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A longitudinal analysis of the distribution of research funding in Canadian and US universities

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Research Domains

International contexts and perspectives (ICP)

Abstract

One of the key concerns of science policymakers at the national level is the tension between concentrating resources on top research performers and developing distributed research capacity across regions and institutions. This study builds upon empirical research on this topic by investigating the distribution of research funding among American and Canadian universities between 2000-2021. We employ Gini coefficients, share-shift analysis, and growth change models to analyze trends in university research funding in this period. Our findings reveal a pattern of stability across both contexts over the past two decades. Our analyses show that despite persistent concerns over increasing concentration of resources, the dispersion of funding has remained stable between different groupings of universities in both countries.

Full paper

Introduction

Scholars have long investigated the extent to which the academic research enterprise is becoming more open and competitive or more concentrated and stratified. Zuckerman (1970) argued that the allocation of research funding was stratified and concentrated among few researchers and top-tier universities in the United States. Geiger and Feller (1995) indicate that the percentage of funding that the top 10 universities received declined from 1952-1990 in the US. Brint and Carr (2017) extended their analysis into the 2000s and did not find a pattern of either concentration or dispersion.

Examining the broader stratification of institutional resources in the higher education systems in Canada and the US, Zarifa (2008) found that both countries became more stratified over time. Davies and Zarifa (2012) documented increased stratification from 1971 to 2006, while Taylor and Cantwell (2019) presented evidence of increased concentration of resources at top-tier universities. Lau and Rosen (2015), on the other hand, find no evidence of increasing inequality among American universities.

We build upon these lines of inquiry by analyzing institutional research funding in Canada and the United States between 2000-2021. We examine whether broader patterns of institutional stratification have translated into the academic research enterprise in recent decades, in a comparative perspective.

Methods and Data

To account for the research intensity of universities, we used the Carnegie classification for doctoral universities for the US (including "Very High Research Activity" (VHRA) and "High Research Activity" (HRA)) and the Research Infosource classification based on Maclean's Education rankings for Canada (research-intensive, comprehensive, and teaching-oriented universities). We employed Gini coefficient and share-shift analysis as well as longitudinal models. The Gini coefficient, widely used to assess inequalities (e.g. Catalano et al., 2009; Halffman & Leydesdorff, 2010), ranges from 0 for perfect equality to 1 for complete inequality. We employ share-shift analysis to examine changes in the shares of research funding among the top 5 Canadian and top 28 American universities, representing the top 10 percent of their respective datasets. We also focus on the U-15 group in Canada, comprising research-intensive universities, and select a comparable number from the US to analyze share-shift among a larger group of top-tier universities. Finally, we calculated growth change for individual universities in both datasets.

Results and Discussion

Our results do not show significant differences in the measure of inequality between groups of universities either in the US or in Canada. The Gini coefficient for teaching-oriented, comprehensive, and research-intensive universities in Canada fluctuates between 0.62 and 0.65, and between 0.63 and 0.65 for Very High Research Activity (VHRA) and High Research Activity (HRA) universities in the US over 2000 to 2021.

Another way to look at the concentration of research resources is to focus on the share of research funding obtained by different tiers of institutions. The share shift analysis reveals a consistent distribution of funding, with the top tiers of research universities maintaining relatively stable shares over time in both countries. Looking at the very top of funded research performance, the top 5 Canadian universities exhibit share percentages comparable to or slightly higher than top 28 American universities (45%). The distribution among the next tier of universities in Canada (top 6-15, 36%) compared to the range of top 29-90 (39%) in the US. The self-designated U-15 group of research-intensive universities in Canada (82%) and top 90 universities (84%) have also maintained similar shares.

Finally, the longitudinal analysis focuses on changes over time In the rate of growth of sponsored research. Our results Indicate that the growth change in research funding between different categories of universities in both contexts do not differ from each other significantly. Therefore, research funding allocation has remained relatively stable between groups of institutions.

In conclusion, our paper builds upon previous studies on the American and Canadian contexts, revealing longitudinal stability in research funding allocations over the past two decades. The relative advantage of top-tier universities appears to be "locked-in", but not increasing. Our findings are consistent with Brint and Carr's (2017) results for an earlier period in the US, showing a continuity in the relative dispersion of research funding. However, our results provide a different perspective from earlier studies showing an increasing stratification in institutional resources in both countries. Davies and Zarifa (2012) reported marked differences in stratification between Canada and the US; in terms of the distribution of research funding, we do not find a general discrepancy between the countries. This might be attributable to the specific context of the academic research enterprise.

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