COMMENTARY

Lula's Return

Overview and Opportunities for Technological and Industrial Partnership

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Abstract

Luiz Inácio "Lula" da Silva's 2023 re-election as Brazil's President, despite a tumultuous journey from trade unionism to political leadership, underscores his enduring influence. This article explores Lula's impact on Brazil's political landscape, particularly his polarization with conservative figure Jair Bolsonaro. The divergent international and science and technology policies of their terms are examined, illuminating Lula's South–South focus and Bolsonaro's alignment with far-right leaders. Amid economic challenges and the pandemic aftermath, Lula's return signals a potential shift toward innovative techno-industrial partnerships for Brazil's recovery. The article highlights the prospects of collaboration with major trading partners, China and the United States, as avenues for revitalizing Brazil's industrial sector. Lula's role in redefining Brazil's international outlook and positioning it for technological growth in his third term emerges as a critical theme.

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Luiz Inácio "Lula" da Silva's re-election as president in 2023 completes an extraordinary trajectory, perhaps even exceeding the imagination of Brazilian soap opera writers. Rooted in 1980s trade unionism, Lula poised himself to become a central figure in the Partido dos Trabalhadores (PT), Brazil's largest left-wing party. He consistently occupied the national political stage, securing his first presidential term in 2002, followed by re-election in 2006. His high approval ratings empowered him to nominate the non-candidate Dilma Rousseff as his presidential successor.

Emerging as Lula's adversary was Jair Bolsonaro, a former military officer whose initial support base encompassed military and police personnel seeking improved wages. Bolsonaro effectively unified diverse conservative and neoliberal currents within Brazilian society, countering the progressive and distributive policies implemented by PT in previous decades.

In 2023, Lula resumed leadership in a nation marked by palpable tension. His victory, secured with a narrow 50.9 percent of Brazilian votes, contrasted with Bolsonaro's delayed acceptance of the result. Bolsonaro's response included fleeing to Florida upon the end of his term, fearing arrest due to allegations of corruption, mismanagement, and antidemocratic actions. Notably, despite this, Bolsonaro

incited his supporters to storm the Brazilian Powers' headquarters on January 8, evoking tragic parallels to the 6 January 2021 US Capitol riot.

In the wake of low economic growth, pandemic devastation, and the disastrous public management of Bolsonaro's tenure, Brazil faces a compelling need for rebuilding. This article broadly addresses the industrial and technological aspects of this reconstruction.

Brazilian Industrial and Science and Technology Landscape

Like other countries in its region, Brazil's industrialization traces its roots to import substitution movements in the first half of the twentieth century. State-led initiatives from the 1940s to the 1960s facilitated the establishment of state-owned strategic entities, including PETROBRÁS (oil) and Companhia Siderúrgica Nacional (CSN) (steel). Efforts to allure foreign investments, particularly in the automotive sector, reshaped Brazil's economy from its traditional agricultural focus into a more intricate structure.

Brazil's science and technology (S&T) infrastructure is also a product of government endeavors. During the 1960s, a National System of Science and Technology was developed to foster domestic nuclear advancements. Through the 1970s and beyond, despite enduring a military dictatorship, the significance of S&T for economic growth gained recognition. This led to the establishment of additional state-owned enterprises, such as EMBRAER (aeronautics) and EMBRAPA (agricultural technology development and dissemination).

However, Brazil entered the second decade of the twenty-first century in a precarious state. Like many Western nations, it grapples with deindustrialization.[1] In 2022, the nation ranked twelfth in global economies by gross domestic product (GDP). Top exports in 2020 included soybeans (USD 28.6B), iron (USD 26.5B), crude oil (USD 19.8B), unrefined sugar (USD 8.95B), and frozen bovine meat (USD 6.69B). Principal imports encompassed refined petroleum (USD 7.91B), motor vehicle parts and accessories (USD 5.42B), pesticides (USD 3.73B), integrated circuits (USD 3.66B), and packaged medicaments (USD 3.2B). Notably, China and the United States stand as its primary trading partners, highlighting a persistent dependence on agriculture and extractive industries. The specter of deindustrialization exacerbates this reality.

Brazil's economic activity predominantly concentrates in sectors with lower technological intensity, resulting in scarce large-scale business investments in re-

[1] Dani Rodrik, "The Perils of Premature Deindustrialization," *Project Syndicate*, 11 October 2013, https://www.project-syndicate.org/.

search and development (R&D). A mere 33.6 percent of Brazilian companies generated innovations between 2015 and 2017.[2] While pockets of technological dynamism exist in fields like agriculture, energy, healthcare (given Brazil's universal public healthcare system), and financial services, they remain exceptions. Public universities like Universidade de São Paulo and Unicamp, alongside federal government bodies, spearhead the bulk of scientific and technological research. Research institutions, primarily associated with universities or the government, are few. The Instituto Tecnológico de Aeronáutica (ITA), a focal point for the Brazilian aeronautics industry, epitomizes this pattern.[3]

Stark Differences in International and Science-and-Technology Policies

Lula's and Bolsonaro's terms exhibited stark divergence in international and S&T policies. During Lula's presidency (2003–2011), he astutely recognized the potential of expanding South–South connections to amplify Brazilian influence. This encompassed enlarging the South Common Market (MERCOSUR), fostering relationships with African nations, and forging ties with Russia, China, and India. Acknowledging international organizations and diplomatic negotiations as tools for leadership in a multipolar world, Lula aimed to counter the dominance of wealthier countries.

Lula's first term saw the introduction of PITCE (Industrial, Technological, and Foreign Trade Policy), which prioritized industries like semiconductors, software, capital goods, and pharmaceuticals, along with technologies such as biotechnology, nanotechnology, and alternative energy. Despite some government focus loss during the 2008 crisis, a successful tradition of public coordination was reinstated from the outset of his rule. Concurrently, higher education witnessed expansion, marked by the creation of federal universities and scholarship/funding programs like Prouni and FIES. These measures were crucial as Brazil depended on educational institutions for research and grappled with a dearth of qualified workforce compared to other developing nations.

In contrast, Bolsonaro's administration (2019-2022) veered in the opposite direction. His personal interests overshadowed the guidance of the esteemed national diplomatic corps, aligning the country with the Trump Administration and adopting the tactics of far-right leaders like Viktor Orbán. Multilateral body criticism

[2] Agência Ibge Notícias, "Pintec 2017: caem a taxa de inovação, os investimentos em atividades inovativas e os incentivos do governo." 16 April 2020, https://agenciadenoticias.ibge.gov.br/.

[3] Mariana Mazzucato and Caetano Penna, *The Brazilian innovation system: a mission-oriented policy proposal* (Brasília: Centro de Gestão e Estudos Estratégicos, 2016), https://www.cgee.org.br/.

and disregard for issues of international importance, such as environmental concerns, became common. Strained relations with key partners like China contradicted well-established foreign policy norms.

Discrepancies extended to industrial and S&T policies as well. Bolsonaro's approach eschewed government coordination, advocating instead for free-market practices to spur industrial and technological progress. This perspective led to lackluster industrial performance and hesitance in the face of critical needs, such as ramping up industrial capacity to produce vaccines during the height of the COVID-19 pandemic. Notably, Bolsonaro's tenure also witnessed tension with the scientific community, marked by substantial budget cuts to education and research. Moreover, his questioning of vaccine effectiveness and scientific knowledge further strained relations.

Lula's Third Term and Techno-industrial Partnerships as Opportunities

Lula resumes governance over a country veering in an opposite trajectory from when he departed. These disparities extend beyond mere political orientation, encompassing substantial gaps in management capacity that plague the daily administration of public affairs. The new government's motto, "Union and Reconstruction," aptly reflects the challenges ahead.

Fortuitously, signs of change have emerged. Brazil has repositioned itself as a global advocate for environmental issues and the battle against income inequality. The reception has been positive. The Amazonia Fund, a European initiative truncated during Bolsonaro's rule, has been reinstated, with the United States contemplating participation.

Brazil is poised to embrace pragmatic diplomacy and avoid automatic alignment in the face of contentious issues. A heightened dialogue with the international community welcomes innovative solutions for the nation's problems. This dynamic environment offers prospects for fresh international collaborations, particularly techno-industrial partnerships, with reindustrialization as a central priority for the new term. Notably, potential alliances with China and the United States, Brazil's primary trading partners, warrant consideration.

Sino-Brazilian diplomatic ties, restored in 1974 following Brazil's support for Taiwan post-World War II, have yielded valuable outcomes like the China-Brazil Earth-Resources Satellite (CBERS). CBERS satellites, including the upcoming CBERS-4 stage, provide vital images for environmental preservation and resource

management. Beyond operational value, the data generated supports diverse Brazilian technologies impacting agriculture and urban management.[4]

Massive Chinese investments have spurred innovations, from modernizing national electrical infrastructure to revitalizing a waning auto industry. Chinese technologies frequently emerge as options for Brazilian companies, exemplified by the 5G auction. Despite Huawei-related controversies and pressure from the Trump Administration, Brazil restricted participation to existing telephony operators. China's role as a major supplier to local operators remained intact, showcasing its commitment to sharing industrial and technological advances with Brazil.

The United States of America has older historical ties with Brazil and forged no less significant techno-industrial partnerships with it. The U.S. support for the creation of the CSN is a famous example. A key component of Brazilian industrialization during the twentieth century, CSN was the result of diplomatic arrangements that sealed Brazil's participation in the Second World War. It was, therefore, with a partnership of this kind that Brazil paved its way to become less dependent on imports.

Facing shared deindustrialization challenges, Brazil and the United States have potential for cooperation. The CHIPS and Science Act, an ambitious U.S. initiative to enhance semiconductor production, aligns with President Joe Biden's strategic goal of reducing reliance on Asian imports. This endeavor could become a pivotal American industrial policy.

Brazil's efforts to counter dependency began earlier, as seen in the establishment of Centro Nacional de Tecnologia Eletrônica Avançada (CEITEC) in 2008. Despite significant public investment, CEITEC, a rare integrated circuit producer owned by the Brazilian Federal Government, faced near-closure under Bolsonaro due to perceived lack of profitability amid global trends of bolstering local production.

Lula's government has fortunately committed to maintaining CEITEC's operations and channeling new investment.[5] As Brazil and the U.S. endeavor to foster this industry and reduce reliance on foreign suppliers, potential synergies could lead to novel supply chains, collaborative R&D endeavors, and technology transfer projects. These measures would undoubtedly find a warm reception in Brazil. ✪

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[4] "Sobre o CBERS: Satélite Sino-Brasileiro de Recursos Terrestres," *CBERS: Instituto Nacional de Pesquisas Espacians*, 5 February 2018, http://www.cbers.inpe.br/.

[5] Ministry of Science, Technology and Innovation, Government of Brazil, "Presidência da República cria grupo de trabalho para discutir a nova Ceitec," 8 February 2023, https://www.gov.br/.

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