

Resource asymmetries and cumulative advantages: Canadian and US research universities and the field of global health

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Abstract Global health is becoming an important area of inquiry and learning in North American research universities, stemming from on-going and new commitments to the field by multiple governmental and non-governmental agents. External demands for research and education in global health require enhanced inter-disciplinary, inter-sectoral and international collaborations, all perceived as growing trends but often not easily accommodated in universities. This paper investigates how four leading universities in Canada and the US have entered the field of global health, exploring the relationships among national contexts, academic structures, and institutional strategies. Content analysis of institutional records is triangulated with data from sixty interviews with academic leaders and researchers at Harvard, Johns Hopkins, McGill and Toronto. Resource asymmetries emerge as an important differentiating factor shaping the emergence of global health in the American and Canadian institutions. Domestic sources of support and previous academic structures provided important cumulative advantages to the US campuses in claiming national and international leadership in the field.

Keywords Academic organization · Emerging fields · Global health · Interdisciplinary programs

Global health is evolving as an important area of inquiry and learning at North American research universities. Related to medical and epidemiological problems that may cause large losses of life, global health has become a major concern in the US and Canada. The human, social, and economic consequences of such health problems have raised concerns among political, scientific and industrial decision-makers. Global health policies and programs, as well as their outcomes have gained considerable scholarly attention (Cooper

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et al. 2007; Merson et al. 2004; O'Neill 2006; Fort et al. 2006; Garrett 2003; Levin 2004). Having existed in academia for decades, this field of inquiry has acquired more weight and influence, as a growing number of faculty members and students are drawn into global health issues. Despite some attempts in the literature to embrace the large and intricate body of global health policies and practices (Cooper et al. 2007; Merson et al. 2004; O'Neill 2006), as well as their consequences (Fort et al. 2006; Garrett 2003; Levin 2004), little attention has been given to the evolution of global health in higher education. Universities are crucial sites for the creation and dissemination of relevant knowledge, as well as for advanced training in the field, but the development of the field in academia remains poorly understood (MacFarlane et al. 2008).

The sparse literature that describes global outreach by medical schools in Canada and the US raises several issues regarding the implementation of programs and partnerships, because of the nature of the field (Crone 2008; Quinn 2008; Saba and Brewer 2008; Stein et al. 2001). Work in this area is inherently interdisciplinary, involving multiple basic and applied health-related disciplines. It also entails cross-sectoral partnerships with health care organizations, governmental agencies, and the private sector. This flows from the nature of global health problems, which involves an intricate web of actors at the local, national, and global levels (Bastos 1999; Bryant and Harrison 1996; Harrison and Coussens 2007). Such “glonacal” nature (Marginson and Rhoades 2002) creates inherent tensions for universities. Global health issues relate to an international community of producers and users of research-based knowledge, and their implications are felt worldwide. Yet, leading universities, where much biomedical and public health research is conducted, operate within national contexts that shape their priorities to address more domestically relevant problems (Jones and Oleksiyenko 2008). Partnering with a variety of organizations internationally is central to global health work, but universities are not always prepared to foster and accommodate inter-institutional collaborations. The capacity to support academic innovations and to accommodate emerging fields of inquiry is one of the features of distinguished universities (Kerr 1991; Blau 1994).

This paper examines how leading universities in Canada and the United States organized their global health programs, seeking to explore the conditions at the national and institutional levels that influence the ability of universities to enter and position themselves in emerging research fields. The comparative approach of this study stems from the widely accepted view that universities are increasingly perceived to be part of international hierarchies of academic distinction, prestige, and wealth (Altbach and Balán 2007). The rhetoric around being ‘world class’ that permeates this view no doubt contains high doses of hype and faddishness. Nonetheless, for research universities in countries like Canada, expectations about institutional performance and reputation now commonly relate to standards set internationally, mainly by elite American universities. Cast as an inherently international field, global health provides an interesting example of an area of inquiry that thrusts universities into cross-national competition. Multilateral agencies, international organizations, and private foundations that fund global health programs constitute a cross-border movement that supports university-related initiatives originating in different countries (Beaglehole 2003; Garrett 2007; Markle et al. 2007; WHO 1986). Indeed, global health programs now appear in universities on multiple continents, although there is definitely a concentration in North America, which originates almost 90% of publications in the field (MacFarlane et al. 2008). This concentration reflects established academic strengths, funding opportunities, and an earlier focus on the field.

The section below describes the global health movement and its links with universities. Next, a framework of how university actors advance new academic specialties within

universities is described. Then, methods and data are presented, followed by the cross-case analysis. In the final section, we discuss the main findings and conclusions.

The global health field

The academic field of global health has in large part been linked to a broader global health movement, spearheaded by a range of actors including multilateral organizations, foundations, and national government agencies dedicated to foreign aid. In academia, global health can be seen as a scientific movement competing with other related fields for resources and legitimacy (Frickel and Gross 2005). Global health proponents (re)frame a variety of health issues as international scientific, policy, and political problems. Historically and presently, humanitarian goals figure prominently in the global health discourse (Brown et al. 2006). Advocates call for researchers and health providers to help prevent and treat diseases that afflict communities worldwide, particularly in developing countries. However, the implications for rich countries also figure prominently in global health agendas. It is often observed that in a globalized world, where the movement of people and products across borders is intense, local health issues can easily become a global concern (Davis and Lederberg 2001; Lemon et al. 2007). The outbreak of SARS earlier in the decade (Global IDEA Scientific Advisory Committee 2004), and the more recent spread of the Swine flu are critical situations that illustrate this problem.

The field of ‘global’ health evolved from earlier concerns with ‘international’ health and tropical medicine put forward by multilateral health agencies and the academic community throughout the twentieth century. This transition has been in part attributed to the activism of the World Health Organization, which strategically promoted global health since the 1990s, and was joined in its efforts by multiple public and private organizations (Brown et al. 2006). In the United States, global health has been linked as a policy issue to national security and economic concerns since the 1990s (Board on International Health & Institute of Medicine 1997; BGH 2006). Major philanthropic organizations such as the Bill and Melinda Gates Foundations have committed substantial funding to advance research that addresses global health challenges—between 1998 and 2000 alone, more than 1.7 billion was allocated to over 70 public private partnerships (Brown et al. 2006).

The cross-border orientation of global health research and outreach presents some challenges for academic researchers. On one hand, some argue that the health sciences are inherently international and collaborative, and correspond to the nature of the diseases and problems that the health professions have evolved to address (Breman and LeDuc 2001). On the other hand, medical and public health sciences often focus on domestic health issues that garner political and economic support in advanced industrial economies. Hence, health scientists often do not have the incentives and institutional supports to engage in major global health efforts.

Others argue that although the scientific aspects of health research have traditionally been communal and international, translation of research into practice is not (BGH 2006; Ganem 2003). A crucial tenet for global health advocates is that inter-sectoral and cross-border collaborations are imperative and need to be coordinated. Among other benefits, inter-sectoral partnerships are viewed as saving costs, reducing product development cycles, and accelerating distribution of affordable treatments (Reich 2002). Coordination across borders is proposed to deliver solutions for infectious diseases and their root causes (Cooper et al. 2007; Garrett 2007). In the maze of actors involved in these efforts, universities are important players through their contributions to knowledge creation and

dissemination. Within the research community, global health brings together specialists from diverse fields in the biomedical, health, and social sciences (MacFarlane et al. 2008).

Organizing emerging academic fields: a resource-based perspective

There are multiple competing priorities and demands on university resources and administrative attention at any given time. Social and scientific movements such as global health present a crucial source of external support and legitimacy for university actors embracing similar interests and dispositions. Universities harbor myriad disciplinary communities in academic departments, and this constitutes their basic organizational foundation (Clark 1983; Abbott 2002). In addition, they host several more transient research groups within and across those communities aspiring to a more stable position in institutional and intellectual hierarchies. Research sponsors, philanthropists, academic scientists, and university administrators all promote initiatives involving new academic specialties, interdisciplinary research, and problem-oriented research (Brint 2005; Geiger 2004). Pressing policy priorities, social and economic problems, and technology challenges capture the attention of academic actors, who may join in the networks promoting them. The rampant growth of research centers and institutes, independent laboratories and cross-departmental programs, among other forms speaks to the growing demand for new ways of channeling resources and academic work. To capture these processes, the conceptual framework for this study combines three theoretical perspectives that deal with the crucial role of resources in scientific careers, university organization, and inter-organizational exchanges.

Analyzing how universities organize programs in emergent academic fields requires a recognition of the fundamental role of researchers in the process. The accumulation of resources, material and symbolic, is crucial for researchers to establish their academic careers (Latour and Woolgar 1979). They need funding, equipment, facilities, and students that enable and support research. Researchers turn those resources into academic outputs that generate recognition and prestige, such as publications, grants, and awards. Sustaining a productive ‘credibility cycle’ enhances the standing of researchers within their epistemic communities, breeding further success. Well-positioned researchers are able to shape developments in their fields, as well as to advance particular research specialties and novel intellectual movements (Frickel and Gross 2005). Peer recognition also influences support at the institutional level, as established researchers are more likely to attract external funding, talented students and colleagues, and be coveted by other universities. These crucial dynamics of scientific activity highlight the inter-dependencies between university researchers and several resource providers, including scholarly communities, funding agencies, research advocates, and university administrators. Campus actors seeking to build an organizational base for emerging fields need to acquire support from important internal and external groups (Jong 2008). For emerging fields to take root in universities it is necessary for researchers to engage in successful exchanges with multiple other actors, acquiring the necessary support and resources to feed their career aspirations.

Besides this researcher- or laboratory-based perspective of scientific activity, it is important to note that different universities provide distinctive conditions for researchers in emerging fields to carry out their work. Drawing on the resource-based view of the firm (Penrose 1959), universities are seen as unique combinations of tangible and intangible resources. The resource-based view is particularly apt at unveiling how internal organizational features shape an organization’s performance. According to this theoretical perspective, organizations can benefit from the strategic use of their idiosyncratic resource

endowments, which are important sources of comparative advantage because they are hard to replicate (Wernerfelt 1984; Barney 1991). For the purposes of this analysis, relevant resources include the quality and standing of the faculty, existing academic programs and structures, research facilities and administrative supports, and location-related assets. To organize programs in emerging academic fields, existing departmental, program structures, and research strengths provide distinctive starting points for researchers on different campuses. Strong research assets that impinge on the emerging field may provide a more advantageous base for scientists wishing to organize new academic initiatives. Successful track records of particular universities in accommodating academic innovations may persuade external sponsors to support such initiatives. The university's location may provide differential access to key stakeholders involved in the establishment of the emerging field.

Finally, resource-dependence theory (Pfeffer and Salancik 1978) provides a complementary perspective that highlight interorganizational relations and their impacts on organizational structures and performance. Resource dependence theory points to the external determinants of internal organizational behaviors. Organizations depend on other organizations to acquire resources crucial to their survival, and those that are able to control access to scarce resources are able to set standards and norms in the field. For the present purposes, resource-dependence theory has twofold implications. First, the range and plurality of external sources of research support is an important dimension accounting for cross-national differences among universities (Clark 1995; Ben-David 1971; Whitley 2008). While there are certainly meaningful differences among universities within national higher education systems, various national contexts also offer distinctive opportunity structures for research-oriented institutions. Second, universities can be expected to direct their internal resources towards fields that are most highly valued by powerful external agents upon which they depend, such as research funding agencies. For emerging fields to become viable, university actors need to secure on-going support from sponsors that justify long-term commitments to the field. Within the emerging field, external agents mobilizing resources to advance the field are able to influence how early academic initiatives evolve. Since they are important gatekeepers into the field, they hold the power to shape ideas and strategies employed at this early stage of field development.

The study

This paper reports on a comparative analysis of four leading institutions in Canada and the US: McGill University, the University of Toronto, Harvard University, and Johns Hopkins University. A comparative case study approach was adopted to examine how these leading universities organized their programs in the emerging field of global health. The universities were chosen because of their research intensity, national standing, and their influence on global health research and advocacy at home and abroad. They are uniquely positioned to participate in the global health arena: their health science centers are sophisticated research infrastructures endowed with significant intellectual, physical and technological assets. They are important nodes in the healthcare systems of their countries, as well as hubs for drug discovery, human resource development and service delivery.

In comparing public Canadian and private American universities, some observations are in order. Canadian public universities are known as being relatively autonomous. Like their public counterparts in the US, they receive financial support for their operating budgets from provincial governments. The federal government funds most of their sponsored

research. While tuition and private sources of research funding and philanthropy are on the rise in Canada, they are not at the levels found among the elite private universities in the US. These four universities may not be comparable in some ways as organizations, but for our purposes they are indeed comparable in other important ways. Most crucially, they have similar positions in the higher education hierarchies within their national contexts, enjoying the benefits that accrue from such positions. Interestingly, Toronto and McGill are the only Canadian members of the Association of American Universities (AAU), a historical marker of institutional prestige in the US.

The analysis of how these universities organized their global health initiatives is based on 60 semi-structured interviews with academic and administrative staff from the schools of medicine and public health in the four institutions ($N = 16$ Johns Hopkins, 14 Harvard, 13 McGill, and 17 Toronto). Interviews were conducted over the summer-fall of 2008. The interviewees were asked several open ended questions about the formation and operation of their global health programs. The data were augmented by a content analysis of annual academic plans, strategic plans, published reports, and other documentation that was produced over the period of 2000–2008 and was available in the public domain.¹ Standard qualitative data analysis techniques were employed to code and analyze the data (Miles and Huberman 1994; Yin 2003). Additional contacts were made with interviewees from each participating university to discuss the draft research report and enhance factual accuracy.

Findings

As described above, academic research in the global health field has a number of distinctive features, which permeate the narratives of scientists at the four universities who were interviewed for this study. They report an interest in social causes inherent in the field, an attraction to working internationally, and often refer to the noble aim of improving the well being of populations worldwide as personal motivations. Sixty percent of our respondents have reported being associated with non-governmental and civic organizations in the advocacy of the global health movement. The ability of scientific leaders to reach out to important external agents was paramount in the establishment of global health initiatives at the four universities. In all cases, more established investigators led global health programs on their campuses.² Their credibility facilitated successful connections with sponsors, institutional authorities, interdisciplinary teams, as well as the global networks. Given that resources and support are critical for academics to be able to initiate, maintain, and expand research programs, asymmetries in the availability of both were a key distinction between the experience of Canadian and American researchers.

Our data indicates that two broad factors shaped the patterns found at the four universities. First, the emergence of global health programs in the universities investigated was influenced by the level of domestic support for global health from important research sponsors. Below we compare and contrast the different national contexts, drawing on the views of our interviewees and augmenting them with other sources. Second, the configuration of previous academic structures in correlate research fields emerged as another important aspect in how global health was assimilated in the university organization. This is explored in the following section. Finally, we discuss the impact of the varying

¹ Some of the Toronto interview data were used from a previous study by one of the authors (Oleksyienko 2008).

² Consequently, about ninety percent of the interviewees in this study were senior faculty members.

conditions found in the American and Canadian universities on the ability of researchers to compete in the global health field.

The influence of national contexts

Although global health is a cross-border movement involving academic institutions and other actors in international partnerships, our analysis suggests that domestic research sponsors play a critical role in shaping university initiatives in global health. University scientists and administrators view the interests and strategies of domestic sponsors as setting the opportunity structure for programs in emerging fields. The commitments of their universities to global health were influenced by the perceived priorities of important funding sources. Harvard and Johns Hopkins are supported by a growing base of domestic donors with global health interests, which augment federal sources of research funding. Toronto and McGill, on the other hand, draw most of their support from federal agencies whose global health initiatives have been few and incremental. The overall emphasis among research sponsors has been on the domestic health issues that generate more public pressure and political attention. These different contexts and their impacts on the emergence of global health programs in the universities are described below.

The US has been a crucial site for the surge of support for global health since the 1990s. The US National Institutes of Health (NIH) and the Centers for Disease Control and Prevention have been champions of international health initiatives for decades. In the last 5 years, the US government invested billions of dollars in fighting major global pandemics such as HIV/AIDS, malaria, tuberculosis and other infectious diseases, and it announced significant further commitments. Universities have been playing an instrumental role in USAID initiatives promoting healthcare, as well as in new health policy and planning in foreign countries (Markle et al. 2007; Board on International Health & Institute of Medicine 1997; OECD 2006). Global health has come to occupy an important place in the general public health debate in the US.

In addition to federal agencies, private foundations have been a substantial source of support for global health as well. The Rockefeller Foundation and the Edna McConnell Clark Foundation have funded immunological research and development (LeRoy 1999). Networks involving the World Bank, UN AIDS, the World Health Organization and other multilateral institutions based in Washington, DC provided significant assistance for the creation of various non-governmental programs, such as the International AIDS Vaccine Initiative or the International Trachoma Initiative. Other foundations, such as the W. K. Kellogg Foundation and the Henry J. Kaiser Family Foundation, invested in university education programs to train health professionals for developing countries. As a result, academic researchers were able to engage in field activities such as providing community-based primary care, developing equitable healthcare systems, and promoting public health education. The Ford, Hewlett, Mellon, Packard and MacArthur foundations have supported medical scientists for international research and education in reproductive health and family planning. This landscape has been enriched with the rise of the Bill and Melinda Gates Foundation as a major promoter and sponsor of global health causes. In collaboration with NIH, the Bill and Melinda Gates Foundation established goal-oriented, large-scale partnership programs engaging research groups from multiple countries (McNeil 2005).

Researchers at Harvard and Johns Hopkins shared a positive outlook on the commitment of federal agencies and private foundations to global health in the medium- to long-term. They felt “there is a huge amount of money for global health research”, a common observation, and that they and their colleagues heeded to the programmatic priorities of

federal agencies. One researcher provides a representative view: “the funding agencies certainly influence the ordering of priorities. The amounts of money that are available for HIV are certainly responsible for an enormous increase in HIV research, and so TB and malaria have got much higher visibility because of the funding available”. The emerging field of global health is viewed as a hot area for health scientists to be in, and for universities to nurture.

Global health has not been perceived as a priority for federal research and development agencies in Canada. While the broad global health landscape has been acknowledged in policy discussions on international development (e.g., IDRC 2003), support for research-related initiatives has been intermittent. In general, Canada makes a more modest investment in this field than other major industrial economies (OECD 2006, 2007), despite making sizeable contributions to multilateral aid agencies. Unlike the US Agency for International Development, the Canadian International Development Agency (CIDA) provides limited support to universities, and does not regard research as a meaningful objective in its global health program.³ Most importantly, the Canadian Institutes for Health Research (CIHR), Canada’s main research funding agency in the life sciences, has over the decade provided little support to global health.⁴

In response to pressures from universities and civic society organizations advocating for global health early in the decade, CIDA, Health Canada, the International Development Research Centre and CIHR jointly spearheaded the Global Health Research Initiative (GHRI) in late 2001. Since then, the initiative has supported a variety of programs domestically and abroad.⁵ However, critics argue that the initiative turned out to be a largely symbolic measure, rather than a substantive effort. According to the interviewees, the Canadian coalition raised expectations among hundreds of researchers, who became engaged in a dispiriting competition for relatively small grants accompanied by complex bureaucratic reporting mechanisms and very few opportunities for sustainable work. Most likely in response to the criticisms, the GHRI shifted from seed funding programs to larger projects involving domestic and international research collaborations beginning in 2007. Predictably, researchers welcomed this change as allowing for long-range commitments on campuses. However, they are still cautious, viewing the recent history of fits and starts in global health programs as an indication that the current federal commitment may be temporary. One researcher summarizes the lingering frustration voiced by global health scientists interviewed for this study: “I’d like to see more infrastructure money available and larger grants, which would allow for a program of research to be developed over time, as opposed to doing it on a one time, ad hoc sort of project. Sustaining these initiatives is not easy”.

Researchers view the comparatively low profile of Canadian investments in global health as inhibiting the involvement of scientific institutions in the field. One researcher expresses the general perception: “On the international scene, if ... you look where the

³ The CIDA-funded programs favoring non-governmental and consulting organizations as managers of a limited number of research projects were noted as inducing competition rather than collaboration in the field. The role of civic society organizations in health research is noted as growing. See Sanders et al. (2004).

⁴ A review of CIHR programs since 2000 for global health show little support, corroborating our interviewees’ perceptions. Up to 2005, only modest planning grants and fellowships were made available, and the programs were quickly discontinued. Thereafter, larger grants for collaborative research and clinical trials were made available through the Global Health Research Initiative.

⁵ For a description of on-going programs, see http://www.idrc.ca/ev_en.php?ID=114548_201&ID2=DO_TOPIC

leading work has been done in global health, Canadians probably could be playing proportionately a greater role than they currently are—and that is restricted by limitations in terms of funding”. Tellingly, some Canadian researchers working in this field strategically join in teams with US scientists, to access the more predictable US federal and private sources of global health funding. Another scientist gloomily observes that, “just as everything else is under-funded within the university, that certainly is under-funded”. Over the last decade, domestic funding for global health research has not been sufficient to induce universities to build internal capacity in the field.

In spite of the cross-border nature of the global health movement, university researchers in Canada and the US relate the attractiveness of the field to the interest and support from sponsors based in their countries. The perceived priorities of federal funding agencies, the primary sources of infrastructure and research support, were particularly important. International NGOs and multilateral agencies are other relevant sources of funding and support, but those are not seen as being sufficient to sustain long-range programs. The different national contexts sketched out above have influenced the way global health programs have evolved in American and Canadian universities, as described next.

Institutional approaches to global health

Global health initiatives at the four universities all involve researchers from numerous academic departments in the health sciences, social sciences, public policy and administration, law, and business studies. The major difference between the Canadian and US institutions relate to how global health programs have been embedded in the academic structure. At Harvard and Johns Hopkins, the field has been assimilated into previously existing academic departments that pioneered research and education in cognate areas. Toronto and McGill, on the other hand, pursue global health primarily through organized research units (ORUs). These differences relate to the universities’ responses to the external environment for global health, and also to the internal characteristics, resources, and structures of the universities.

Johns Hopkins and Harvard both have a long history of academic programs in cognate areas related to the emerging field of global health. They have also undertaken a number of initiatives more recently to further develop a global health focus across schools and departments. Moreover, both universities have schools of public health that some argue provide a congenial home for global health programs. Public health scientists investigate large populations and complex socio-economic environments affected by diseases, which encourages interactions with other fields of study beyond the health sciences.

The Department of International Health at the Johns Hopkins Bloomberg School of Public Health dates back to 1961. With 93 full-time and 200 part-time and adjunct faculty, the department currently implements numerous research and technical assistance projects in more than 30 countries.⁶ Johns Hopkins interviewees made frequent references to institutional history, more so than those at Harvard or the Canadian universities. The Johns Hopkins’ “organizational saga” of having the largest and the oldest Department of International Health in the US is said to play a significant role in its ability to compete internationally for the best faculty and students. It also helps in maintaining a large network of influential alumni in many countries of strategic interest to researchers. Many of these alumni are important stakeholders, interested in the continuation of Johns Hopkins’ successful record in global health.

⁶ See Quinn (2008) for a description of the center’s activities.

The Department of Population and International Health at Harvard School of Public Health (HSPH) has also operated for decades. Recently it was renamed as the department of “Global Health and Population”. It has 28 full-time and 15 part-time and adjunct faculty members. In addition, the Department of Social Medicine at Harvard Medical School (HMS) also recently adopted the name of “Global Health and Social Medicine” (22 faculty members), reflecting the increasingly global dimension of its work. The renaming of those departments is part of a broader institutional effort to give global health priority and visibility across the campus (described below).

Having departments embracing global health as a substantive focus created advantages for faculty at the two American universities. It reportedly instills more confidence in faculty members’ personal investments in global health, eases concerns over cross-departmental and interdisciplinary collaborations, promotes consideration of field activities in evaluation and reward processes, and creates a positive outlook for the recruitment of faculty and students. One Johns Hopkins researcher summarizes the advantages of global health thrusts in departments: “... sheer size, having faculty working in the majority of countries around the world, playing a leadership role in various projects, diversity of faculty”, which all make it easier for the university to assert an international reputation and profile.

In addition to having global health incorporated in departments, as well as in various ORUs, both Harvard and Johns Hopkins have promoted cross-departmental initiatives. Harvard has recently elected global health an institution-wide priority, with the president’s office supporting the Harvard Initiative for Global Health with an initial \$10 million. The planning process for the initiative reportedly involved more than 200 faculty members who were organized in 12 working groups to determine the university’s strategy in global health. The discussion was augmented by a number of scholarly symposia and interdisciplinary projects involving medical, public health, social science, law and business researchers. Having identified programmatic focus areas over 2007–2008, the initiative involves creating cross-school linkages in research, education, and outreach in those areas, as well as continuously revisiting the programmatic foci.

At Johns Hopkins, the deans of Medicine, Public Health and Nursing created an inter-faculty Center for Global Health. Their initial investment was triple-matched by a gift from an anonymous donor. According to one of the leaders, this allowed the center to bring together 395 researchers implementing 462 projects in 150 countries, operating in “a very decentralized environment”. CGH has supported studies and fieldwork of 30 scholars, as well as study abroad and exchange for over 150 students during the first years of its operation. The center also supports project development and fundraising; however, it is not a revenue-generating unit and all indirect costs accrue at participating departments. The three founding deans actively advocate this inter-faculty collaboration. Johns Hopkins faculty also point to numerous seed funds at the school and department levels that encourage and support young faculty in the establishment of inter-departmental teams. In addition, the Framework for the Future Discovery program, which received support from the Provost’s office, stimulated interdisciplinary initiatives at the University and was open to investigators in global health. Interviewees regarded such funds as important in creating collaborations.

At Toronto and McGill, global health has mainly been pursued through self-supporting centers and institutes. These ORUs provided intellectual niches for global health researchers who sought an institutional affiliation for global health work and time away from traditional academic departments. These units are generally based in medical schools—only in 2008–2009, Toronto started a new school of public health. Both Toronto

and McGill encouraged connections among faculty and students working separately in various medical departments, as well as in other schools, through interdisciplinary conferences and curricula development. In addition, the universities undertook studies to advance consensus about the notions of global health and to identify priorities in the field.

Toronto attempted in the early 2000s to increase the integration of the faculty of medicine's global health efforts through the Centre for International Health—an umbrella centre to stimulate international collaboration in the field. Despite some promising initiatives, further dispersion and fragmentation followed during the decade with the creation of multiple ORUs in different global health niches. By 2008, the CIH had to manage a complex set of relations with three research centers within Toronto's health science network, each with a distinctive global health specialization; four centers implementing various international education and research agendas; and one inter-institutional consortium—all located at the Faculty of Medicine. About 20 of the 80 researchers affiliated with CIH were formally cross-affiliated with those other ORUs. Unlike the CGH at Johns Hopkins, CIH was expected to generate revenue, and hence, it had to compete with other units. The growing number of interests in global health projects across ORUs, the expanding researchers' and external demands, and competition for limited internal and external financial support—all led to administrative and organizational challenges that the umbrella center was unable to meet. More recently, a graduate program and a forum in global health were launched to support collaborations in the field.⁷

Similarly to Toronto, McGill created the Global Health Program as an umbrella unit, supervised by the Dean of Medicine. A faculty member (hired from Harvard) was put in charge of the program to try to integrate campus resources and establish a repository of global health projects implemented over the last two decades.⁸ The McGill Global Health Projects digital database—featuring 34 research projects and 33 development, clinical and educational initiatives in 34 countries—was created to encourage scientists to inform the campus and the public about their initiatives. McGill's Global Health Program has become a key hub for global health researchers and students, but like the Toronto centers, it lacks the status and resources of a 'true' academic unit.

In general, the Canadian schools observed are in the process of continuous discussions about potential strategies. They seek to identify institutional priorities and increase coordination, but consensus on aims and means to achieve them has yet to be reached. The lack of domestic funding described above is viewed as a key deterrent to greater institutional support for global health. As a McGill interviewee remarks, "It all comes to money—there are a lot of competing interests within the faculty of medicine. I think what is really pushing it, my impression is, are the students themselves. There is a huge demand on the part of students for more involvement in global health".⁹

Interviewees at both Toronto and McGill noted several disadvantages of their institutional approaches to global health. Reliance on centers, and some decentralization (experienced at Toronto) reportedly generated problems such as internal competition,

⁷ The intent to create a new global health division was announced during the 2008–2009 academic year by the new school of public health at Toronto's Faculty of Medicine, soon after the preliminary findings of this study were sent to interviewees.

⁸ Some of these programs are described in Saba and Brewer (2008).

⁹ Although universities do not collect data on the numbers of students involved, the growth of student-driven initiatives such as the McGill Global AIDS Coalition, McGill International Health Initiative and McGill Nurses for Global Health is suggestive of the interest in the field. Both in McGill and Toronto, students are remarked as being important contributors and organizers of meetings, global health fairs and electronic publications.

duplication of efforts, focus on piecemeal initiatives, fragmented institutional memory, absence of opportunities for faculty growth or promotion, and a weak educational basis for graduate or post-doctoral students. Left to fend for themselves, ORUs pursue their own small-scale projects and resist real or perceived oversight over their activities in the absence of institutional support. A Toronto researcher captures the ensuing tension: “There’s a lot of support for the intellectual excitement of engaging [globally]... I don’t think that there is a lot of support financially, programmatically and institutionally for doing that... But countless individuals energetically, often in spite of rather than because of the university support have forged these relationships. As a result, they are all over the place. There is a lot of ‘one hand not knowing what the other hand is doing’”.

Lacking a global health emphasis in any single department, researchers at Toronto and McGill feel that their institutions are unable to build a critical mass and legitimize work in the field within the institutions. Previous academic structures at both universities did not provide a platform for global health to develop, despite the decentralized efforts of individual researchers. Many Canadian respondents argue that real change will not begin without academic institutions making global health a priority, regardless of environmental constraints. A McGill faculty member summarizes a common impression among researchers at both Canadian institutions: “if they [Faculties of Medicine] are going to move forward in global health and if they are going to attract young people who make it part of their scientific careers, they need to create not a program; they need to create an academic division of global health ... what [that] implies is that you give place to individuals whose promotion and tenure will be based on their productivity and contribution in that field”.

Opening up faculty positions for global health specialists is fundamental for the field to thrive. Besides the structural differences noted above, other organizational issues surface as interviewees discuss the prospects of recent and new hires in global health. At the American universities, where it is usual for biomedical and health science departments to rely on “soft money” to support faculty salaries, individual success in gathering external support for global health research is paramount. One Johns Hopkins global health researcher claims that “the thing that makes Hopkins if not unique, then probably different than other schools is that the departments are run on soft money”. For particular lines of research to thrive, success in securing continuing external patronage is crucial, as health scientists are expected to support their salaries through research grants. This situation is common among academic health science centers in the US, owing in large part to substantial research funding provided by the NIH—by far the largest federal research agency—despite the concerns over the stagnation in the agency’s budget in recent years. External sponsorship for global health research provided by US-based organizations, described above, allowed departments to open up positions for specialists in the field more readily.

In contrast, biomedical and health science departments at the Canadian institutions rely to a greater extent on operating budgets to support faculty, students, and facilities. Successful grantsmanship is crucial, of course, but federal agency regulations restrict opportunities for the cost-recovery of faculty salaries on research grants. In general, Canadian universities bear a greater share of the indirect costs of research than their American counterparts, an issue perennially debated by leading institutions such as Toronto and McGill. Tied to the lack of sustained external opportunities for global health work, as described above, this structural feature of Canadian universities creates a more conservative environment for new commitments to the field.

Overall, for Harvard and Johns Hopkins, previously existing academic structures provided a more congenial home for global health researchers. The adoption of global health foci in departments followed from their established competencies and interests, in addition to perceptions about the growing saliency of the field. Centers and institutes operate across those departments, linking their researchers to a broader segment of the campuses. Lacking academic homes, global health researchers at Toronto and McGill focus their efforts on ORUs that rely on competitive extramural support. Theirs is a relatively precarious institutional position, which depends on continuing success at obtaining external grants and on the individual initiative of their directors.

Enabling collaborative efforts in global health

As noted above, global health sponsors often require collaborative research across disciplines and geographic locations, creating organizational challenges for scientists and their universities. In grant competitions supporting large-scale projects, consideration is given to the management aspects of how partnerships are going to be coordinated, supported, and accounted for. Supporting inter-institutional partnerships across borders and global outreach efforts are important elements in facilitating global health work. The different organizational conditions observed in the American and Canadian institutions affect the ability of global health researchers to compete successfully for major external grants, as well as to conduct collaborative projects internationally. While interviewees view science as fundamentally driven by the individual curiosity and interests of researchers, large grants for long-range research projects—coveted by investigators and universities—highlight the importance of organizational resources.

The view that “research collaborations are determined by interactions between individual researchers” who are at “the centre of discovery” is common among scientists in both countries. Their expertise and experiences drive their ultimate decisions about project ideas, research locations, and team compositions. A reverberating comment across interviews is that “the research happens ... by investigators determining in what they might be interested in a particular area—and reaching out to colleagues who might have something to offer in that particular area”. In all four cases, established scientists were instrumental in securing external support and sponsorship within and beyond the traditional channels of research funding. Researchers with a profile and credibility in the field are coveted by sponsors and potential collaborators alike: “Who is leading it? No question about it. If you don’t have the right person, don’t do the project ... if the person is good, then he will line up all the ducks”, asserts a Toronto academic administrator. Indeed, it has been argued that new scientific movements are more readily advanced by senior researchers, who are better situated in their fields and enjoy more secure positions in universities (Frickel and Gross 2005). Considering the centrality of scientific leaders in advancing collaborative efforts, a Harvard interviewee notes, “the role of steering and institutions is quite modest, more modest than institutions would like to think probably”. Yet, while researchers in both countries share these views, they also highlight the importance of the organizational issues that make them more or less competitive for major external grants, apart from scientific merit.

Large-scale grants are noted by most interviewees as giving project leaders and their teams important material and symbolic resources to enable important projects in global health. The costs of large research programs involving partners overseas are substantial, and such funding allows scientists to hire additional researchers and staff, equip their laboratories, support students, and enable cross-border collaborations. A Toronto researcher

summarizes a common reaction among respondents to questions about research funding: “The role of large-scale grants is significant One cannot build a good infrastructure on small grants. Large-scale grants allow you to do work for 4–5 years and ensure the scale without recurrent fundraising that you need to do every few years. Without large grants, there would be no people, there would be no research products. We would not be able to start or sustain what we have started.”

In addition to the ability to coordinate and manage major projects, accountability issues become a challenge in the global health landscape. Management plans and accountability measures are encouraged by sponsors, particularly private foundations and multilateral agencies. Projects are expected to integrate values and expectations of sponsors, such as problem-orientation and practical impact, with those of academics. The project leader of a major international partnership based in one of the universities in our sample states: “the essential ingredients for success is responsiveness to what sponsors are interested in, and making sure that your interest aligns with theirs, and I think there is also a skill-set in milestone-driven funding. You have to like it: it’s a cross [between] traditional funding and venture capital.” This follows from the interest of global health sponsors in the application of knowledge, field interventions, and the generation of practical solutions to major health problems. Pointing to the problem of integrating teaching and community service as important elements of the field, a Johns Hopkins researcher remarks: “I think part of the problem is that it’s easier to evaluate contributions that they make to research than it is to evaluate the contribution they make to the public health practice. We struggle with what scholarship in the public health practice means”. The challenge of evaluation is pervasive in the field.

Harvard and Johns Hopkins have greater experience with the demands of global health sponsors, creating advantages for researchers on those campuses. Having established organizational supports through departments and cross-departmental initiatives facilitates the work of global health researchers in starting up projects, competing for extramural support, and managing inter-institutional collaborations. The initiatives described above to support cross-departmental work reflect the understanding that such interdisciplinary interactions are crucial for major global health programs to flourish. Moreover, those institutions have a longer history of involvement with donors, and established relationships with important contributors to global health causes. Such relations facilitate the solicitation of support for global health research and education on those campuses.

The Canadian institutions provide an uncertain terrain for researchers to initiate and sustain global health programs. In Toronto and McGill, research support is limited and related units often struggle with over-demand and under-staffing. At Toronto, most global health initiatives “come out of someone’s independent motivation, against odds—like you are using your own time, you are not getting paid for it”. In the absence of established routines to access administrative support and seed funding, institutional attempts to coordinate global health projects make researchers “impatient”. As an interviewee further notes: “[scientists] would like to be left alone to do the work that they’ve decided to do. They don’t want some ‘umbrella’ [unit] and people looking over their shoulder or telling them that maybe they should be focusing on something else Coming to some consensus about strategizing around pouring resources or coordinating resources into a few projects might be very difficult.” Lack of organizational resources to enable global health work further encourages researchers to pursue their agendas independently. Reflecting on the impacts of a weak organizational base for global health researchers, a McGill scientist asserts, “you need to have incentives to bring people together, and the way to make people work together is to establish funding patterns so that they are greater together than their

separate parts, and when they work together—they are more attractive to a donor”. Institutional supports are essential in the process: “If you are a [global health] champion and you have that vision, then you would think that there is a structure [at the university] and somebody can say that what you do is marketable... and if you are, we are going to help you do something”.

With the growing demand for large-scale global health efforts, researchers in the field depend on institutional supports and organizational capabilities to help them be competitive. Scientists at Harvard and Johns Hopkins enjoy advantages from the accumulated experience and dedicated resources to facilitate global health work. Their peers at Toronto and McGill, on the other hand, claim that they have to “learn everything through the seams of [their] pants” or “lead an uphill battle on their own in order to succeed”. Ultimately, the ability of researchers to secure crucial resources depends on important know how and organizational capabilities that enable and support the collaborative efforts expected from sponsors and the global health community.

Discussion: resource asymmetries and cumulative advantages

This analysis extends and qualifies previous observations on the expansion of global health in academe internationally. Even in the affluent North American context, where most global health research takes place, there are significant resource asymmetries between Canada and the US. National contexts and organizational capabilities shape the conditions under which the field emerges and scientists compete for resources and recognition. Our cross-case analysis indicates that the American universities investigated enjoyed appreciable cumulative advantages over the Canadian institutions. Of course, those advantages partly stem from broader asymmetries between the two countries and the institutions investigated—which underlie the existence of a wide range of internationally influential research sponsors in the public and private sectors in the US, and wealthy universities such as Harvard and Johns Hopkins. But as discussed above, such advantages also resulted from factors more specific to the global health context. Among those, two were critical in shaping how global health emerged at the four universities: national sources of support for global health, with US-based organizations being key agents in advancing the field internationally; and previous organizational structures and other universities’ capabilities that facilitated the assimilation of the field in the academic organization. Those sources of advantage speak to the role of external resource dependencies and internal organizational resources in shaping how the universities enter emerging academic fields such as global health.

External resource dependencies of universities on important sponsors at the national level proved crucial in shaping the attractiveness of global health as an area for academic commitments. Considering the relevance of national sources of support, institutional location is of course a crucial source of advantage, as described by the resource-based view of the firm. Supported by important research sponsors, global health gained substantial attention and support from researchers and administrators at Harvard and Johns Hopkins. With diverse funding sources in the US, the two universities behaved proactively and mobilized their own intellectual and financial assets for global health initiatives. Elected as an “institution-wide” priority at Harvard and targeted by a cross-school initiative at Johns Hopkins, global health garnered support at multiple organizational levels on those campuses. Scientists at those institutions could rely on a deeper and more sustainable base of domestic support for a global health agenda, making them in turn more equipped to develop research, education, and outreach initiatives internationally. Harvard and Johns

Hopkins also enjoyed cumulative advantages from the internal resources that shape university performance: structures, existing research capabilities, academic strengths, and reputation, among others. Schools of public health, for example, provide a more congenial academic home for global health researchers than medical schools, where the Canadian programs were based.

In contrast, the two top research universities in Canada by and large relied on the efforts of individual researchers to initiate and sustain global health programs. Restricted by the lack of domestic funding, many global health researchers based in Canada had to expediently seek sponsors abroad and collaborators in the US who could access greater funding opportunities, in order to reach out to partners in countries targeted by global health sponsors. Despite what some see as a growing interest among Canadian researchers and students in the field (Saba and Brewer 2008), global health is not perceived as a priority for important external agents, dampening the claim of researchers for scarce institutional resources. Some have argued that the emergence of global health programs reflects a desire to “brand the global prestige of an academic institution” and to “[access] new and large sources of funding”, in addition to facilitating global health research and education (MacFarlane et al. 2008). This analysis points to the difficulties facing Canadian institutions in achieving those objectives. Individually, even the leading Canadian universities examined here face limitations in their ability to support greater commitments to the field, which might lead to greater benefits and rewards. While aspirations to compete with elite US universities is part of the institutional rhetoric and academic plans of those universities, resource asymmetries are substantial.

In view of these realities, global health advocates in Canada and in other countries facing similar conditions might consider ways to overcome resource asymmetries. Canada’s experience in different fields is illustrative. Given the growing costs of science and multiple competing demands for scarce resources, creating a critical mass of global health research that is internationally competitive may be more feasible through inter-institutional collaboration. That has been a feature of Canadian science policy initiatives over the past two decades. Programs such as the Networks of Centres of Excellence have been created to coalesce researchers from different universities across the country, pooling resources to enable sustained collaborative efforts (Fisher et al. 2001). Providing dedicated support for long-term inter-institutional networks has arguably enable research of a greater scale and scope than would otherwise be possible. While the Global Health Research Initiative has provided some funding for global health through traditional grant mechanisms, it has not been a catalyst for a concerted effort to leverage resources across universities. As global health gains international relevance, questions about how to support academic teams and institutions more effectively acquire increasing importance.

Concluding remarks

Altogether, global health has emerged as a field no longer solely motivated by the humanitarian aim of assisting developing countries, but also by the need to develop domestic expertise in North America, as healthcare providers encounter the growing demands of an increasingly mobile workforce and immigrating populations. Integrating global health programs into the academic organization of research universities is required for sustained knowledge creation and the education of health professions with relevant knowledge and skills. As an interdisciplinary and problem-oriented field of studies, global health calls for academic environments that are conducive to innovations in

cross-departmental structures, interdisciplinary approaches, and external partnerships. Discussions on how global health is supported and organized on campuses to stimulate productivity and impact in the field are acquiring increasing importance. One element of this debate involves consideration of the aims and directions of the field from the viewpoint of experts and practitioners, which is well represented in the global health literature. Another important aspect is to examine empirically the experience of universities and researchers in the field, and this paper represents a step in this direction.

More broadly, this paper provides insight into the organization of emerging academic fields in universities. The comparative approach adopted here extends previous studies that examined how new areas of inquiry are embedded in academic organization within a single national context (e.g., Jong 2008). Resource dependence theory and the resource-based view of the firm provide useful lenses through which to examine the larger contexts shaping the efforts of global health researchers to advance the field. This analysis suggests that these theoretical perspectives can be fruitfully employed to analyze how universities assimilate novel fields of inquiry into their academic organization.

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