McGill

Follow-up on "Open Discussion on Research Funding and Support"

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Introduction

At its meeting on December 2, 2015, Senate held an "Open Discussion on Research Funding and Support." During the wide-ranging conversation, a few specific questions emerged. Research and International Relations (RIR) committed to identify and analyze available data that could help answer these questions.

This document is the result of the RIR's work, produced in collaboration with the Planning and Institutional Analysis (PIA) unit. It contains three tables of data from various sources, which respond to the following questions:

- Does a McGill researcher's career stage affect the likelihood of obtaining a Tri-Agency grant and has this situation changed over time?
- How do McGill investigators perform in large team grant competitions compared to individual grants in Tri-Agency programs?
- How does research funding performance in CIHR Operating Grants compare between McGill professors in the affiliated hospitals and those based on campus?

In response to the identified trends in the data, action items are suggested at the end of the document.

Summary of Key Findings

- Available data from the past decade show that the success rate for researchers from McGill increases gradually from early- to mid-career and then from mid-career to established researchers for operating grants from CIHR and NSERC. Over the past three years, however, early-career researchers have achieved the highest success rates in SSHRC programs.
- Only among NSERC programs do McGill researchers consistently achieve a higher market share in partnership programs than in operating grants. For CIHR and SSHRC, researchers appear to garner a larger percentage of individual operating funding than partnership funding.
- Historically, there appears to be little difference – consistently less than 1% – in CIHR success rates when comparing McGill researchers based on campus and those based at its affiliated hospitals. However, McGill-based researchers generate more funding per award on average than the affiliates.

Question 1: Does a McGill researcher's career stage affect the likelihood of obtaining a Tri-Agency grant and has this situation changed over time?

The origin of this question during the Senate discussion stemmed from a request to compare the success rate of first-time Tri-Agency applicants with those who are returning applicants for the first time (i.e. a researcher who has held his or her first grant for three-to-five years and is reapplying for the first time). Due to difficulties in finding data that identifies the second group, we have compared success rates among career stages: early-career (0-4 years from date of assistant professor rank); mid-career (5-8 years), and established (more than 8 years).

As presented in Table 1, since 2006 mid-career and established McGill researchers applying to fundamental grant programs in CIHR and NSERC have consistently achieved higher success rates than early-career researchers. Over the two most recent time periods, however, early-career researchers have had a higher success rate than their mid-career peers in SSHRC programs.

In general, the success rate of applications to NSERC at each point in a researcher's career has remained consistent over the past 10 years. In SSHRC, the success rate has decreased, notably for more established researchers (from 57% to 40%). The number of applications has been relatively stable for both NSERC and SSHRC across the three periods.

CIHR presents a special case in the data. Due to recent program reforms by CIHR, with the Foundation Scheme and the Project Scheme gradually replacing the Operating Grants, data over time is not comparable. This explains, at least in part, why the last period for CIHR shows a decrease in awarded funding versus the first two periods. An across-the-board decline in success rates can also be seen after 2008. However, CIHR success rates remained fairly stable at each career stage when comparing the two most recent time periods, with the exception of a decline in early-career success rates in 2012-14.

Table 1: Success rate by status of McGill applicant and competition period[1]					
Early = 4 years and less Mid = 5 to 8 years Established = more than 8 years[2]			**CIHR Operating (MOP)**	**NSERC Discovery Individual**	**SSHRC Standard and Insights**
2006, 2007, 2008	Early	Success rate	35.8%	67.9%	43.1%
		Number of applications	190	165	144
	Mid	Success rate	36.0%	75.4%	52.2%
		Number of applications	267	211	138
	Established	Success rate	45.1%	78.4%	57.0%
		Number of applications	173	125	93
Total # of applications 2006-2008			630	501	375
Total awards 2006-2008			$104,425,840	$55,264,310	$15,467,674
2009, 2010, 2011	Early	Success rate	23.3%	64.6%	45.8%
		Number of applications	133	147	120
	Mid	Success rate	21.0%	65.9%	35.7%
		Number of applications	124	91	84
	Established	Success rate	22.4%	71.8%	51.2%
		Number of applications	523	284	172
Total # of applications 2009-2011			780	522	376
Total awards 2009-2011			$103,383,726	$58,179,817	$18,279,211
2012, 2013, 2014	Early	Success rate	17.2%	62.5%	40.5%
		Number of applications	122	96	126
	Mid	Success rate	20.8%	73.6%	33.8%
		Number of applications	96	72	71
	Established	Success rate	23.8%	74.3%	39.8%
		Number of applications	433	303	191
Total # of applications 2012-2014			651	471	388
Total awards 2012-2014			$85,366,245	$57,197,484	$23,487,794

Source: InfoEd and Human Resources

[1] Hospital data has been removed because pre-award information is not reliably available (i.e. only successful applications are entered in McGill's data warehouse). In addition, only applications by tenure-stream professors were retained for this analysis. Applications from non-tenure-track professors represented a small proportion of all applications considered (6% or 312 out of 5,006 applications). They were excluded because determining where the researcher was in his or her career could not be established as reliably as for tenure-track professors.

[2] To determine the stage of the researcher, we calculated the number of years between when the researcher achieved the rank of assistant professor and the competition date. If the time elapse was four years or less, then the individual was considered "early-career"; five to eight years was considered "mid-career"; and more than eight years was considered "established." Those researchers without the rank of assistant professor (i.e. they were hired at the associate or full professor rank) were considered "established." It is worth noting that using slightly different criteria to group professors into alternate categories yielded similar results.

Question 2: How do McGill investigators perform in large team grant competitions compared to individual grants in Tri-Agency programs?

The performance has been measured as the percentage of funding awarded to McGill of the total funding granted nationally (i.e. "market share") shown in annual installments. In Table 2, we present the market share of McGill, including its affiliated hospitals, in selected Tri-Agency funding programs as a means of exploring the above question.

McGill's market share for individual operating grant programs has been fairly stable since FY09: approximately 14% in CIHR, 6.1% in NSERC (increasing slightly over time), and 7-8% in SSHRC.

McGill's share of team grants in CIHR has also been relatively stable at 11%, which is 3 percentage points lower than its share of the CIHR individual grants.

For NSERC, McGill's market share of the individual Discovery Grants increased from 5.9% in FY09 to 6.5% in FY14. For the Research Networks and Strategic Projects programs, however, McGill's market share has been higher (8.9%) than in Discovery Grant programs (6.5%).

Finally, McGill's SSHRC market share is similar across programs when comparing individual operating (Insight and Insight Development) and partnership grants. McGill's market share is about 7.5% for the individual programs and 6.5% for the partnership programs – only a 1 percentage point difference.

Table 2: McGill's market share by selected Tri-Agency programs

Agency	Program	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
CIHR	Operating Grant (individual)	14.1%	14.1%	13.8%	13.8%	14.2%	14.2%
	Team Grants[3]	9.6%	11.3%	11.5%	11.3%	9.6%	11.3%
	Total	13.7%	13.8%	13.5%	13.5%	13.7%	14.0%
NSERC	Discovery, including Subatomic Physics (individual)	5.9%	5.9%	5.9%	6.1%	6.5%	6.5%
	Research Networks and Strategic Projects (team)	8.2%	10.0%	9.3%	9.0%	9.8%	8.9%
	Total	6.4%	6.8%	6.7%	6.8%	7.1%	6.9%
SSHRC	Standard Grants (individual)	7.1%	6.8%	7.1%	7.4%	7.0%	8.0%
	Insight and Insight Development (individual)[4]				10.9%	7.3%	7.5%
	Partnership and Partnership Development (team)				6.1%	6.6%	6.4%
	Total	7.1%	6.8%	7.1%	7.5%	7.0%	7.3%

Source: Observatoire des Sciences et Technologie (OST)

[3] A list of 66 CIHR team grant programs are captured here. Details are available upon request.

[4] SSHRC's introduction of Insight and Insight Development Grants created an anomaly for 2011-12 market share.

Question 3: How does research funding performance in CIHR Operating Grants compare between McGill professors in the affiliated hospitals and those based on campus?

Table 3 indicates that success rates, based on number of applications, in CIHR programs for those McGill researchers on campus and those at affiliated hospitals are comparable over time, consistently resulting in less than 1% difference.

The one exception is that McGill-based researchers achieved a higher success rate in the 2014-15 CIHR Operating Grant competition than researchers based at the affiliated hospitals (25% vs. 9.9%). This statistical anomaly could be the result of the fact that FY15 was the last round of CIHR Operating Grants program, known as the "2015 Transitional Operating Grant." Researchers would have adjusted their priorities and approaches in order to transition from one program to another.

The average amount per award for campus-based researchers has been consistently higher (approximately 10-15%) over the last four fiscal years than at the hospitals. However, over the same time period, a higher volume of applications has been submitted by the hospitals, which has resulted in more total funding per fiscal year to the hospitals than at McGill.

As implementation only began in FY15, the new CIHR Foundation Scheme program will impact success rates and awarded amounts in the coming years. Data collection will allow us to further analyze how this new scheme will affect funding for McGill researchers, both on campus and at the affiliated hospitals.

Table 3: Success rates at McGill vs. Affiliates in CIHR Programs[5]				
			CIHR Operating Grant	**CIHR Foundation Scheme**
FY11-12[6]	Affiliates[7]	Number of applications	324	
		Success rate	21.6%	
		Total funding	$38,318,123	
		Average award	$547,402	
	McGill	Number of applications	253	
		Success rate	22.1%	
		Total funding	$34,324,494	
		Average award	$612,937	
FY12-13	Affiliates	Number of applications	339	
		Success rate	21.8%	
		Total funding	$42,021,902	
		Average award	$567,864	
	McGill	Number of applications	195	
		Success rate	22.1%	
		Total funding	$26,174,274	
		Average award	$594,870	
FY13-14	Affiliates	Number of applications	395	
		Success rate	17.0%	
		Total funding	$37,085,113	
		Average award	$553,509	
	McGill	Number of applications	221	
		Success rate	15.4%	
		Total funding	$21,373,517	
		Average award	$628,633	
FY14-15	Affiliates	Number of applications	181	72
		Success rate	9.9%	18%
		Total funding	$11,228,187	$35,741,624
		Average award	$623,788	$2,749,356
	McGill	Number of applications	104	65
		Success rate	25%	17%
		Total funding	$18,775,862	$24,891,819
		Average award	$722,148	$2,262,893

Source: OSR Competition Results

[5] Affiliates are counted by research site, not where the application originated. In addition, for this comparison, we used the fiscal year of the competition, which is not necessarily the same fiscal year as the awarded funding. "Total funding" therefore indicates the amount of funding that will be distributed over the full duration of the grants awarded in that fiscal year.

[6] FY12 and all subsequent fiscal years in this table include September and March competitions.

[7] Affiliates are: Douglas Mental Health University Institute, Rosalind & Morris Goodman Cancer Research Centre, Jewish Rehabilitation Hospital, Jewish General Hospital, St. Mary's Hospital, Montreal Neurological Institute and Hospital, Côte-des-Neiges Family Medicine Unit (CSSS de la Montagne), Montreal Children's Hospital, Montreal General Hospital, Montreal Chest Institute, and Royal Victoria Hospital.

Action Items

- Working with the Provost's Office, RIR will identify new areas and topics for training sessions that will help early-career researchers adapt to and ultimately excel in the changing Tri-Agency programs, with the goal of launching these sessions during the 2016-17 academic year.
- RIR will continue to expand personalized support for researchers through skill-building workshops, information sessions with successful grantees, detailed reviews of proposals, and new forms of "proximity support," where central research administration staff provide front-line services within the Faculties.
- Building on our recent strong performance in CFI-8, RIR will continue to prioritize providing new, more tailored support to large-scale projects via its Strategic Initiatives team, which is responsible for facilitating complex institutional grant applications.

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