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# National interests and the impact of student mobility: the case of Canada and Brazil

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## Abstract

While there is a growing literature on the trend towards international student mobility, few if any studies have focused on the relative impact of student exchange for promoting national interests and relationship building between specific countries. This study seeks to address this gap through an in-depth analysis of Brazil's Science Without Borders programme and its implications for the country's relationship with Canada. The study reveals that student mobility between the two countries effected by this programme provide significant advantage to both countries, not least of which will likely have positive implications for Canadian-Brazilian interaction.

**Keywords:** Brazil; Canada; science without borders; student mobility.

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## Introduction

The number of students participating globally in study abroad and student exchange activities has exploded in recent decades, from approximately 100,000 in the 1950s, to well over three million presently (Shields 2013, 610). Such growth has attracted considerable attention in the literature, both with respect to its quantitative and more qualitative dimensions. For the most part, however, the focus of this research has been on the principal actors in the international education system: typically post-secondary institutions or students themselves. By contrast, fewer studies have examined international student mobility as a variable producing specific outcomes of value for “sending” and “receiving” nations, whether in financial terms, acquisition of expertise, or the promotion of less tangible benefits linked to “soft power” and positioning for advantage on the world stage (see, for example, Nye 1990).

In examining such potential impacts of student mobility, Canada and Brazil provide an important case in point. While in effect both large economies that share important positions politically within the Americas, their mutual level of engagement has historically remained relatively modest — whether measured in terms of diplomatic relations, cultural interchange or trade. At the same time, both countries have enjoyed a modest rapprochement in recent years, resulting in the development of government efforts on a variety of fronts to further enhance the relationship. Some of this effort has focused on relationship building through collaboration in science, technology and innovation, as signaled by the signing of the Canada-Brazil Agreement for Cooperation in Science and Technology in 2011, and the subsequent establishment of a Canada-Brazil Joint Committee to carry out its terms (“Canada-Brazil relations.” 2017).

Coincident with this development has been the emergence of a strong interest in promoting student mobility to serve national interests — albeit in an opposite but highly complementary fashion. On the one hand, Canada has strongly signaled that it is open for business as a destination for visiting international students, and has included Brazil as one of its primary target markets (“Economic impact of international education in Canada 2016 update.” 2016). Brazil, for its part, has long promoted outbound student mobility to leading international institutions as a means to enhance the qualifications of post-secondary trainees, culminating most recently in the launch of its now famous Science without Borders (SwB) program. Between 2012 and 2016, nearly 100,000 Brazilians students received funding to attend leading educational institutions at countries throughout the world, including Canada (Ciência sem Fronteiras 2017).

Given its scope, the SwB has attracted significant attention in both countries. At the same time, very little has been written to date regarding the fundamental contours and possible consequences of the Canada-Brazil student mobility axis, particularly with respect to the relative benefits derived by each country — educationally, financially, diplomatically, or otherwise. To further examine this question, the study pursues two objectives: 1) to provide, for the first time, a comprehensive quantitative analysis of the SwB’s program dimensions in Canada; and 2) to offer a preliminary assessment of the direct impacts of the program in both Canadian and Brazilian contexts, and with respect to their broader bilateral relations.

## Background

### Student Mobility Trends and Implications in Context

As mentioned above, student mobility has increased markedly in both number and scope in the period since the Second World War, attracting serious interest within an expanding academic literature. Focusing on its more quantitative dimensions, many studies have traced student mobility trajectories, including patterns in regional growth and decline (see, for example, “Four trends

that are shaping the future of global student mobility.” 2017; Rivza and Teichler 2007; Shields 2013). Others have examined the specific factors driving this growth, including broad influences on student decision making with respect to destination (Beech 2015). There is also growing literature concerning the perceived and measurable impacts to students of having studied abroad, in terms of career development and income (see, for example, Levatino 2017).

What these and most other studies share is a focus on the subjects of international student mobility, including both the students themselves and, to some extent, the institutions that send and host them. At the same time, it is increasingly recognized that the growing student mobility phenomenon can have implications for broader global trends and relationships. A number of studies, for example, have focused on the more geopolitical dimensions and consequences of student mobility. Some, for example, point directly to the role of student mobility in promoting greater humanity across borders, and more specifically as a form of cultural diplomacy that will lead to greater understanding and peace among nations (see, for example, Akli 2012). Knight (2014) has taken this one step further to consider the link between student and research mobility, its contribution to science diplomacy and its possible impacts on economic development and policy reform. Others have taken a higher theoretical bent to ponder the impact of student mobility as a factor promoting, for better or worse, tendencies towards globalization and or global domination of internationally educated elites (see, for example, Brown and Lauder 2006; Schofer and Meyer 2005).

In addition, a number of authors have considered the specific role of mobility in supporting national foreign policy objectives (Altbach 2004). For the U.S., for example, Akli (2012, 33) has examined the role of mobility enhancing initiatives such as the Fulbright Program in promoting U.S. foreign policy, and particularly American values abroad. Similarly, Byrne and Hall (2014, 4) have drawn direct parallels between Australia’s aggressive positioning as global host to international students as part of an attempt to cultivate influence among foreign, particularly Asian elites.

Such approaches are generally aligned with Nye’s important body of work on international relations, particularly the uses of what he terms “soft power.” In Nye’s conception, in stark contrast to hard power and the use of military force, “soft power is the ability to affect others to obtain the outcomes one wants through attraction rather than coercion or payment” (Nye 2008, 94). Its operational bases lie in one of three domains: culture, values or policies of institutions.

The use of culture in particular has drawn considerable attention in the literature. Some, for example, have examined the use of sports in projecting soft power (see, for example, Grix and Kramareva 2017); others have focused on religion (see, for example, Ponka et al. 2017), or cultural institutions such as museums (see, for example, Hoogwaerts 2016). At the same time, there appears to be a generally broad agreement that international education and student mobility may be one of the most effective tools for this purpose. As Amirbek and Ydryrys (2014, 502) affirm, “the provision of educational opportunities for foreign students is one of the most important instruments of soft power of the state” (see also Sheng-Kai 2015; Bislev 2017).

What is largely missing in these examinations are specific case studies of how international education and student mobility may produce specific sets of benefits for nations that “send” and “receive” international students, respectively. This study seeks to offer a partial remedy to this deficiency through a detailed examination of the Canadian-Brazilian case, and specifically, the impact of Brazil’s Science Without Borders program on both countries in light of their stated national interests. Benefits examined include more direct impacts, in terms of financial gain and skills upgrading, but also indirect ones linked to each country’s presumed diplomatic and economic soft power objectives vis-à-vis each other, and more broadly.

## A brief history of Canada-Brazil relations

At first glance, Canada and Brazil would seem somewhat unlikely partners in international student exchange. For the past 150 years, bilateral relations have been relatively limited (Barbosa 2017). Further, by the end of the 20<sup>th</sup> century, relations became strained, owing to a series of unfortunate events. The first involved the 1989 kidnapping of a Brazilian businessman in São Paulo by two Canadian terrorists, Christine Lamont and David Spencer. Canada’s efforts to intervene on their behalf were highly resented in Brazil. In fact, they failed dismally after key evidence came to light clearly pointing to their role in organizing and executing the event. In 1998, Canada-Brazil tensions increased as a result of a dispute over respective national subsidies to aerospace giants Bombardier and Embraer. Effectively, the conflict ended in a stalemate, as both countries were accorded the right to impose trade sanctions by the WTO. In the end, neither side moved to this stage, preferring to “agree to disagree,” thus leaving the dispute to smolder for a number of years. A final incident involved a 2001 Canadian ban on Brazilian beef, presumably tainted by Jacob-Cruzefeldt (mad-cow) disease. No evidence of the disease in fact was uncovered, and it appeared that Brazil had simply failed to submit an export document within the prescribed time period. As a number of other countries had simply followed Canada’s lead in applying the ban, however, this resulted in serious harm to Brazil’s beef industry (Hewitt and Gomes 2017).

Since these unfortunate incidents, relations have somewhat improved. For example, the two countries have stood side by side in peacekeeping duties, most notably in Haiti (Hewitt and Gomes 2017). Bilateral trade has grown, if to relatively modest levels at around Can\$5-6B per year. In addition, following a number of diplomatic visits during the past decade, a number of new Canada-Brazil agreements have been signed (“Canada-Brazil relations.” 2017), including the 2011 “Framework Agreement Between the Government of Canada and the Government of the Federative Republic of Brazil for Cooperation on Science, Technology and Innovation.” The agreement was instrumental in the formation of a Canada-Brazil Joint Committee for Science, Technology and Innovation, with representatives from government, education and business in the two countries. The Committee has been instrumental in fomenting increased activity, particularly between academic and industry partners in the two countries, supported by limited funds targeted to this purpose. It has also strongly emphasized the importance of collaborative research and training,

particularly through the exchange of personnel in laboratory and research facilities — including students and postdoctoral fellows. The agreement and the committee have underscored the two countries' interest in the promotion of international student mobility, albeit, as will be shown, from somewhat different perspectives and with somewhat different benefit profiles.

## International study as viewed from the Canadian and Brazilian perspectives

For its part, Canada's interest and participation in post-secondary international education initiatives have increased markedly in recent years, largely linked to the country's international trade interests (see for example Trilokekar 2010). This activity has been strongly promoted by representative associations, such as Universities Canada, and a range of sectoral organizations such as the World University Service of Canada (WUSC) and the Canadian Bureau for International Education (CBIE). Still and all, only about 3% of Canadian undergraduate students, and 1% of college students, participate annually in study abroad ("A world of learning 2016: Canada's performance and potential in international education." 2017), a much lower number than comparator countries such as the UK. Individually, post-secondary institutions have varied in their approach to promoting study abroad for Canadian students, but have uniformly encouraged in-flows of international students to Canada. Overall, the number of incoming students at Canadian universities increased by 83% between 2008 and 2014 ("A world of learning 2016: Canada's performance and potential in international education." 2017). By 2015, there were approximately 336,000 international students in Canada at all educational levels, with primary source countries including China (110,918), and India (38,891).

Efforts by Canada's federal government to support international education have similarly focused on in-flows. Programs such as EduCanada and Imagine Education in Canada work with institutional partners to attract foreign students to Canadian institutions, with a strong focus on the "Canadian brand" and through mechanisms such as student recruitment fairs in target countries. It is telling that much of this activity is coordinated through the Department of International Trade within Global Affairs Canada, strongly signaling that the intent of this activity is to stimulate "educational" export earnings for Canada and particularly educational institutions. In fact, it is estimated that the total value of foreign students to Canada is on the order of Can\$11.4B per year ("Economic impact of international education in Canada 2016 update." 2016).

A 2012 report commissioned by the federal government on international education entitled "International Education: A Key Driver of Canada's Future Prosperity" (2012) unabashedly lays out the economic case of Canada for student in-flows. While pointing to the education and training benefits of international experiences for both inbound and outbound students (e.g., acquisition of a global perspective), the report squarely focuses on the earnings potential for Canada when attracting foreign students. These include support for Canada's ambitions in promoting science and technology, the role of students as ambassadors in opening up doors to international trade, support for Canadian labor markets, and last but far from least, the value created by the influx



of students. In this regard, the report cites government data indicating that the “export” value provided by incoming students in the form of tuition exceeds Can\$7.7B, not counting monies expended on subsistence and travel/leisure activities. To further grow this contribution, the report makes a number of recommendations, including a doubling of the annual international student intake to nearly 500,000, focusing on limited priority markets, increasing marketing and branding efforts, and developing bilateral agreements.

Many of these recommendations were ultimately adopted in Canada’s International Education Strategy, released in 2014 by the Department of International Trade (*Canada’s international education strategy: harnessing our knowledge advantage to drive innovation and prosperity* 2014). In it, the federal government largely adopts the posture of the 2011 panel report in its near exclusive emphasis on attracting foreign students to Canada and the financial gains to be derived thereof. The Strategy similarly calls for a doubling of international student enrollments by 2022 and, for the first time, identifies specific target markets — among them Brazil.

Brazil’s recent efforts on the international student front represent a somewhat opposite approach and it is in fact an ideal opportunity for Canada. As a rising power (Chatin 2016), Brazil has long seen the value in promoting international study abroad for its citizens, particularly at the graduate level. In good measure, this has been undertaken as a response to the relatively limited capacity of domestic institutions of higher learning, and a firm belief in the need to take full advantage of training and scientific research abroad to benefit the development of research and development activities at home. Programming through Brazil’s two main research funding agencies at the national level, the Fundação CAPES (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* — Foundation for the Coordination of Graduate Training) and CNPq (*Conselho Nacional de Desenvolvimento Científico e Tecnológico* — National Council for Scientific and Technological Development) has long afforded students opportunities to spend time abroad at leading international institutions to take part in a split-site degree or a short-term program, or pursue advanced degrees across the disciplinary array. While some Brazilian students are lost to those institutions and countries that have hosted them, large numbers have returned to Brazil to take up university teaching positions or to work in industry, thus transferring the benefit of their experience to scientific advance domestically.

The Science without Borders program, conceived during the government of President Dilma Rousseff and operationalized between 2012 and 2016, takes this strategy to a whole new level, and at a scale never before seen in a national program of this kind. Its bold promise was to sponsor short and longer term international education opportunities for up to 100,000 students across Brazil, thus allowing them to benefit from participation in training and research at some of the world’s leading educational institutions. To fund the project, the government allocated approximately R\$3.7B (R\$1.0 = Can\$0.35) annually, an amount equivalent to the budget of the entire basic education system of the country, supporting some 32 million students (Mazzetto 2017). Under the program, students would receive support for both tuition and living expenses during the course of the studies abroad. Fully-funded opportunities for short-term work experience — to be

coordinated by host institutions — also represented a key component of the exchange experience for students. Responsibility for administration of the program was given to two key agencies: the CNPq, Brazil's federal academic research funding agency, and CAPES, responsible for overseeing and funding graduate-level training.

In terms of discipline, students were limited in their choice of study area. In effect, they were restricted largely to science, engineering, and life sciences disciplines, with opportunities for study in other areas limited to “creative industries,” including social science fields such as media studies and communication. In terms of programming, students could elect one of a number of options, including a one-year (plus four month work-experience) undergraduate split-site option; a split-site doctoral option, full masters, doctoral and post-doctoral program options, as well as special young researchers and visiting professor options to be taken by foreigners in Brazil. Of these, the undergraduate center option was by far the most popular, representing some 73,000 out of a total 93,000 students that eventually received funding through the program (Ciência sem Fronteiras 2017).

## SwB in Canada: a quantitative overview

Prior to 2012, student mobility between Canada and Brazil was extremely limited. On average, Canada received between 300 to 500 students per year, while fewer than 50 Canadian students studied in Brazil (Unesco Institute for Statistics 2016). With the launch of Brazil's SwB program, this pattern was dramatically altered.

As mentioned above, at the conclusion of its first phase, the SwB program had sponsored well over 90,000 students, who undertook their studies in over three dozen target countries. Over a quarter of outbound Brazilian students (27,821) ended up on the United States, with just over 10% (10,740) studying in the United Kingdom. Canada was the third largest destination, receiving 7311 over the four years of the program, or about 8% of the total. These numbers were largely comparable with France (7279), and Australia (7,074), both of which (along with the U.S. and the U.K.) typically rank well above Canada in terms of attracting international students. In this sense, Canada appears to have benefitted disproportionately from the SwB opportunity.

In good measure, this outcome was the result of early negotiations active engagement between the Brazilian agencies responsible for administering the SwB program, and three Canadian representative organizations. The first was a consortium of universities allied to promote student inflows to its own members, dubbed CALDO (representing the University of Calgary, the University of Alberta, Laval University, Dalhousie University and the University of Ottawa). The second was the former Association of Canadian Community Colleges (now known as Colleges and Institutes Canada or CIC), which worked specifically with CAPES to attract Brazilian technical and college students to Canadian colleges campuses. The third organization involved was the Canadian Bureau of International Education (CBIE), which managed the single largest group of



inbound students under the auspices and with the support of the then Department of Foreign Affairs and International Trade. Collectively, the three organizations worked to ensure placement of outbound Brazilian students at just over 120 Canadian post-secondary institutions. They also assisted with placement of students for the work-study component.

Some interesting patterns emerge in terms of the demographic profile of the Canada-bound SwB students. As Table 1 shows, Brazilian students arriving in Canada were slightly more likely to be male. While females represented 44% of all outbound Brazilian students globally, they accounted for only 42% of those who arrived in Canada.

**Table 1. Stated Gender of Canada-Bound SwB Students**

Gender	Canada-Bound		Total SwB	
	Percentage	N	Percentage	N
Female	42	3067	44	40488
Male	58	4241	56	51787
Totals	100	7308	100	92275

Source: CSF (2017)

There are also some differences in terms of the students' chosen programs of study, with Canada attracting slightly more undergraduate students than those at other levels of study. As Table 2 reveals, of all students arriving in Canada, the vast majority (84%) spent their time enrolled in split-site programs (as described above) of one year's duration on average. This compares to 80% for all SwB students. Relatively few students were elected for graduate or post-graduate study, with just 10% of them enrolled in doctoral split-site programs, and 4% in post-doctoral positions. Perhaps most notable is the very small number of Brazilian students who had come to Canada to pursue doctoral degrees, as opposed to the split-site option or more limited post-doctoral programming. By the end of the program, only 189, or 3% of all students arriving in Canada, sought to obtain advanced qualification in the form of a graduate degree. Canada also largely failed to attract any candidates in the "other" category, including such options as "visiting professor."

**Table 2. Programme Type of Canada-Bound SwB Students**

Programme Type	Canada-Bound		Total SwB	
	Percentage	N	Percentage	N
Undergraduate-Sandwich	84	6154	80	73353
Doctoral	3	189	4	3353
Doctoral-Sandwich	9	670	10	9685
Post-Doctoral	4	298	5	4652
Other	0	0	2	1837
Totals	100	7311	101	92880

Source: CSF (2017)

**Table 3. Disciplinary Focus of Canada-Bound SwB Students**

<b>Disciplinary Group</b>	<b>Canada-Bound</b>		<b>Total SwB</b>	
	<b>Percentage</b>	<b>N</b>	<b>Percentage</b>	<b>N</b>
Engineering	41	3000	45	41594
Science	27	1931	23	21792
Life Science	24	1760	22	19994
Social Science	6	465	9	8061
Unstated	1	77	1	873
Totals	99	7233	100	92314

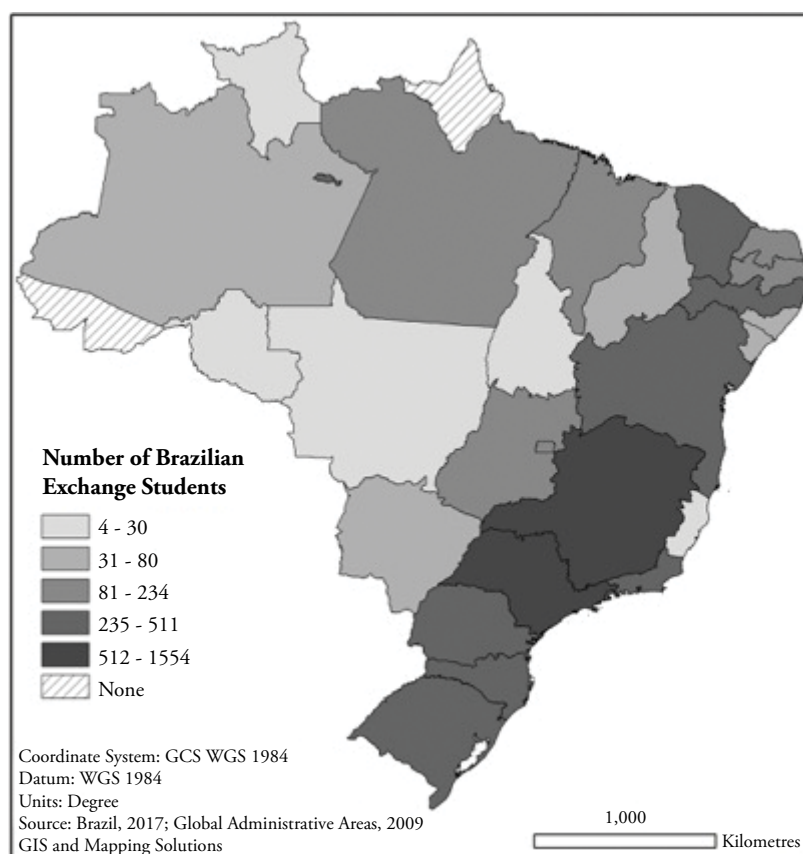
Source: CSF (2017)

In terms of discipline or area of study (Table 3), some minor differences are also in evidence. Canada attracted relatively fewer engineers and social scientists, and a relatively larger numbers of those studying science and life sciences than was the case generally. While 45% of all SwB students were enrolled in Engineering, only 41% of those electing to study in Canada had chosen engineering programs, while only 6% chose social science, versus 9% globally. At the other end of the scale, the number of those electing science, at 27%, was somewhat higher than the global figure of 23%, as was also the case for life sciences, at 24% for Canada compared to 22% globally.

**Table 4. Regional Origin of Canada-Bound SwB Students**

<b>Region of Brazil</b>	<b>Canada-Bound</b>		<b>Total SwB</b>	
	<b>Percentage</b>	<b>N</b>	<b>Percentage</b>	<b>N</b>
North-east	24	1700	17	16209
North	3	196	2	2170
Central-west	6	449	6	5662
South-east	43	3113	48	44620
South	18	1315	18	17055
Outside Brazil	6	437	7	6423
Unstated	0	1	1	730
Totals	100	7211	99	92869

Source: CSF (2017)



**Figure 1. Source of Brazilian SwB Students by State**

Some of most dramatic differences relate to the regional origin of Brazilian SwB outbound students, as Table 4 shows. The Brazilian literature has well noted the preponderance of participating SwB students from the relatively more affluent states of the southeast and south of the country, where most the country's leading post-secondary institutions are located. Together, students from these regions accounted for two-thirds of all SwB participants. Interestingly, however, this pattern was not entirely replicated in the Canada-bound cohort. While the relatively less affluent north and north-east regions of Brazil provided just 19% of all SwB participants, they accounted for over a quarter (27%) of all SwB students arriving in Canada. While proportions of students from Brazil's central-west and south regions were virtually identical, only 43 of Canada-bound students had arrived from Brazil's south-east, which includes the states of São Paulo, Rio de Janeiro, Minas Gerais, and Espírito Santo.

With regard to study destinations in Canada, a number of observations may be made, some of which are surprising. For example, the number and types of educational institutions receiving SwB students was extremely varied, as is shown in Table 5. For their part, universities represented just over half of all receiving institutions. These included all of the larger research-intensive universities that are part of the U-15 group (15), 27 mid-sized comprehensive universities, and 26 smaller institutions. In addition, 33 community colleges participated in the program, along with nine government labs and 10 other research facilities (which included entities such as hospitals and provincial research stations).

**Table 5. Institutions Hosting Canada-Bound SwB Students**

<b>Institutional Type</b>	<b>Participating Institutions</b>		<b>Students Enrolled</b>	
	<b>Percentage</b>	<b>N</b>	<b>Percentage</b>	<b>N</b>
University	57	68	88	6422
Community College	28	33	11	824
Government agencies	8	9	0	40
Other	8	10	0	26
Totals	101	120	99	7312

Source: CSF (2017)

The actual distribution of inbound students reveals a somewhat different portrait, as the table reveals. Approximately half of all SwB students ended up at Canada's largest U-15 universities, with the University of Toronto alone attracting over 1200 students (over 16% of the Canadian total). In fact, the University of Toronto is reputed to be the largest single recipient of SwB students worldwide. The average number of students at Canada's community colleges was relatively more modest, but significant. By the end of the program, the colleges had attracted over 800 inbound students, representing well over 10% of the total. For both categories, English-language programming largely predominated. While French-language or bilingual colleges and universities made up approximately 20% of total receiving institutions in Canada, just over 10% of Brazilian students ended up enrolling in French-language programming.

**Table 6. Universities Hosting SwB Students by Type**

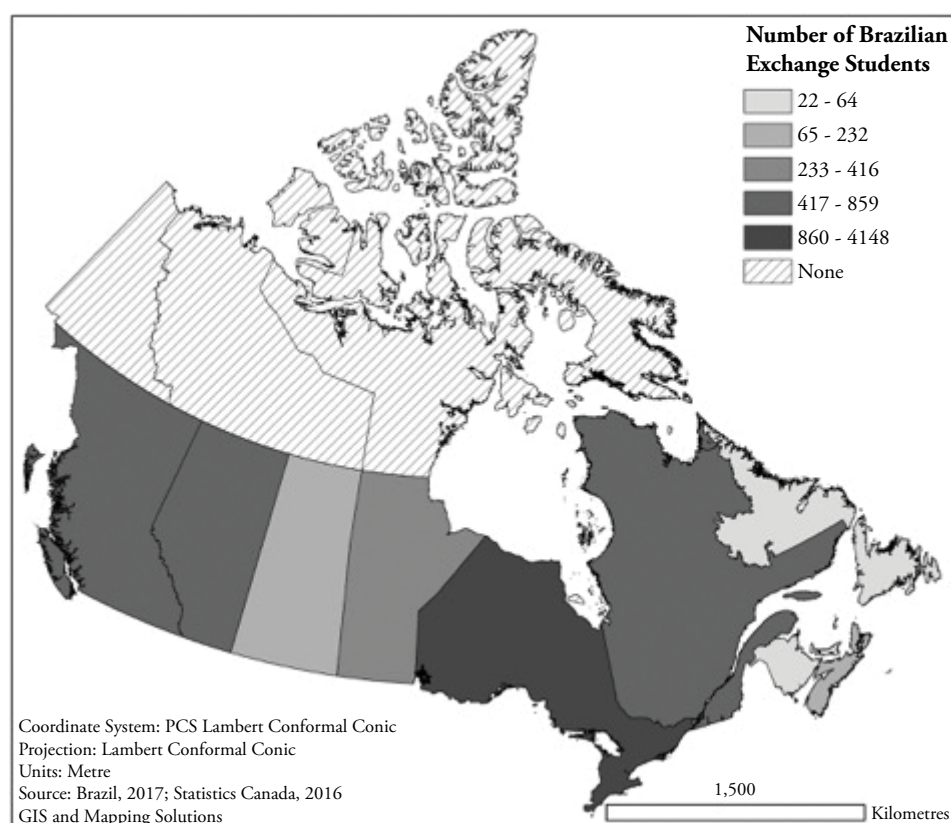
<b>University Type</b>	<b>Percentage</b>	<b>N</b>
U-15		
CALDO	16	1016
Non-CALDO	41	2613
<i>Sub-total</i>	<i>57</i>	<i>3629</i>
Comprehensive	35	2257
Small	8	536
Totals	100	6422

Source: CSF (2017)

**Table 7. Language of Study of Canada-Bound SwB Students**

<b>Language</b>	<b>Percentage</b>	<b>N</b>
English	89	6515
French	6	409
Bilingual	5	383
Totals	100	7307

Source: CSF (2017)



**Figure 2. Destination of Brazilian SwB Students by Province**

Of particular note is the regional distribution of Brazilian students in Canada, illustrated in Table 8. Ontario, home to the University of Toronto and five other U-15 universities, attracted 4148, or 57% of SwB participants. Large numbers were also in evidence for Western Canada, which accounted for 30% of the total. Given the relatively weak enrolment in French-language institutions, as noted above, Quebec not surprisingly accounted for just 10% of inbound students, while Atlantic Canadian institutions received just 299 SwB participants, or about 4% of the total.

**Table 8. Regional Distribution of Canada-Bound SwB Students**

Region	Percentage	N
Western Canada	30	2152
Ontario	57	4148
Quebec	10	708
Atlantic Canada	4	299
Totals	101	7307

Source: CSF (2017)

## Benefits and impacts on Brazil, Canada and the bilateral relationship

### The Brazilian case

The benefits to Brazil of its SwB investments seem obvious enough. Without question, the program has provided an extraordinary opportunity for an unprecedented number of Brazilian students to spend time at leading educational institutions abroad. In addition, there can be no question that students themselves have acquired new and unique knowledge sets and experiences that will serve them well both in their careers, and with respect to the development and expansion of the Brazilian economy. Given the overall subject orientation of the program (towards science and health), such effects should potentially accrue in the industry and technology sectors of the Brazilian economy in particular. Such impacts are further assured, moreover, due to the fact that virtually all of the students sent abroad have now returned (or are expected to return), reducing potential losses occurring as a result of permanent out-migration.

At the same time, such gains have come at an unprecedented cost. As mentioned previously, government investments in SwB in 2015, for example, amounted to some R\$3.7B annually, in order to support 35,000 students actively enrolled in the program at that time (Mazzetto 2017). This was approximately the same amount spent by Brazil in support of 39 million students enrolled in basic and secondary education in the country. Viewed in another way, 35,000 SwB students received on average R\$100,000 to pursue their studies abroad, as compared to the R\$3,000 allocated to each student in the basic education system.

In addition, a number of observers have noted that the SwB program has differentially benefitted those more affluent students who typically have the financial means to secure entry and sustain themselves within the post-secondary system. Furthermore, the vast majority of candidates (well over half) were drawn from the relatively affluent southeastern and south regions of the country, at the expense of the poorer states of the north and northeast (Mazzetto 2017). Yet another concern is the possible impact the program has had on the federal allocations for academic research in Brazil, which have recently come under serious pressure. For example, the federal budget research in Brazil was reduced R\$5B in 2016 to just R\$2.8B in 2017. Such observations clearly give rise to questions regarding the cost-benefit equation associated with the program.

Other, less tangible benefits have potentially accrued to Brazil on the trade and investment fronts, aligned with the “soft power” perspective developed by Nye (1990). While difficult to quantify, there is little question that the movement of large numbers of students to Canada under very favorable terms can certainly be seen as enhancing Brazil’s “attractiveness” in bilateral terms (Nye 2004). For example, Brazil can now squarely point to its contribution as a major supplier of international students to Canadian institutions, drawing attention to, and further enhancing the balance of trade between the two countries. Another potential relationship advantage stems from the large presence of Brazilian students within communities and post-secondary institutions



across Canada. As Table 8 reveals, while many did end up in major population centers, Brazilian students were present in all of Canada's provinces. The time spent and the knowledge acquired in these communities, plus the students' ability to speak one of Canada's official languages, will certainly serve Brazil well in future dealings with Canada, enhancing the stock of knowledge and relationships that can be leveraged to both increase existing levels of investment in Canada (which are already significant in the mining, cement, and food and beverage sectors) (Hewitt 2019) and potentially attract new investment from Canadian companies.

## The Canadian case

For its part, Canada's participation in the SwB initiative has attracted significant direct material benefits. Not least of these are financial, both short and long term. Short term, concerted efforts on the part of the federal government and three coordinating agencies ensured a steady flow of SwB students to Canada, placing the country in third place globally, behind only France and Australia. In keeping with the tone and the recommendations of the federal government's 2012 "International Education" report, this resulted in significant revenue flow for Canadian institutions. Using data provided by Mazzetto (2017), the average allocation provided by the SwB program was on the order of R\$100,000 or about Can\$35,000 per student. Assuming these funds were all expended while studying abroad, this would suggest a total expenditure of approximately Can\$250M by Brazilian SwB students in Canada over a period of four years, or approximately Can\$60M per year. While this represents only about 1% of the total value of Canada's annual educational exports, it nonetheless signals a profound increase in income from Brazil.

In the longer term, the expansion of the Canadian educational system undertaken to accommodate this influx of Brazilian students has helped position the country as a top destination for international students more generally. This is true both by reputation, and in expansion of capacity, by greatly increasing the stock of educational institutions available to accommodate international students, including a significant number of colleges and smaller universities. In addition, it appears to have greatly increased Canada's attractiveness as a destination for language study, particularly in Brazil. Over the past several years, the number of Brazilian students on short-term language training has grown dramatically. By 2017, Canada was welcoming nearly 20,000 Brazilians looking to acquire language skills in either English or French, making Brazil the largest single source of foreign students within this category (Languages Canada 2017).

Although much more difficult to quantify, bilateral soft power advantages also appear to have accrued to Canada as a result of its participation in the SwB program. These are both economic and diplomatic. In regard to financial benefits, as mentioned earlier, SwB students were enrolled in a range of post-secondary institutions located in all provinces of Canada, including parts of the country where Brazilian tourists have travelled less frequently. Further, these students originated from virtually all Brazilian states. That they undoubtedly returned to their home regions and states

with a far great understanding and appreciation of Canada is largely a given, and will certainly increase Brazil's stock of knowledge of things Canadian. More importantly, however, it is likely that many will eventually serve in leadership capacities in both the public and private sector in Brazil. Thus, the knowledge and experience they have obtained — as well as the network of friends and contacts they have acquired — may serve Canada well in terms of promoting future diplomatic, trade, and investment opportunities between the two countries. In addition, in diplomatic terms, Canada has made no secret of its recent attempts to secure a seat on the United National Security Council ('Canada keeps up push' 2020). By potentially enhancing its "attractiveness" and levels of awareness within Brazil's domestic and international political elite, it may be in a better position to count on that country's support for its UN ambitions.

## Conclusion

The data presented in this study provide for the first time a comprehensive review of the scope and extent of Brazil's SwB program in Canada. The data reveal a level of focused educational interchange that is without parallel within the context of Canada's history of engagement with Brazil.

As such, as the study reveals, there are a number of important direct material impacts. Canada, for its part, has seen significant benefits in the form of educational "export" earnings, benefitting not only educational institutions but the local communities that host them. In addition, the program has led to a significant expansion in the number and type of post-secondary institutions in Canada that are now engaged in the international student economy globally. For Brazil, the short term benefits of the SwB program certainly appear to be in evidence, through advantages likely accruing to participants in the form of both educational training and credentials obtained from post-secondary institutions that currently enjoy a world-wide reputation as some of the best. At the same time, one may seriously question the degree to which the benefits acquired by individual students — or the country more generally — effectively outweighed the costs of operationalizing the program, which has amounted to a significant portion of the country's educational budget during the period of its operation. This alone may cast serious doubt on the likelihood of a replication of this program in the future, regardless of any perceived training or other benefits. Still and all, the ultimate impact of the SwB program remains to be studied in the years ahead, particularly those measured as a function of graduates' contribution to the economy and Brazilian public life.

The study also points to less tangible, but potentially important contributions that have helped enhance the two countries' mutual "attractiveness" and, thus, their diplomatic and economic soft power objectives. On the one hand, Canadian educational institutions are now much better acquainted with Brazil through the many thousands of top students they have welcomed within their programs, creating a strong potential for future collaboration in education, collaborative

research and business. In addition, knowledge of Canada is set to make a quantum leap, as 7300 Brazilian student ambassadors with a newfound appreciation of Canadian life and society return home to hundreds of communities across their country and share their experiences with friends and family. The fact that many will go on to leadership in both government and industry will only enhance potential relationship building and economic interchange.

Whether this may in the end contribute to a recalibration of a relationship that has been far from vibrant, remains to be seen. At one level, it may be plausibly argued that the fairly obvious financial inequity in the SwB arrangement — vastly favoring Canada — may come to be perceived as a negative by Brazilian authorities, particularly as new scholarship funding programs promoting study abroad for Brazilian trainees is contemplated. This is particularly true as the numbers of Canadian students participating in educational programs in Brazil at any level remain extremely small. As to the ultimate impact of the SwB program, in regard to the future of Canada's previously strained relationship with Brazil, only time will tell.

At the very least, the experience of the SwB provides one more important building block in the establishment of a more durable, more multifaceted relationship than Brazil and Canada have enjoyed in the past. At the time, one of the reasons why Lamont and Spencer, Bombardier and beef ban incidents took on such a serious tone was due to their isolated character — in the sense that neither country could fall back on other positives of their existing relationship to help mitigate potential damage. Gradually, though, this has begun to change. As noted in a recent study by the author (Hewitt 2019), trade between Canada and Brazil has been slowly increasing, particularly in Brazil's favor. Similarly, so has investment, with major swaths of whole sectors of the Canadian economy — in mining, and food processing especially — now in Brazilian hands. Prior to the COVID-19 debacle of early 2020, tourism between the two countries had been growing as well. It seems obvious that the level of activity in educational exchange brought about through the SwB program, as well as continued investment in English language training for Brazilians could not help but maintain and potentially enhance these positive outcomes as we have suggested above.

There is also at least some evidence that the bilateral building block approach that the SwB program has helped to consolidate has led to an improved tenor of the Canada-Brazil relationship overall. Outwardly, the room for further rapprochement might appear to be limited, given the political orientation of the two governments. At the level of leadership, the countries are almost complete opposites, with Canada espousing more globalist views that prioritize inclusion, diversity and sustainability, and Brazil squarely prioritizing economic over social development and environmental protection. This may well explain why the leaders of the two countries have never formally met. At the same time, existing links continue. Despite the disruptions caused by the 2020 pandemic, the Science, Technology and Innovation Joint Committee, for example, continues to interact, and discussions ensue between government departments, business and respective chambers of commerce. New ambassadors between the two countries were exchanged in late 2019 and early 2020. Perhaps most telling of all was Canada's position in the face of mounting criticism of Brazil during 2019 regarding the enhanced pace of destruction of the

Amazon rainforest. While many developed countries severely criticized the Bolsonaro government for its inaction in protecting the forest, Canada refrained from piling on. Instead, the Canadian International Affairs Minister used her public platform to offer Brazil any and all assistance in fighting the fires (“Canada offers to help Brazil fight Amazon forest fires as flames take center stage at G7.” 2019). Arguably, this is a concrete sign of the growing maturity of the relationship, despite obvious political differences.

Beyond Canada and Brazil, the study suggests new directions for the expanding literature on the potential impact of student mobility on bilateral relations. By focusing more carefully on a specific country, bilateral or regional cases, greater insight can be gained as to the ultimate impact and benefit of the global movement towards international education, not only directly but also indirectly, by facilitating soft power objectives of participating nations.

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