

# The crisis of science in Brazil: austerity, “culture war” and innovationism

*A crise da ciência no Brasil: austeridade, “guerra cultural” e inovacionismo*  
*La crisis de la ciencia en Brasil: austeridad, “guerra cultural” e innovacionismo*

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**Abstract:** The article discusses the production of knowledge at Brazilian universities. It is based on an exploratory investigation, which includes bibliographic research, analysis of documents on different issues impinging on the topic, and the consultation of existing aggregate data. It concludes by exposing the crisis of science in Brazilian universities based on an analysis of three factors: the impacts of fiscal austerity; the advance of neoconservatism and neofascism in Brazilian society materialized in the “culture war” against universities; and the reduction of science to the production of innovations for profit.

**Keywords:** Knowledge production; Financing; Culture war; Innovation.

**Resumo:** O artigo discute a produção de conhecimento na universidade brasileira. Ancora-se numa investigação de caráter exploratório, que contemplou pesquisa bibliográfica, análise documental de problemas convergentes ao tema e consulta de dados agregados já existentes. Conclui, expondo a crise da ciência nas universidades brasileiras, a partir da análise de três eixos: os impactos da austeridade fiscal; o avanço do neoconservadorismo e do neofascismo na sociedade brasileira, materializada na “guerra cultural” às universidades e a redução da ciência a inovações rentáveis.

**Palavras-chave:** Produção do conhecimento; Financiamento; Guerra cultural; Inovação.

**Resumen:** *El artículo discute la producción de conocimiento en la universidad brasileña. Está anclado en una investigación exploratoria, que incluyó investigación bibliográfica, análisis documental de problemas que convergen en el tema y consulta de datos agregados existentes. Concluye exponiendo la crisis de la ciencia en las universidades brasileñas, a partir del análisis de tres ejes: los impactos de la austeridad fiscal; el avance del neoconservadurismo y del neofascismo en la sociedad brasileña, materializado en la “guerra cultural” contra las universidades y la reducción de la ciencia a innovaciones rentables.*

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**Palabras clave:** *Producción de conocimiento; Financiación; Guerra cultural; Innovación.*

## INTRODUCTION

As has been discussed at length in academic forums, Brazil’s science, technology, innovation, and postgraduate systems are under intense attack and in a state of crisis. All the institutions that make up these systems have had their structures gradually undermined in recent years, with this process being transformed into their actual dismantling under the present government.

According to the union for federal civil servants working in science and technology management, planning, and infrastructure (SINDGDT, 2020), these attacks may be understood from three perspectives: 1) budgetary and financial restrictions, 2) institutional dismantling, and 3) reducing the number and qualifications of the workforce.

As we will detail below, the sector has witnessed a marked decline in the funds effectively allocated for the production of knowledge, science, and technology and the almost routine freezing of funds. Furthermore, in what the trade union SINDGDT calls the “institutional front”, there has been a growing

hollowing out of the missions and tasks of the entities and bodies that compose the National System of Science, Technology, and Innovation [and the National Postgraduate System] [...]through the unwarranted substitution of their leaders, the censuring or discrediting of their researchers and their work, unilateral changes to their rules and regulation or bylaws, or even the obsolescence and dilapidation of their infrastructure. (SINDGDT, 2020, p. 4).

Predatory practices targeting workers in this field are increasingly commonplace, involving salary freezes (exacerbated in recent months by the rapid growth of inflation), the “non-renewal and expansion of the workforce through public competitions to fill positions left by the rising tide of retirements and other vacancies” (SINDGDT, 2020, p. 4), and also to meet the increasing workload<sup>1</sup>.

State initiatives concerning the structuring and funding of knowledge production hubs are closely linked to economic output – “subordinating themselves to the power play of interests that govern the production and distribution of merchandise on a national and global scale” (REIS; MACÁRIO, 2020, p. 22) – and are expressed in the current economic policy.

Since the 1970s the world has witnessed a new restructuring of global production (with new technological and organizational facets) and the financialization of big capital – a phenomenon that has pervaded every sphere of social life. Neoliberalism has taken root in the hegemonic economic, political, and ideological order at the heart of capitalism spread to practically every corner of the planet, and spawned appalling consequences for most of the world’s population.

The kernel of Brazil’s current economic policy can be traced back to the Fernando Collor de Mello government (1990-1992), gaining shape under President Fernando Henrique Cardoso (1995-2002). Since then, economic policy has been translated into a series of measures to meet the interests of rentier capital, especially “by making an absolute priority of allocating federal monies to the payment of public debt”. (REIS; MACÁRIO, 2020, p. 22). As such, the Brazilian state has acted directly in the appreciation of rentier capital; indeed, it could be said that this pattern has been maintained since the 1990s, sometimes “with greater state involvement in business” and other times with greater “effort to promote compensatory policies,” as was the case during the years when the Workers’ Party was in power (2002-2016) (REIS; MACÁRIO, 2020, p. 29).

The state has been reformed to account for this “power play.” Indeed, as suggested by Silva Júnior, Catani, and Fargoni (2021), it is fair to say that

the reform of the state apparatus [...], stemming from the predominance of finance, has been and still is the main policy behind changes in every public sphere of Brazil. Policies broken down into bills, constitutional amendments, executive orders, and other formats are part of a rationale of state reform that has been happening since the 1990s.

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<sup>1</sup> All of which may be exacerbated if the proposed constitutional amendment no.32, misleadingly called “administrative reform”, currently being debated in Congress, gets through. In this case, the “administrative reform” will mean that a number of health, education, welfare, and other public services will be offered by social organizations or individuals with temporary contracts and/or precarious working conditions.

It is fair to suppose that in a pattern of accumulation that particularly benefits rentier capital, the room for maneuver for promoting social policies – including policies for education and science and technology – is tight, “because the tax system itself and the public debt are structured in such a way as to protect wealth, property, and the high yields of financial and fictitious capital”. (REIS; MACÁRIO, 2020, p. 26).

Nonetheless, in this text, we argue that alongside the economic policy issue, there are at least two other important avenues for analyzing what is affecting the production of knowledge in the country. The first resides in the emergence of a new right with strong neofascist traits whose anti-science, denialist posture has had a huge impact on institutions and researchers. The other is the production of science itself, specifically the shift in the conception of what scientific knowledge and production are toward a market orientation as part of what has been called an innovationist movement.

These are the points to be discussed in this article, which uses an exploratory approach that involves a review of the literature, analysis of documents on different issues impinging on the topic, consultation of aggregate data in the public realm, and news stories in the counter-hegemonic press.

## IMPACTS OF FISCAL AUSTERITY ON THE PRODUCTION OF SCIENCE IN BRAZIL

In Brazil, knowledge is produced essentially at higher education establishments. These form a highly complex, diversified, differentiated system that involves both public and private institutions.

The private network is the bigger one. In 2019, when the last higher education census (INEP, 2020) was published, around 76% of all in-person and remote higher education enrollments were at private institutions. With a scattering of exceptions, these consist of institutions that operate under the logic of profit to be gained from the sale of educational products and services and the financial and speculative logic of the “qualifications market”. This is because since 2007, some of these companies – starting with the Anhanguera, Pitágoras, and Estácio de Sá groups – started to offer securities (shares) on the São Paulo stock market (Bovespa)<sup>2</sup>, in which case “the only thing that matters, irrespective of the individual leanings of each investor, is the degree of profitability that security offers, [because] this is

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2 Since then, this process has expanded, involving not just Bovespa, but also the New York stock exchange (Nasdaq), where some of these Brazilian companies have been trading since 2017. Essentially, there are now five education service companies listed on Bovespa (Kroton, Yduqs, Ser, Anima and Bahema) and three on Nasdaq (Arco, Afya and Vasta).

the logic that rules the financial sphere”. (INSTITUTO TRICONTINENTAL DE PESQUISA SOCIAL, 2020, p. 4). As such, at private higher education establishments – which largely set little store on the quality of their education offer, professional development for their employees, work relations ethics, let alone the production of knowledge – education is treated as merchandise and workers as “costs,” while the management model adopted to guarantee “success” is managerialism, which ends up orienting every sphere of their activities in line with a rationale tethered to the economic ethos. (MANCEBO, 2018).

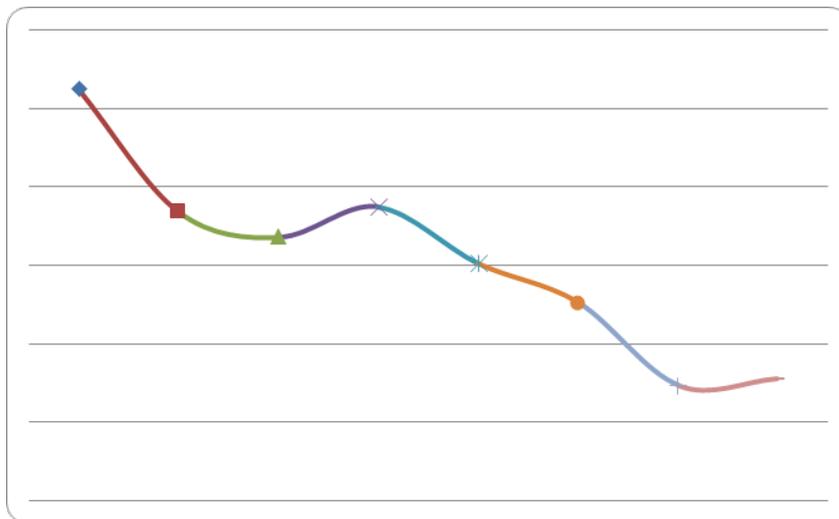
As for the public higher education establishments, these are basically where science and technology knowledge is produced. They have been seriously neglected by successive governments who, jealously guarding their neoliberal severe dogmas, have entrenched a policy of education and S&T funding cuts (or freezes), thereby simultaneously impacting education, research, and outreach activities.

An analysis of the data presented by Amaral (2021) confirms this statement unequivocally when it comes to federal universities. His analysis of federal spending indicates that the first major budget cut came between 2014 and 2016 under the Dilma Rousseff administration. It came in the form of the freezing of their funds from the annual federal budget, affecting the amount of money disbursed for both education (Figure 1) and S&T (Figure 2). As of 2017 (first year of constitutional amendment 95/2016<sup>3</sup>), under the Michel Temer administration, this state of affairs was exacerbated, mainly by cuts in the budget itself – a situation that has continued to the present day.

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3 Constitutional amendment 95, passed on December 15, 2016, added eight articles to the temporary constitutional provisions. Through these, operating conditions and rules were set forth for a “new” fiscal regime, freezing for 20 years the primary budgetary expenses of the Union (payroll, water, electricity, internet, security, cleaning, hiring of third parties, acquisition of supplies, equipment, fixtures and fittings, etc.). According to this amendment, every year the values should only be adjusted by the official inflation rate for the period in question. One of the main consequences of constitutional amendment 95 for the field of education is that it makes it impossible for several targets set forth in the 2014-2024 national education plan to be reached, which include the provision that by 2024 10% of Brazil’s gross domestic product should be channeled into education.

**Figure 1 - Federal funding disbursed for education between 2014 and 2021.**



Source: Amaral, 2021.

\* Values in R\$, inflation-adjusted to January 2021 by the National Consumer Price Index.

Commenting on federal funding for education (Figure 1), Amaral (2021) notes a

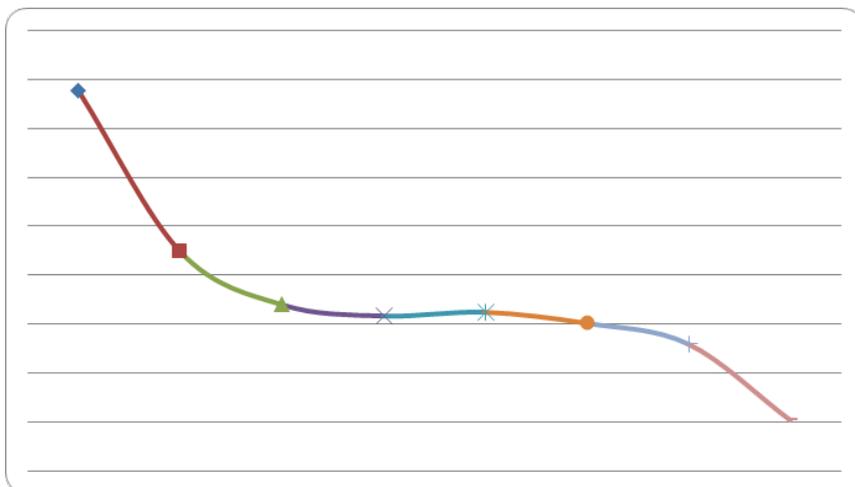
[...] consistent decline over the analyzed period, falling from R\$ 130 billion to less than R\$ 100 billion, with a variation between 2014 and 2020 – the highest and lowest values in the series – of minus R\$ 37.7 billion. This translates to a 28.5% reduction in education funding.

This reduction impacted the whole federal higher education system – universities, federal institutes, and technological education centers – with drastic reductions in funds for basic expenses such as utility bills (water, electricity, internet), security, cleaning, and outsourced services, on many occasions compromising the actual everyday running of these institutions and their activities, including S&T production and research<sup>4</sup>.

The investment cuts were also outrageous. For example, federal universities had their funding for investments slashed by 96.4% between 2014 and 2021, which, if not reversed in time, will result in the dilapidation of many of their research laboratories and other property, plant, and equipment.

<sup>4</sup> It is devastating to observe that in response to these cuts, many institutions “had to lay off outsourced workers en masse [...] and freeze or even reduce their student welfare actions and policies, even during the pandemic” (LEHER, 2021).

**Figure 2 - Federal funding for science and technology from 2014 to 2021.**



Source: Amaral, 2021.

\* Values in R\$, inflation-adjusted to January 2021 by the National Consumer Price Index.

We can see from Figure 2 that “science and technology” – which covers funding for the agency *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES), the agency *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), and the national fund for S&T development, *Fundo Nacional de Desenvolvimento Científico e Tecnológico* (FNDCT) – received around R\$ 12.0 billion in 2014, while it is expected that the value to be invested in 2021 will be just R\$ 5.0 billion, representing a 57.1% reduction in funding<sup>5</sup>.

These figures illustrate how the cutbacks affect not just federal higher education establishments – the biggest network of public institutions – but the entirety of the national systems of science, technology, innovation, and postgraduate studies. This means that essentially all new investments have been halted, the equipment has deteriorated, and supplies needed for the adequate running of the institutions – especially for S&T – have not been acquired.

Meanwhile, in a study investigating the period from 2003 to 2019, Reis and Macário (2020) found that

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5 In this same article, Amaral (2021) presents the financial resources disbursed for other functions. It is striking to note how the profile of federal spending on debt refinancing, the servicing of public debt, and national defense also changes completely from 2014 to 2021, but in the opposite direction to the profile of spending on education and S&T.

[...] of the total expenses disbursed by the Union, 18.88% on average was for the amortization and payment of interest and charges on the public debt. In this same period, science and technology (S&T) and federal universities received 0.34% and 1.62%, respectively, of the total budget. (REIS; MACÁRIO, 2020, p. 20).

The authors' analysis of the resources channeled into servicing and refinancing the public debt proves unequivocally that “the country’s economic policy is [subordinated] to the imperative of fiscal adjustment to generate large enough surpluses to assure the servicing (interest, charges, and amortization) of the public debt” (REIS; MACÁRIO, 2020, p. 28). In other words, the siphoning off of a large portion of public monies to service debt results in a structural reduction in the resources available to fund social policies, federal universities, and science and technology.

## NEOCONSERVATISM, NEOFASCISM, AND THE “CULTURE WAR” AT BRAZILIAN UNIVERSITIES

Neoconservatism is another very important key to understanding recent developments in Brazil and also, of course, the crisis in science and technology. The neoconservative ideology comes in a variety of forms based on different conceptions expressed by a plethora of authors and stemming from varied and complex causes, which cannot be explored in this text. “In any case, it should be noted that Brazil is not a unique case: in recent years we have witnessed a spectacular rise across the world of extreme right-wing, authoritarian, and reactionary governments, often with neo-fascist traits” (MANCEBO, 2021).

It should also be noted that conservatism has never been absent from the Brazilian political scene. However, what has happened since the 2013 demonstrations is the increasing visibility and influence of groups that blatantly advocate discourses and practices straight from the neofascist and neoconservative playbook, such as lies, manipulation, violence, hatred towards internal enemies, oppression, and racism. This movement gained its first impetus in 2016, with the parliamentary-judicial-media coup that culminated in the impeachment of President Dilma Rousseff, and was then cemented in 2018 with the election of Jair Bolsonaro, since which time anti-intellectualism and conspiracy theorizing – historical hallmarks of fascism – have risen to a new level.

This translates into an increasingly symbiotic relationship between neoliberalism/finance capital and neofascism. As Filgueiras and Druck (2018) note, this is underpinned by two factors:

Firstly, having proved unable to incorporate the mass of the population into its movement, neoliberal finance capitalism finds it increasingly difficult to coexist with the political participation of the “underlings” and thus with the rule of law and its institutions, namely the formal democracy created in the bourgeois revolutions. The unrelenting precarization of the living and working conditions of most of the population is no longer a product of an exceptional situation that has sprung up in a moment of crisis; the “normalization” of this new situation increasingly calls for a state of exception: exception becomes the norm. Meanwhile, neoliberal finance capitalism [...] creates and reproduces the socio-economic environment and circumstances within which authoritarianism and neofascism can emerge and spread. (FILGUEIRAS; DRUCK, 2018).

Unfortunately, education, universities, schools, science, and culture, with their teachers, students, artists, scientists, and intellectuals, have been the prime targets of this assault. Firm in the belief that the left has gained hegemony in the world of culture and academia, that higher education establishments are breeding and feeding grounds for leftists and the spread of “cultural Marxism,” neoconservatives have called for this “red phantom” to be crushed, which means assaulting and putting a political stranglehold on all institutions of culture, science, and education. And all this is being done in the most hostile of manners in a bid to discredit (or even quash) cultural values considered inappropriate and pernicious. Federal higher education establishments are the main target of these attacks. Indeed, it is fair to say that all the issues surrounding the elections of deans at federal universities have been designed to enable the government to grapple full control over these institutions and thereby alter their ideological profile from within (MANCEBO, 2020).

Examples of this are countless: purges of books; measures with harmful socio-environmental repercussions; attacks and threats of violence against researchers investigating certain topics; the opening of disciplinary proceedings against professors, mainly by individuals appointed without due process to positions of authority without the approval of their communities; incentives for people to denounce professors; actual and threatened cuts to budgets for non-aligned projects; speeches by the president of the republic and ministers belittling, disparaging, and scorning the work of academics; and, as already mentioned, systematic interventions in the selection of the people running federal universities. All of which proves these are not ad hoc or scattered actions, but coordinated attacks driven by a strategy that bears every hallmark of a “culture war.”

Essentially, universities and all science, arts, and culture come under fire in this culture war. According to Melo (2020),

[...] the institutions linked to science and truth itself [agreed by the scientific community, of course] are dismissed as “manipulations of hidden forces” and attacks on these institutions have the resolute purpose of bolstering the notion that these spaces are in the grip of the “global left,” “Gramscianism,” and/or “cultural Marxism” (p. 29).

As such, it should not be ignored that alongside the budget cuts discussed above, there are also symbolic and non-symbolic “ideological formations” being articulated to undermine the field of science.

## PRODUCTION OF SCIENCE AND INNOVATIONISM IN BRAZIL

The attacks on the production of science in Brazil are not just expressed in budget cuts or the anti-science attitudes embedded in neoconservatism and neofascism, as set forth above. The change in the conception of what science and scientific knowledge are, with their focus on innovation, is also limiting the potential of science. As Oliveira (2021a) explains, innovationism

[...] is the movement that seeks to make the production of innovations the prime goal of scientific research, where innovation is understood as being an invention that is profitable [in the short term]. The sphere that determines what is and what is not profitable is the market, and so innovationism puts into the hands of the market decisions about what direction scientific research should take, thereby contributing to the marketization of science.

Innovationism started to spread around the world in the 1970s on the back of neoliberal thinking, particularly the neoliberal belief in the market as the supreme form of organizing the economic and social life of societies. This conception spread in the following decades, first among central countries and then to peripheral and dependent ones. It took root in Brazil at the turn of the century and has since been championed with zeal (OLIVEIRA, 2021a). Initiatives to spread this credo in Brazil have come in many forms, the main of which include

[...] the creation of the first sector funds (1999); the Law of Innovation (2004); the Law “of Good” (supplementing the Law of Innovation, 2005); the renaming of the Ministry of Science and Technology as the Ministry of Science, Technology, and Innovation (2011); the creation of EMBRAPPII (Brazilian Company of Research and Industrial Innovation, 2013); the legal framework for science technology, and innovation (2016). (OLIVEIRA, 2021a).

Under the present government, innovationism has been promoted through Decree 10.534, of October 28, 2020, which regulates the National Innovation Policy, designed to “guide, coordinate, and articulate strategies, programs, and actions to

foster innovation in economic production, to encourage the increased productivity and competitiveness of businesses and other institutions that generate innovation in the country”. (BRASIL, 2020a).

Another factor at play in this scenario is the *Future-se*, a program for institutes and universities (BRASIL, 2020b), even if it is not geared directly towards innovationism. The Ministry of Education has already published four versions of *Future-se* (in July and October 2019, and in January and May 2020), resulting in Bill n. 3076/2020, which is now going through Congress. In all its versions, the program has encouraged innovationism and left federal higher education establishments at the mercy of the vicissitudes of the market and interests alien to the university setting, envisaging three parallel goals: (a) to apply neoliberal principles to university funding, with the sale of knowledge transmuted into merchandise, technology research for the production of innovations, and marketable inventions designed to maximize business profits; (2) to wipe out universities’ social impact, corraling them in a logic of pragmatism and utilitarianism; and (3) to disseminate competition and entrepreneurship, leaving the social sciences, humanities, arts, and even basic research in limbo, starved of funding, stimulus, and recognition. (MANCEBO, 2021).

The program appeals to innovation-oriented technology research that can be exploited by the market with an eye to profit, or, in Sguissardi’s (2020) terms, it envisages the production of knowledge “[...] as raw material, a commodity, value-merchandise, and research and higher education establishments as value-producing economic businesses, where competition and competitiveness should be a priority”. (SGUISSARDI, 2020, p. 190).

As detailed comments on each of these important initiatives are impossible here, suffice it to say that innovationism is translated into a host of policies that designate priority areas for public funding (the ones with the greatest potential to generate innovations), establish stimulus programs for corporate research and development activities, and value researchers willing to gear their investigations toward innovation.

The potentially harmful consequences of innovationist policies are great:

The main one is the way they devitalize domains of research with little or no potential to generate innovations, but which in theory result in benefits for humankind. These domains include basic science, humanities, and the domain known as science in the public interest – designed to address social problems that do not lend themselves to resolution by market mechanisms. (OLIVEIRA, 2021a).

Additionally, the institutions that do research lose autonomy – particularly financial autonomy – because decisions about what, when, and how to research end up depending on the market. A host of areas of science become straitjacketed by immediatism and utilitarianism or, in the case of the social sciences and humanities, disenfranchised since all that is left to them under this approach is the role of justifying or encoding a unilateral interpretation of science and society. In professional relations, there is a deepening logic of competition and “meritocracy” in disputes over scant resources. As Fargoni and Silva Júnior (2020, p. 571) observe, researcher-professors adapt their work to the market rationale, with its targets and competition, and this dynamic then fosters and culminates in the predominance of technoscience over science.

Yet this huge mobilization has yielded underwhelming results. Statistics (and even official analyses) show that “the level of innovation in the country is diminishing rather than increasing – or, in the best of hypotheses, stagnating” (OLIVEIRA, 2021b) and that the causes of this failure reside in structural factors.

According to Fernanda de Negri (2012, cited by OLIVEIRA, 2021a), a specialist in the subject, its traditional role as a producer of commodities has shaped Brazil’s economy:

[...] the main bottlenecks to innovation in manufacturing reside in the interaction of three main factors: these are the sectoral structure concentrated in sectors of limited technological dynamism; businesses’ restricted scale of production, especially in the more knowledge-intensive sectors; and the high internationalization of Brazil’s production structure, which shifts the hub of knowledge generation to outside the country. (NEGRI, 2012, p. 93).

To sum up, the low rates of innovation seen in Brazil can be attributed not to a lack of legal incentives, the absence of a “pro-innovation culture,” or even bad relations between academics and the business world, but essentially to structural factors: “Brazil’s role as commodity exporter in the international division of labor, with the associated deindustrialization of the economy” (OLIVEIRA, 2021b)<sup>6</sup>.

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6 Dagnino (2020) also finds similar results to Oliveira (2021a; 2021b). For him, companies from peripheral and dependent countries do not invest in research because their profit comes more from the absolute than the relative surplus value.

## CONCLUDING REMARKS

This text presented an analysis of the crisis affecting the production of science in Brazil. Several problems were identified and, with each of these, great hurdles to be overcome, most of which were structural, triggering a violently regressive dynamic for much of Brazilian society. In an attempted synthesis, inevitably failing to cover all issues, we believe this scenario presents at least three colossal challenges.

The first of these is the challenge of forging an unconditional alliance with the Brazilian population, not by gearing our studies to innovationism, but by producing science in the public interest capable of attenuating the suffering of the majority of the population, which means democratizing the decision-making spheres of science and research policies.

It is also necessary to protect higher education establishments – where most knowledge is produced in Brazil – from destructive attacks, which range from funding cuts and freezes to threats of censorship, initiatives to control them from within by appointing individuals attuned with the hegemonic agenda to positions of authority, or even introducing programs that undermine their authority (as in the prime case of *Future-se*). It is not about stifling the plurality of ideas, which is the air that education breathes, but about standing up against a project that could ultimately lead to the destruction of the role these institutions play in producing knowledge of relevance to society that meets the real and concrete needs of the majorities. In other words, we hold that

defying policies that would devastate [science in the public interest, which] may only be effective if the strategy of the struggle combines the agendas of the “culture war” – specifically, the neofascist agenda – with the broader agenda which is more organically intertwined with the bloc in power, the agenda of extreme neoliberalism. (LEHER, 2021).

This means that the defense of universities and the production of science and technology (in the public interest) must be coordinated with the major domestic issues afflicting the Brazilian population, such as revoking constitutional amendment 95, the public debt audit, introducing a progressive tax reform that expands public funding, dismantling the labor and welfare (counter)reforms and all the measures that run counter to socioenvironmental values, human rights, and other issues of interest (LEHER, 2021).

Finally, the dramatic state of Brazilian S&T production urges us to question the very way society is organized and work to transform it. As Colombi et al. (2020) note:

We cannot carry on accepting as normal a society whose primary organizing

principle is the quest for profit, which is based on growing inequality that relegates much of the population to dire living conditions, which degrades the environment, and is particularly violent against black and indigenous people, which puts us in a state of permanent competition and tends to destroy any bond of solidarity between people (COLOMBI et al., 2020).

The scenario described by Colombi et al. is nothing if not the “normal” we now inhabit, marked by the brutality that must be repressed. This means taking on the challenge of making a radical criticism of ultraneoliberalism and neoconservatism, while also criticizing capitalism, for the good of a society based on principles that promote social justice and equal opportunities and means for all. We believe that the production of science and technology (in the social interest) may help in this respect and that the places responsible for this – public universities – have a main role to play in the promotion of liberty and equality.

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