consistent with the balance-of-payments-constrained growth hypothesis (Thirlwall, 1979; McCombie & Thirlwall, 2004). This asymmetry

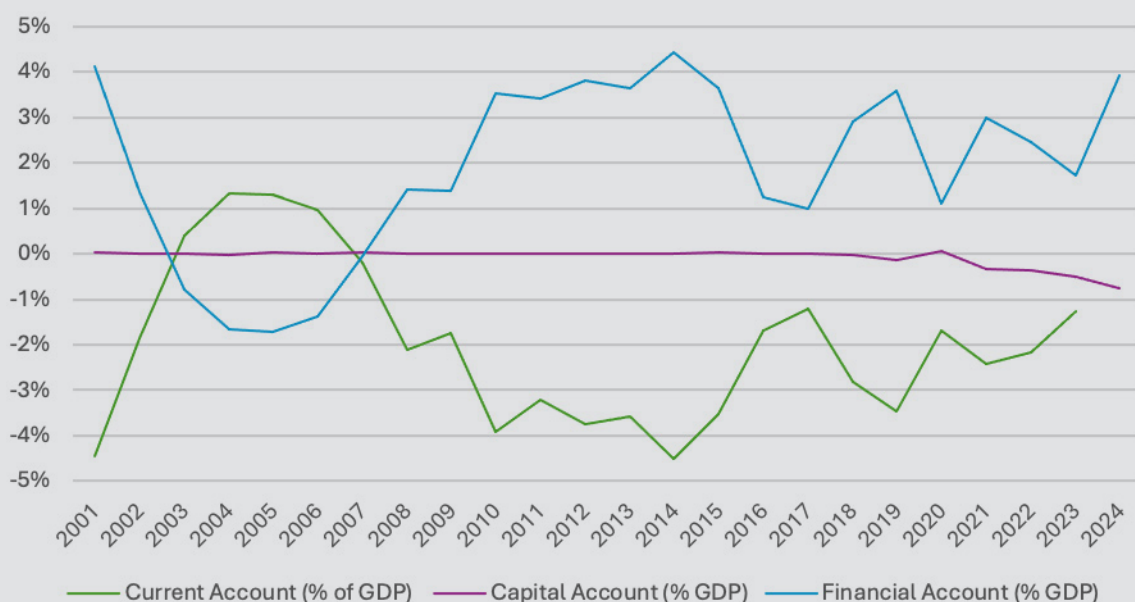
limits Brazil's potential growth rate unless its export base becomes more diversified and technologically complex.

Recent data reinforces these concerns. In 2024, Brazil's current account deficit widened to USD 54.8 billion (2.55% of GDP), more than doubling from 1.23% the previous year (Banco Central do Brasil, 2025). The trade balance surplus shrank by 28.2% to USD 66.2 billion, as falling prices for key exports such as iron ore and soybeans led to a 1.2% decline in export revenues, while imports rose 8.8%, reflecting strong domestic demand for capital and intermediate goods (Banco Central do Brasil, 2025; Reuters, 2025a).

The services balance also deteriorated. The deficit grew by 24.7% to USD 49.7 billion, driven by higher spending on freight, travel, and technical services. This trend underscores the weak performance of Brazil's services sector and its limited integration with China in this domain—issues raised in Section 3.1. The income account deficit remained sizable due to profit repatriation and external interest payments.

On the capital account, FDI provided a critical cushion. Net inflows rose by 13.8% to USD 71.1 billion in 2024 (3.24% of GDP), continuing to concentrate in infrastructure, energy, and agri-business (Banco Central do Brasil, 2025). Persistent current account deficits have been largely financed by financial account surpluses, underscoring Brazil's structural dependence on external capital inflows to sustain its external balance (Figure 12 - Composition of Brazil's Balance of Payments (2001–2024, % of GDP)).

FIGURE 12 - COMPOSITION OF BRAZIL'S
BALANCE OF PAYMENTS (2001–2024, % OF GDP)



Source: author
elaboration,
using data
from BCB.

However, portfolio flows proved highly volatile: net outflows reached USD 4.3 billion, driven by USD 17.1 billion in equity divestments, partly offset by USD 12.8 billion in debt securities inflows. In December alone, net outflows totaled USD 12.6 billion—the second-highest monthly outflow on record—driven by market apprehension over Brazil's fiscal outlook and global interest rate differentials (Reuters, 2025b).

These dynamics underscore Brazil's ongoing vulnerability to external shocks. The reliance on commodity exports for foreign exchange, coupled with a shallow domestic capital market, creates recurring exposure to BoP pressures and exchange rate instability. Theoretical frameworks such as Thirlwall's Law provide a useful lens: when export growth lags behind the income elasticity of import demand, the economy faces external constraints that limit sustained growth.

The structure of Brazil's trade with China amplifies this constraint. As discussed in earlier sections, exports remain concentrated in a few low-complexity sectors, while imports of capital and high-value goods—many sourced from China—are growing. Studies by Moreno-Brid (1998) and Dávila-Fernández and Sordi (2019) show that such trade asymmetries exacerbate BoP vulnerabilities and increase sensitivity to global cycles.

In 2024, these patterns were evident: weakening Chinese demand reduced Brazil's export revenues just as import growth accelerated. This highlights the importance of policy strategies aimed at reducing import dependence through domestic supply chain development and improving export sophistication (Cimoli & Porcile, 2014; FGV, 2023). Additionally, deepening Brazil's domestic capital markets and enhancing governance in infrastructure investment are essential to stabilize capital flows and reduce reliance on volatile external financing.

TECHNOLOGICAL EXCHANGE AND INNOVATION ABSORPTION

While Brazil–China trade has traditionally been dominated by commodities, recent developments indicate a diversification into specific industrial and technological sectors. Notably, BYD's establishment of an electric vehicle facility in the state of Bahia and Huawei's involvement in Brazil's 5G rollout and smart grid infrastructure signify China's growing role in Brazil's digital transformation and energy mix diversification.

Despite these advancements, technology-intensive trade and services remain underrepresented in bilateral exchanges. Brazilian service exports continue to be concentrated in business services and transportation, with China not featuring prominently among key partners.

Emerging industrial partnerships—via joint ventures and pilot projects—highlight potential, yet broader integration into high-value global value chains depends on enhancing domestic innovation ecosystems and improving regulatory frameworks. As Mazzucato (2013, 2021) argues, state capacity is essential not to crowd out private initiative, but to shape markets and provide directionality, particularly through public–private coordination, catalytic finance, and innovation governance.

A 2023 World Bank report highlights digital infrastructure and industrial digitization as key areas for Brazil–China cooperation, particularly in smart mobility, AI-powered logistics, and energy efficiency systems. The report emphasizes that while companies like Huawei and BYD are significant players, a comprehensive industrial transformation requires institutional support to localize components, incentivize technology transfer, and bolster absorptive capacities within Brazilian firms.

In line with this, a policy brief from the Brazilian Center for International Relations (CEBRI, 2022) explores the potential of trilateral industrial partnerships, suggesting that Brazil could leverage its engagement with China to attract complementary investments from European and Asian tech firms. This approach could mitigate technological dependence and promote standard harmonization.

Studies from UNCTAD and the China–Latin America Industrial Cooperation Summit (2023) underscore the importance of regional industrial parks and technology corridors. These initiatives aim to replicate East Asian-style clusters in Brazil's Northeast and Southeast, fostering innovation ecosystems where Chinese firms can integrate with Brazilian startups, universities, and supply chains.

Concerns persist regarding regulatory coordination. Issues related to cybersecurity, data governance, and labor standards often lag behind investment flows, risking misalignment between Brazil's democratic institutions and China's centralized digital governance models (FGV, 2023).

Brazil–China technological cooperation is gaining momentum but remains nascent. For it to serve Brazil's sustained growth, greater attention should

be placed on institutional design, blended finance mechanisms to crowd in private actors, and the creation of rules-based incentives for technology absorption. Rather than relying on rigid mandates, Brazil can strengthen market institutions that reward alignment with specific goals — ensuring that deepening cooperation leads to structural upgrading rather than reinforcing technological dependency.

BRAZIL AS A MIDDLE POWER

Brazil has long displayed characteristics that align with the profile of an emerging middle power. Its international behavior reveals a consistent emphasis on multilateralism, regional leadership, and strategic autonomy vis-à-vis major powers. Throughout the twentieth and twenty-first centuries, Brazil has constructed a foreign policy narrative centered on non-interventionism, peaceful dispute resolution and institutional reform.

In the multilateral sphere, Brazil has actively participated in global governance institutions, ranging from the United Nations and the World Trade Organization to the G20 and the BRICS coalition. Brazil has also contributed to peacekeeping missions, including its leadership role in the United Nations Stabilization Mission in Haiti (MINUSTAH). These engagements illustrate Brazil's preference for shaping global order through cooperation, consensus-building and institutional participation. Brazil's participation in climate negotiations, including its role in the Paris Agreement, has further demonstrated its capacity for norm-setting in global arenas.

Regionally, through initiatives such as MERCOSUR, the Union of South American Nations (UNASUR), the Community of Latin American and Caribbean States (CELAC) and, more recently, the “Brasilia Consensus”, Brazil has attempted to foster regional integration and stability. In the first decade of the 21st century, Brazil’s advocacy for infrastructure development and economic cooperation across South America—through the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA)—demonstrates how regional policy supports its middle power status.

In its relations with superpowers, Brazil has historically pursued a strategy of autonomy and diversification, with few exceptions. During the Cold War, it sought to avoid excessive alignment with either the United States or the Soviet Union. In the post-Cold War era, Brazil has deepened ties with the United States, the European Union, and China, while maintaining a non-aligned posture. Its active participation in South-South cooperation fora,

particularly through the IBSA Dialogue Forum (India, Brazil, South Africa) and BRICS, reflects its desire to reshape global power hierarchies in a more equitable direction. As Detlef Nolte (2010) argues, Brazil has used these platforms not only to extend its international reach but to amplify the voice of the Global South within multilateral institutions.

Brazil's engagement with China provides a compelling example of how it navigates power asymmetries without subordinating its national interests. While Chinese investments in infrastructure, energy, and agriculture have grown substantially, Brazil has approached this partnership through the lens of mutual benefit and strategic diversification. Within BRICS, Brazil has advocated for the creation of new multilateral institutions, such as the New Development Bank (NDB), designed to provide alternatives to Western-dominated financial institutions like the IMF and World Bank. The NDB's emphasis on sustainable development and inclusive financing has complemented Brazil's domestic policy priorities.

Brazil's growing ties with emerging powers has not come at the expense of its relations with traditional Western powers, as recently demonstrated by the conclusion of the Mercosur-European Union Partnership Agreement. Brazilian diplomacy emphasizes what Cervo (2010) calls "autonomy through participation" – greater integration into global institutions can enhance Brazil's capacity to influence international norms while safeguarding its sovereignty. Brazil's consistent call for United Nations Security Council reform, its leadership in climate change negotiations, and its advocacy for a more inclusive international trade regime all reflect this vision.

Brazil's normative stance in international affairs reinforces its identity as a reformist actor. It has championed human rights, sustainable development, and equitable global health governance. It frequently aligns with the Global South in pushing for a development-oriented agenda within the United Nations and has supported initiatives that prioritize social equity and environmental protection in global policymaking.

Brazil's bilateral relationship with China can be understood within the broader context of Brazil's international strategy as a middle power. The diplomatic recognition of the People's Republic of China by Brazil in 1974 marked a significant geopolitical shift during the Cold War, as Brazil sought to diversify its foreign policy beyond traditional Western alignments.

From 1974 to 1990, the bilateral relationship remained limited in scope. Political dialogue was modest and trade volumes were negligible. Nonethe-

less, this phase laid the groundwork for future cooperation by initiating diplomatic ties and facilitating early exchanges in science, technology, and education (Pecequillo 2009). From 1990 to 2001, the bilateral relationship was affected by the post-Cold War liberalization of both economies and a growing interest in South–South cooperation. Brazil and China began coordinating positions in multilateral discussions, while trade and investment gradually expanded. Although institutional arrangements remained weak, this period witnessed a shift from political recognition to pragmatic economic and diplomatic approximation, marking the transition to more strategic forms of engagement.

The most substantive transformation in the bilateral relationship began in 2002. The creation of the High-Level China–Brazil Commission for Coordination and Cooperation (COSBAN) in 2004 institutionalized the bilateral dialogue, establishing a mechanism to coordinate sectoral cooperation across more than twenty subcommittees. This included areas such as science and technology, agriculture, finance, energy, education, and climate policy. In 2012, Brazil and China elevated their ties to the status of a Global Strategic Partnership, reinforcing their commitment to mutual coordination in global governance institutions (CEBRI 2020). These developments coincided with China's rise as Brazil's main trade partner—a position it has held since 2009—and a surge in Chinese investment in Brazil's infrastructure, energy, and agribusiness sectors.

Some observers raise concerns that Brazil's growing reliance on commodity exports to China—particularly soybeans, iron ore, and oil—risks reinforcing a neocolonial pattern of asymmetric exchange. While it is accurate to note that Brazilian exports to China are concentrated in primary goods, it is equally important to acknowledge that this does not constitute a structural dependency in the classical sense theorized by Latin American dependency scholars such as Cardoso and Faletto (1970) or Dos Santos (1978). Brazil retains significant policy space, diplomatic leverage, and the institutional capacity to manage trade asymmetries through formal mechanisms like COSBAN, as well as a diverse net of partners from different regions, including through the so-called “coalitions of variable geometry”.

Brazil's engagement with China closely mirrors its broader strategy of structured diplomatic relations with multiple global and regional actors, such as the United States and China, as well as important partners like the European Union, India, South Africa, Argentina and Russia. These relationships are managed through a range of high-level commissions and strategic dialo-

gues that provide platforms for policy alignment, technical cooperation and conflict avoidance.

Brazil maintains a High Level Commission (CAN) with Russia, which was established in 1997, and a series of bilateral dialogues with the United States, including the Global Partnership Dialogue and the Joint Commission on Science and Technology. With the European Union, Brazil has maintained a Strategic Partnership since 2007, involving regular summits and over thirty sectoral dialogues. Similar mechanisms, albeit less institutionalized, exist with India and South Africa. While these commissions vary in scope and intensity, they all reflect Brazil's diplomatic commitment to institutionalized cooperation as a means of navigating power asymmetries.

The Brazil–China relationship exemplifies the principles of strategic, autonomous, and institutionalized engagement that define Brazil's foreign policy posture as a middle power. It does not reflect a drift toward dependency, but rather a deliberate strategy of constructive interdependence. By embedding this relationship within a broader framework of diversified partnerships and multilateral commitments, Brazil maintains the flexibility and leverage necessary to preserve its autonomy and promote national development goals, even when engaging with major powers like China. The COSBAN mechanism, together with similar commissions with other strategic partners, provides the infrastructure for dialogue, risk management and long-term planning.

SYNTHESIS OF FINDINGS AND IDENTIFICATION OF RISKS

This section consolidates the main empirical and theoretical findings presented in the previous chapters, drawing together insights from Brazil's trade dynamics, investment patterns, technological engagement, and diplomatic positioning vis-à-vis China. While the Brazil–China engagement has deepened over the past two decades—spanning infrastructure, commodity flows, and digital connectivity—this relationship remains asymmetrically structured and sectorally concentrated. The evidence reveals persistent patterns of primary export dependence, limited value-added spillovers, and macro-financial vulnerabilities that pose constraints to Brazil's long-term growth trajectory. At the same time, recent shifts—such as green industrial investments and digital integration—suggest potential for higher value-added forms of engagement.

KEY STRUCTURAL PATTERNS IDENTIFIED

The preceding analysis of trade flows, investment dynamics, and technological exchange between Brazil and China reveals several persistent structural patterns that shape the contours of their bilateral engagement. These patterns are consistent across economic dimensions and carry significant implications for Brazil's long-term growth trajectory.

First, Brazil's export profile remains concentrated in primary commodities, notably soybeans, iron ore, and crude petroleum. Despite the scale of trade expansion—driven in large part by Chinese demand—this pattern reflects a path-dependent specialization that reinforces Brazil's historical role as a provider of low value-added goods. As demonstrated in Section 3.1 and supported by CGE simulations (Delgertsetseg, 2019), the surge in commodity exports to China has induced a reallocation of capital and labor toward extractive sectors at the expense of manufacturing, aligning with classical Dutch Disease dynamics (Corden & Neary, 1982). This shift limits productivity gains and deepens exposure to terms-of-trade cycles.

Second, Brazil's services trade with China remains marginal. Brazil's exports to China are dominated by traditional sectors, while knowledge-intensive services—such as IT, finance, or professional consulting—are virtually absent. This absence indicates a low level of integration into high-complexity global value chains and limits the potential for diversification through services, which increasingly drive growth in advanced and emerging economies alike.

Third, the composition of Chinese foreign direct investment (FDI) in Brazil is heavily skewed toward brownfield acquisitions in energy and extractives. More than 80% of total Chinese investment—estimated at over US\$ 80 billion—is concentrated in these sectors (Section 3.2, Figure 9). This reinforces commodity dependence and does little to expand Brazil's productive frontier. Although there are emerging investments in digital infrastructure and green mobility, such as Huawei's 5G deployment and BYD's EV plant, these remain isolated cases rather than evidence of a structural shift.

Fourth, technological spillovers from Chinese investment are limited. As discussed in Section 3.3, the absence of contractual requirements for R&D collaboration or workforce development does not reinforce the potential for Brazil to absorb and adapt foreign technologies. Empirical studies (Hiratuka, 2022; Peterson Institute, 2022) show that despite the physical presence of

Chinese firms in high-tech sectors, their operations are rarely embedded in local innovation ecosystems, resulting in minimal knowledge transfer.

Lastly, the overall bilateral dynamic remains asymmetrical. While China continues to diversify its sources of raw materials and expand its industrial and technological presence abroad, Brazil faces the challenge of deepening its position in global value chains and avoiding a pattern of specialization limited to low-value-added sectors. The structure of bilateral trade and investments shows that Brazil exports unprocessed inputs and imports high value manufactures and digital technologies. This configuration limits Brazil's capacity for structural transformation unless proactively counterbalanced by targeted domestic policies for trade and innovation.

These patterns reveal a deepening interdependence that, while economically significant, may not inherently promote diversification, complexity, or resilience. They highlight the need for policy coordination to ensure that engagement with China supports Brazil's national development objectives, rather than reproducing historic constraints under new geopolitical conditions.

RISKS IDENTIFICATION

Building on the structural patterns identified in the preceding sections, Brazil's economic engagement with China presents a series of interrelated risks that span trade, investment, macroeconomic management, and technological development. These risks do not imply an inevitability of dependency but highlight key vulnerabilities that could undermine Brazil's long-term development ambitions if left unaddressed.

1. Furthering of Trade Concentration and External Constraints on Growth

Brazil's heavy reliance on a narrow set of commodity exports overall, strengthened by China's presence—principally with soybeans, iron ore, and crude oil—exposes the country to external demand shocks and volatile terms of trade. This over-specialization can crowd out more dynamic sectors, reduce export sophistication, and intensify Brazil's balance-of-payments (BoP) constraint. The combination of high import income elasticity and concentrated exports limits Brazil's sustainable growth rate, particularly in the absence of structural upgrading or diversification.

2. FDI Misalignment with Productive Upgrading

Chinese FDI remains concentrated in brownfield acquisitions and resource-intensive sectors, with minimal backward linkages to domestic supply chains. While infrastructure and energy investments fill critical gaps, they may reinforce Brazil's specialization in low-complexity activities. Without a well-structured regulatory environment to foster technology transfer, enhance domestic value added, or R&D collaboration, these flows risk reproducing enclave-type dynamics typical of earlier resource extraction models. The CGE-based evidence suggests that such sectoral FDI patterns constrain reindustrialization and learning effects—undermining Brazil's capacity to leverage foreign capital for innovation-led growth.

3. Technological Lock-In and Limited Spillovers

The entry of Chinese firms into high-tech sectors like telecommunications (Huawei) and electric mobility (BYD) has not, to date, been accompanied by systemic gains in Brazil's domestic innovation capacity. The absence of enforceable mechanisms for technology transfer, workforce development, or component localization weakens the potential for industrial deepening. This reinforces concerns that Brazil may become locked into lower-value segments of global value chains, importing innovation rather than generating it.

4. Macroeconomic Vulnerabilities and External Exposure

Brazil's growing dependence on commodity exports to finance capital and intermediate goods imports reinforces classic BoP vulnerabilities. Although the country currently maintains a trade surplus with China, the quality and volatility of that surplus—driven by primary goods—create cyclical instability. Furthermore, increasing bilateral settlements in RMB may reduce Brazil's reliance on the U.S. dollar, supporting diversification of external financing channels. However, it also introduces new currency exposure and operational complexities, particularly as the internationalization of the renminbi remains limited and subject to capital controls. While Brazil's macroprudential framework is relatively robust, increased oversight may be necessary to manage potential mismatches and ensure alignment with broader financial stability objectives.

5. Erosion of Autonomy in International Engagements

Asymmetries in the bilateral economic relationship with China—particularly in trade and foreign direct investment (FDI) flows—can undermine Brazil’s bargaining capacity with Beijing in the medium and long-term. If not properly managed, Brazil’s growing reliance on China as a leading trade partner and investor may limit its ability to advance its development agenda. Brazil has positioned its relationship with China as a counterbalance to established partners such as the United States and the European Union. This strategy remains relevant but requires ongoing adjustment in response to shifting global economic conditions. Institutional mechanisms, including COSBAN, play an important role in addressing these asymmetries by offering structured platforms to ensure reciprocity, support informed decision-making, and safeguard Brazil’s normative and reform-oriented engagement in international affairs.

These risks do not imply a predetermined trajectory of dependency.

However, they underscore the importance of aligning economic engagement for financial transparency, technological upgrading, and macroeconomic management. Failure to address these vulnerabilities may entrench a growth model marked by external fragility, technological subordination, and limited structural transformation.

POLICY IMPLICATIONS AND RECOMMENDATIONS

The synthesis of the evidence on trade, investment, and technological dynamics between Brazil and China reveals a deepening economic relationship that, while offering opportunities, also reproduces vulnerabilities associated with externally driven growth based on low-complexity exports. To transform this bilateral engagement into a foundation for long-term development, Brazil should adopt a forward-looking policy stance anchored in structural transformation, institutional coherence, and international diversification.

I. Promote Diversification in Trade and Investment

Brazil should shift from a commodity-dependent export profile toward a more complex and resilient trade structure. This requires an assertive policy stance to strengthen sectors with higher productivity potential—such as agro-industrial chains, specialized manufacturing, and technology-intensive services—and to better integrate these into global value chains. Trade policy should prioritize products with higher income elasticity and technological spillovers, leveraging targeted export promotion, regulatory streamlining, and trade facilitation for value-added sectors.

Green and brownfield investments should better align foreign capital with long-term domestic priorities (such as growth and inequality reduction). Rather than imposing rigid requirements, regulatory frameworks can be enhanced to encourage voluntary domestic value addition, supplier development, and workforce training. This can be achieved through institutional mechanisms such as streamlined regulatory approvals, reviewed eligibility criteria for fiscal incentives linked to innovation and technology transfer, and structured public–private financing platforms. Blended finance instruments—such as guarantees, first-loss provisions, or concessional tranches—can be deployed to catalyze private investment in sectors with high spillover potential. Public financial institutions can help reinforce these efforts by acting as anchor investors, thereby strengthening the investment environment without increasing fiscal burdens. Such measures aim to create clear, predictable rules that reward alignment with national priorities while preserving investor confidence and market efficiency.

Modernizing Brazil's trade and investment agreements, particularly with large partners, should also include instruments for intellectual property sharing, dispute prevention, and value-chain integration, balancing market access with domestic value capture. A granular industrial policy—focused not on sector-picking but on addressing coordination failures and scaling innovation ecosystems— is critical to sustain these transitions.

II. Enhance Governance of External Financing and FDI

Brazil's growing reliance on tied loans, concessional instruments, and state-to-state financing arrangements calls for the institutional upgrading of its external financing governance. Rather than blanket restrictions, the emphasis should be on enhancing transparency, ensuring contract quality, and reinforcing oversight mechanisms. Key steps include:

- Standardizing debt transparency through full integration of contingent liabilities, subnational guarantees, and off-budget operations into fiscal risk assessments, consistent with global best practices in debt management.
- Embedding competitive safeguards in procurement for foreign-financed infrastructure projects, ensuring a level playing field for domestic firms and preventing cost inflation or rent extraction through opaque contracting.
- Institutionalizing parliamentary and audit oversight for complex FDI arrangements—especially in sectors involving natural monopolies—ensuring ex-ante scrutiny and clear benchmarks for performance.
- Limiting fiscal risks from export credit and blended finance instruments by applying economic additionality criteria and requiring co-financing from credible domestic or multilateral sources.

III. Consolidate and upgrade bilateral institutional frameworks

Brazil's engagement with China must remain embedded in a broader diplomatic architecture that reinforces its strategic autonomy and mitigates the risks of power asymmetries. To that end, Brazil should:

- Consolidate and upgrade bilateral institutional frameworks as a way to address emerging asymmetries, ensure reciprocity in sectoral co-operation, and create binding commitments in sensitive areas such as technology, environmental safeguards, and industrial policy. These platforms are critical to shaping a rules-based and development-oriented bilateral agenda.
- Actively deepen political and economic ties with other middle powers and regional blocs to avoid excessive exposure to a single partner.
- Continue to utilize its structured partnership with China as a platform to advocate for the reform of global governance institutions.

CONCLUSION

Brazil's economic engagement with China has deepened over the past two decades, contributing to the country's trade structure, investment patterns, and international positioning. This partnership has yielded tangible benefits—boosting exports, attracting capital, and expanding infrastructure—but it has also reinforced structural vulnerabilities historically associated with externally driven growth based on low-complexity exports.

The evidence examined across trade, investment, and technological channels reveals that the relationship remains skewed toward commodity specialization and brownfield acquisitions, with limited integration into high-productivity sectors or advanced supply chains. While new areas of cooperation are emerging—particularly in digital infrastructure and transport electrification—the overall profile of Brazil–China economic ties still reflect asymmetrical complementarities rather than dynamic interdependence.

For Brazil to harness this relationship as a driver of structural transformation rather than path dependence, public policy should play an active role in re-directing trade and investment toward wider diversification and integration. This will require coherent strategies across industrial, trade, and innovation policy; stronger governance over external financing; and a continued diplomatic commitment to economic diversification and strategic autonomy.

TABLE 2 - POLICY AREAS AND RECOMMENDATIONS

	Analytical Dimensions	Key Findings	Implications	Risks	Recommendations
Sectoral	Trade Structure and Growth Constraints	- High concentration of Brazilian exports in primary commodities. - Weak participation in high-value-added sectors	- Reinforces dependency patterns. - Limits integration into high-productivity value chains.	Furthering of Trade Concentration and Exposure to external demand shocks.	I. Promote Diversification in Trade and Investment
	Investment Patterns and Productive Specialization	- Chinese FDI is concentrated in brownfield acquisitions in energy and extractive sectors. - Greenfield and tech-oriented investments remain marginal.	- Consolidates commodity-based specialization. - Fails to support domestic industrial upgrading or productivity growth.	FDI Misalignment with Productive Upgrading	
	Technological Exchange and Innovation Absorption	- Initial steps in EVs and digital infrastructure show potential. - Limited systemic local integration, R&D, and tech transfer.	- Low technological absorption. - Limited industrial upgrading.	Technological Lock-In and Limited Spillovers	
Macro-economic	Macroeconomic Interdependence and BoP Dynamics	- Persistent current account deficits despite trade surpluses. - Export growth insufficient to offset income elasticity of imports.	- BoP constraints can curb growth. - Vulnerability to external shocks.	BoP pressures; currency instability; rising import dependency.	II. Enhance Governance of External Financing and FDI
Institutional	Political and Diplomatic Relations	- Institutionalized frameworks structure bilateral relations. - Engagement follows a strategy of diversification.	Potential to manage asymmetries and avoid dependency via institutionalized bilateral channels.	Institutional underutilization; geopolitical overexposure	III. Consolidate and upgrade bilateral institutional frameworks

Source: author elaboration.

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