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The crisis in funding for research and graduate studies in Brazil

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From 2007 to 2014, Rio de Janeiro and nearly all the other states of Brazil experienced a rare cycle of continuous financing for research and graduate studies. It was a time when Brazilian Graduate Studies Coordinating Board (Capes), Brazilian National Research Council (CNPq), Brazilian Funding Authority for Studies and Project (Finep), and the state research foundations invested generous funds in reestablishing the country's research infrastructure and creating and consolidating graduate courses.

At Capes, Jorge Guimarães obtained funds for implementing new types of financing, including equipment for graduate studies programs and post-doctoral scholarships. In Rio de Janeiro, Ruy Garcia Marques as president of the Carlos Chagas Filho Rio de Janeiro State Research Foundation (Faperj) achieved record levels of financing for research in the state, complying with the Constitutional provision of earmarking 2% of the state's net revenue for the Faperj budget.

In 2015, an economic crisis followed by an unprecedented political crisis resulted in President Dilma Rousseff's impeachment and put a drastic stop to this virtuous cycle. What followed was a slash in funding for research grants and scholarships in practically all of the federal and state research funding agencies.

The crisis was even more dramatic in the State of Rio de Janeiro, which had previously undergone enviable growth in its scientific and technological infrastructure. The state universities (Rio de Janeiro State University – UERJ, State University of Northern of Rio de Janeiro – UENF, and State University of Western of Rio de Janeiro – UEZO) suffered the heaviest impact: not only did their research funding dwindle due to the budget cuts at Capes, CNPq, Finep, and Faperj, but their own budgets were also submitted to contingency measures by the Rio de Janeiro State government.

The Rio de Janeiro State government defaulted on its payments to all outsourced service providers at UERJ (cleaning, maintenance, security, and the university dining hall). As a result, providers opted out of their contracts and a string of new tenders had to be issued when the new service companies repeatedly failed to receive payment on schedule. Successful programs for supporting low-income students who had enrolled through the affirmative action system, such as retention scholarships, suffered lengthy delays, as did the incentives program for faculty research output at UERJ (Prociência) and the programs

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for visiting researchers and faculty and technical staff (Proatec and Qualitec). As a result of these payment suspensions and delays, UERJ closed down its undergraduate courses, attempting at all costs to keep its graduate courses afloat to avoid keeping Master's and PhD students from receiving their scholarships and completing their course schedules, which are far shorter than the undergraduate courses.

Faperj alone has amassed a huge debt to UERJ, in research projects already approved and with their results published, on the order of BRL 70 million (about USD 22 million) for two years (2015 and 2016). These funds far exceed those granted for research by CNPq and Finep combined. The situation does not differ greatly from that of other research institutions in the state as a whole, where Faperj had become the leading agency in amounts of research funding. CNPq and Capes are still essential agencies for providing Master's, PhD, and post-doctoral scholarships, but their funds for research grants are less than those provided by Faperj from 2007 to 2014.

Thus, the economic crisis in Rio de Janeiro (as in Brazil in general) has placed the state's scientific and technological infrastructure in serious jeopardy. The consequences of this process are the exclusion of low-income students from university education, demotivation of new research talents, and brain drain to other states of Brazil and more specifically abroad. Rather than increasing investment in research and innovation to overcome the crisis, Brazil's politicians have taken an economic stance of merely squeezing the public budget, which will only further aggravate the crisis. Economists of various stripes, even from institutions like the International Monetary Fund (IMF), have stated, based on hard data, that adopting austerity measures during a recession like the one in Brazil only tends to deepen the economic recession and its harmful effects [1,2,3] (unemployment, jeopardizing public services, deteriorating social relations, illness) and to delay recovery, leading critics of this strategy to refer to it as "austericide" (or economic self-destruction). Furthermore, the generation of knowledge, technology, and innovation is increasingly important as a motor force for the economy, producing wealth and even reducing expenditures. Strangulation of research is tantamount to killing the proverbial goose that laid the golden egg.

In addition, some research projects, despite their social relevance, have limited possibilities for funding from the private sector. For example, public health by definition only survives with public funding and has historically rendered important services to the Brazilian population. The creation of the Brazilian Unified National Health System (SUS), the Family Health Strategy, and programs for humanized childbirth are examples of technologies that have improved public services and that were developed in collaboration with Brazil's public universities.

Some of the misguided proposed solutions include students' payment of public university tuition, donations, and more provision of services. According to data from the National Association of Administrators of Federal Institutions of Higher Education (ANDIFES) [4], 66.2% of students in Brazil's federal universities have a per capita family income of 1.5 times the minimum wage or less (about USD 450/month), while only 10.6% have a per capita family income greater than or equal to 10 times the minimum wage (about USD 3,000/month). This distribution is even more concentrated in the low-income bracket at UERJ, where 37% of students have a total (not per capita) family income of 1.5 times the minimum wage or less. The illusorily seductive idea of charging tuition from wealthier students, besides clashing with the reality of relatively low income among the majority of Brazilian university students, runs the risk of the dangerous temptation to increase the proportion of paying students as a way of boosting revenues for universities with increasingly limited financing. It is also an attempt to correct a problem in the wrong place: if the problem is the poor population's difficulty in accessing higher learning, charging tuition only makes the problem worse, when the solution should come from improving public primary and secondary education with the adoption of affirmative action policies as mitigation.

Donations will always be welcome, and there is no legal impediment to them, but they have not been a cultural habit among wealthy Brazilians. Services provision to state-owned and private companies already exists, but it is insufficient to maintain a high-quality university. The university is open to conducting self-criticism to improve its quality, but financing free public higher education should be the state's mission, as in the majority of the more developed countries (Germany, Canada, Sweden, Norway, and Denmark, to name a few).

There is still time to halt the destruction of Brazil's research, graduate studies, and free public university system. For this to happen, society needs to mobilize to preserve a public heritage acquired with great investment that has produced important results for our country's development and improvements in quality of life for its citizens.

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