

GYA surveys

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Intro - explain the difference between applied, use inspired and fundamental research. . . . insert photo of Pasteur's quadrant - likely in the Intro chapter of the overall report.

Methods In addition to the official data presented in earlier chapters, we also developed and ran a quantitative online survey to query Canadian researchers about their perceptions of, and experiences with, funding for fundamental research. The survey first gathered basic information from each respondent about gender, discipline, career stage and the year their PhD was obtained, before moving on to detailed information about the types of research they conduct (fundamental, use-inspired, applied), their grant success rates, the extent of external partnerships in their research, and how each of these factors have changed over time. In addition, the survey asked respondents how important they perceive fundamental research is to the Canadian federal government, and future prospects for fundamental research in Canada. An important aim of the survey was to provide an understanding researcher's personal experiences and outlook on the research funding landscape in Canada.

The online survey was open from the end of May through early August 2016. To disseminate the survey to Canadian researchers, we gathered email addresses from university websites for as many faculty members as possible and emailed them directly. The survey also was shared broadly on social media, through the Global Young Academy network, on scientific list serves, and through personal connections.

-- Note: We defined 'Canadian' respondents as those who reported 'Canada' as their country of work

Results In total, 1283 Canadian researchers completed the online survey. Of these, almost three quarters were male (74%) and one quarter were female (25%); a very small proportion either did not input their gender or selected other. Almost all of the survey respondents (94%) were either senior academics (66%), defined as those researchers with more than ten years experience applying for research grants since completion of their PhD, or early career academics (29%) (Figure 1). <! — Female 318 / 1283; Male 946/1283 ECR: 367 / 1283; Non-academic ECR: 7; Non-academic >10yrs: 15; Post-doc: 48; Senior: 841 (65.5%); 5 no responses; Engineering 163 (12.7%); Inter 70 (5.48%); Med/Life Sci 251(19.65%); Natural 377 (29.5%); Other 3; Phys 382 (29.9%); Social 37. For some unknown reason this totals 1277; ->

Sixty per cent of responses came from either the natural or physical sciences (Figure 2). The remaining responses were spread amongst the medical and life sciences (20%), engineering (13%), interdisciplinary research (5%), and social sciences and humanities (3%).

Research Type SOMEHOW HAVE TO MAKE SENSE OF THE RESPONSES AND PLOT FOR THE % OF RESEARCH IN THE THREE CATEGORIES. Almost one third of researchers reported that the types of research they conduct has shifted over the past ten years (Figure 3). By far, the most reported reason for this change was funding (Figure 4). This suggests. . . . However, opinions about these changes were variable, with one quarter of respondents viewing them as slightly negative, one quarter slightly positive and one quarter very positive (Figure X).

External Partnerships The extent to which research is conducted with partners outside of academia, including in industry and non-governmental sectors, may also be considered as an indicator of use-inspired or applied research. Almost all respondents reported that their current research is conducted with some external partners, with X% reporting some partnership and X and Y% reporting strong or exclusive partnerships, respectively. In contrast, X% of researchers said that in the past they had no external partners in their research, whereas that number today was much lower. . . .

Again, the predominate reason given was funding related (Figure X).

However, very few researchers viewed this change as being very negative. Most researchers regarded it as either slightly negative or slightly positive, and X% viewed it as very positive.

Research Grants [STILL TO COME]

The majority of respondents believe that it is now either mandatory or very important to suggest practical applications of their research in order for their grant applications to be successful. This has shifted over time, with researchers reporting that between 2006 and 2010 it was only somewhat important to do so (Figure X).

Similarly..... including partners from for-profit or non-governmental sectors in grants to be successful (Figure X).

Perspectives on the State of Fundamental Research in Canada Over half of Canadian researchers who responded said that fundamental research is either very important or somewhat important to our government. Differences by career stage, discipline, gender....

At the same time, almost three-quarters of respondents said that applied research became a higher priority for our government over the past decade.

Summarize finding on how they think availability of research funding will change over the next five years:

Summary statistics

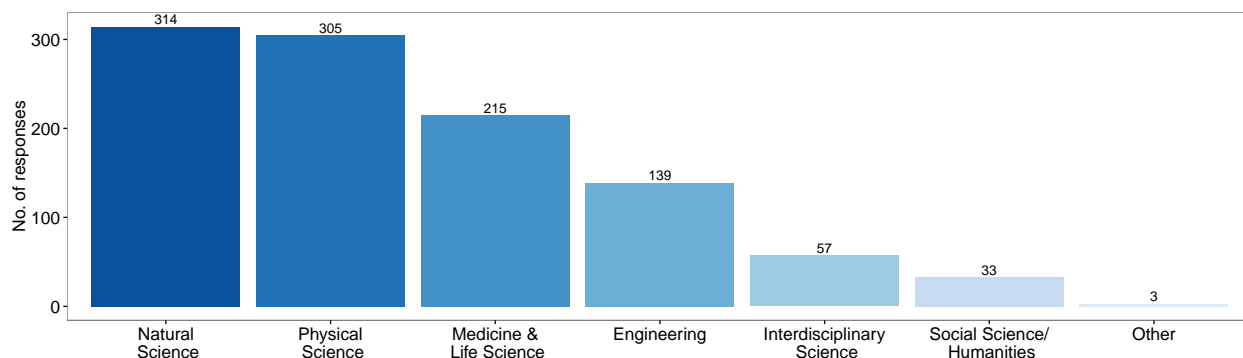


Figure 1: Survey responses by field of research

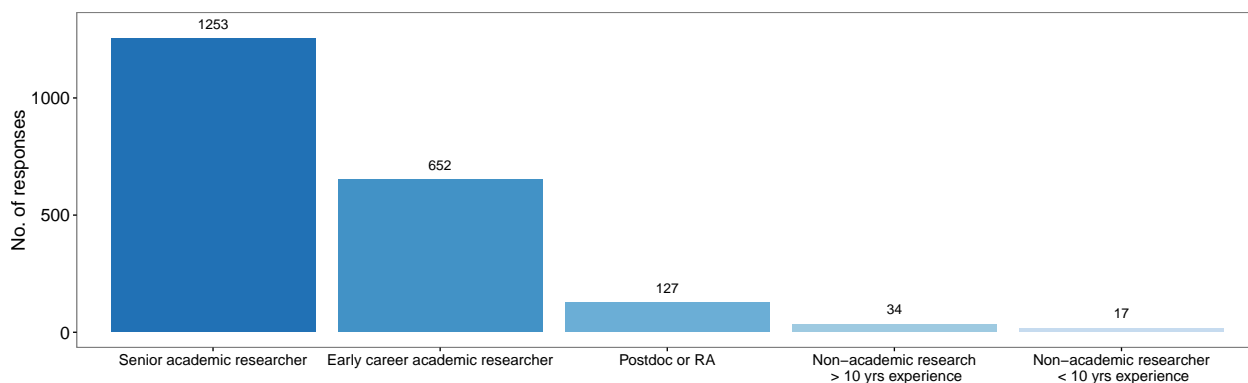


Figure 2: Survey responses by years of experience

GYA surveys: Canada

Part 1 - Type of Research Conducted

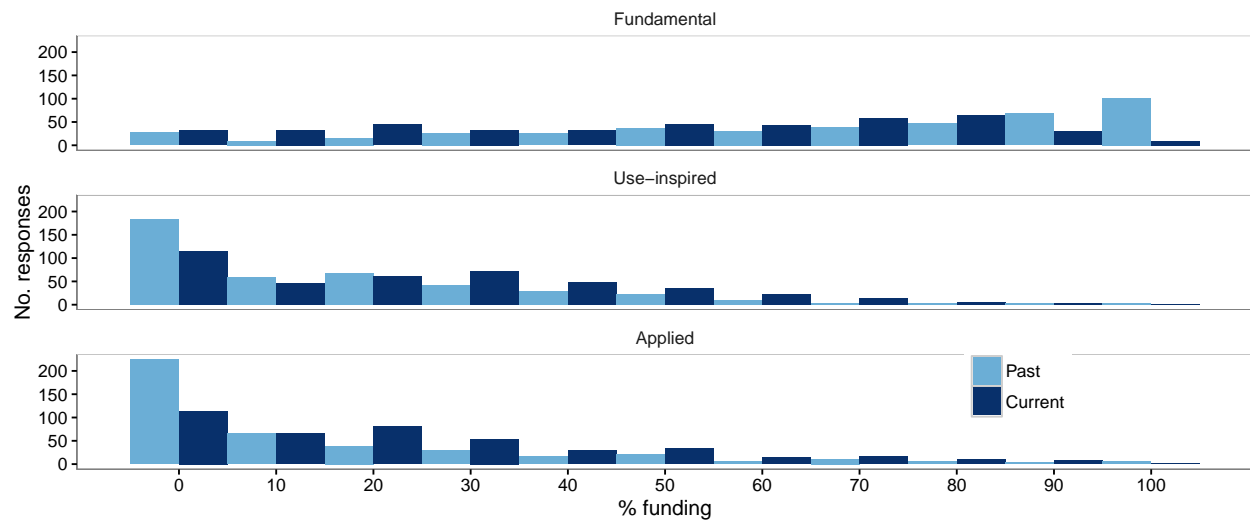


Figure 3: % funding allocated to fundamental, use-inspired and applied research

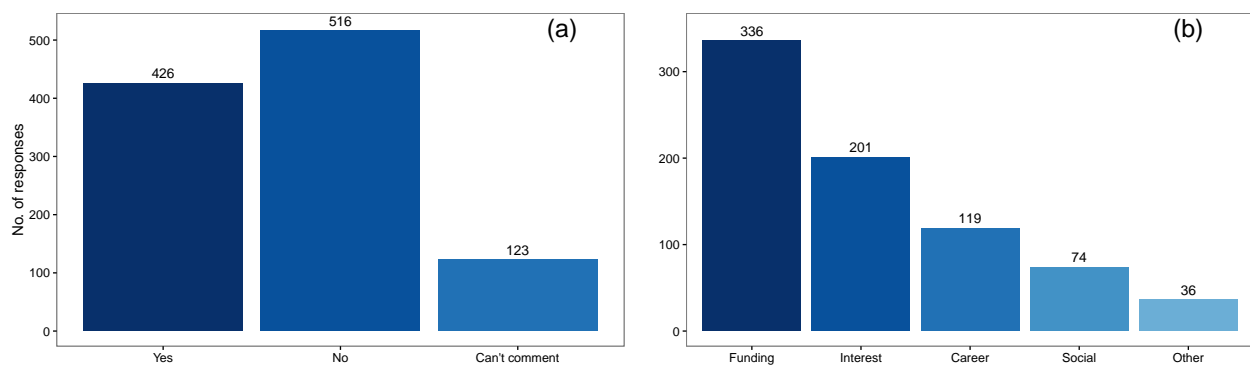


Figure 4: Reason for change in research over past 10 years

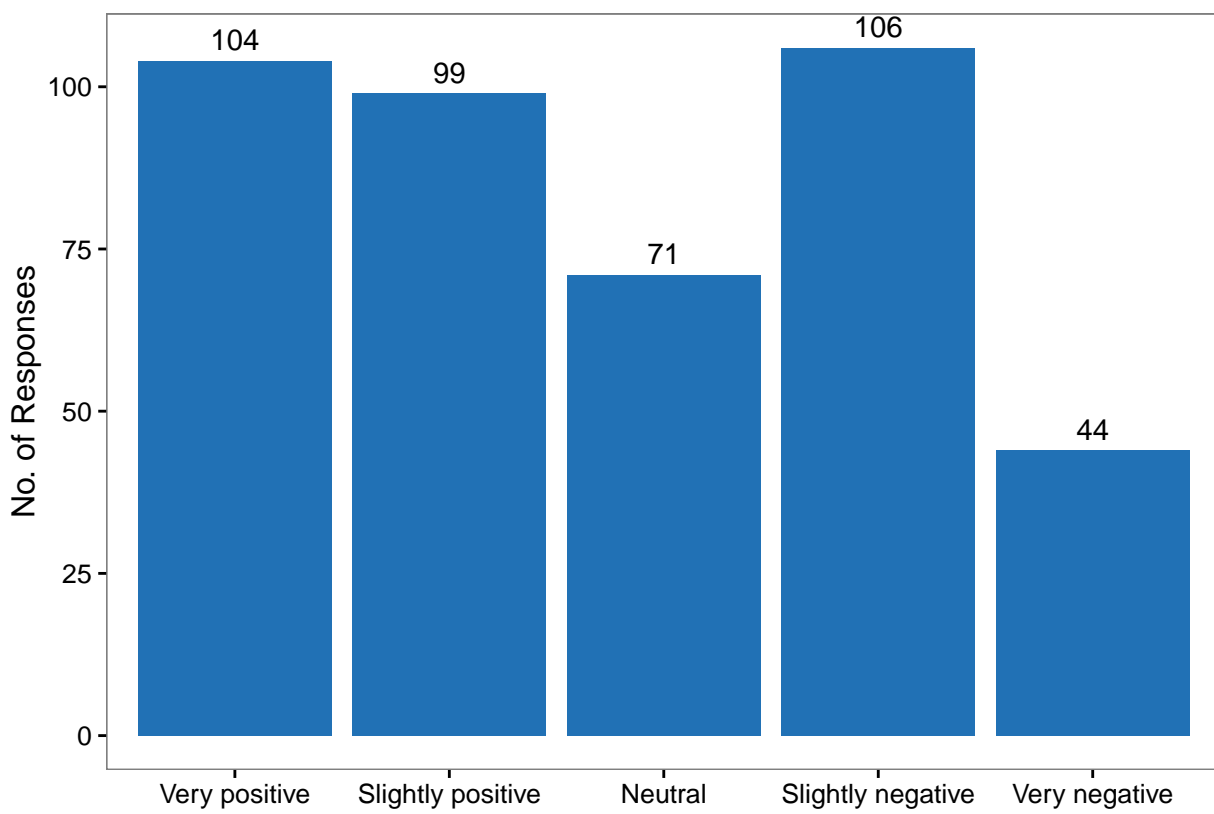


Figure 5: Opinion of change in research over past 10 years

Part 2 - External Partnerships

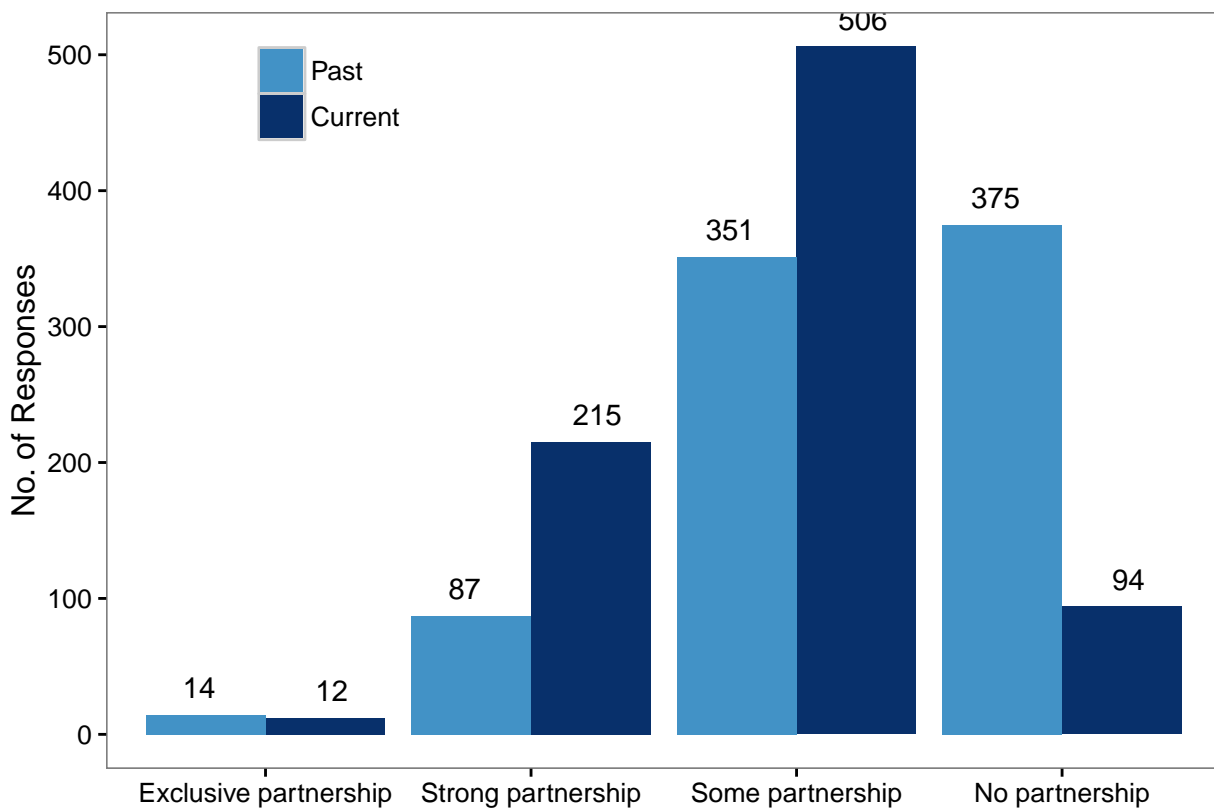


Figure 6: Current vs past level of partnership outside of academia

Part 3 - Grant Application History

Part 4 - Funding Trends

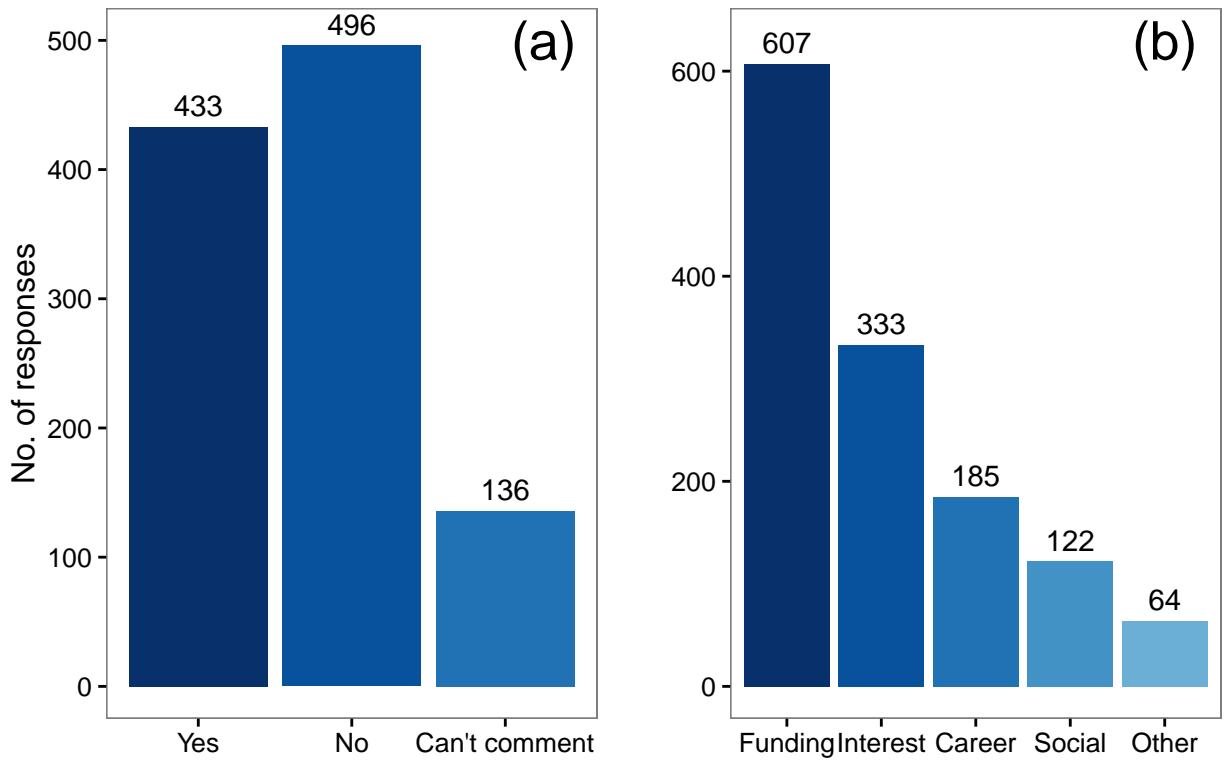


Figure 7: Reason for change over the past 10 years

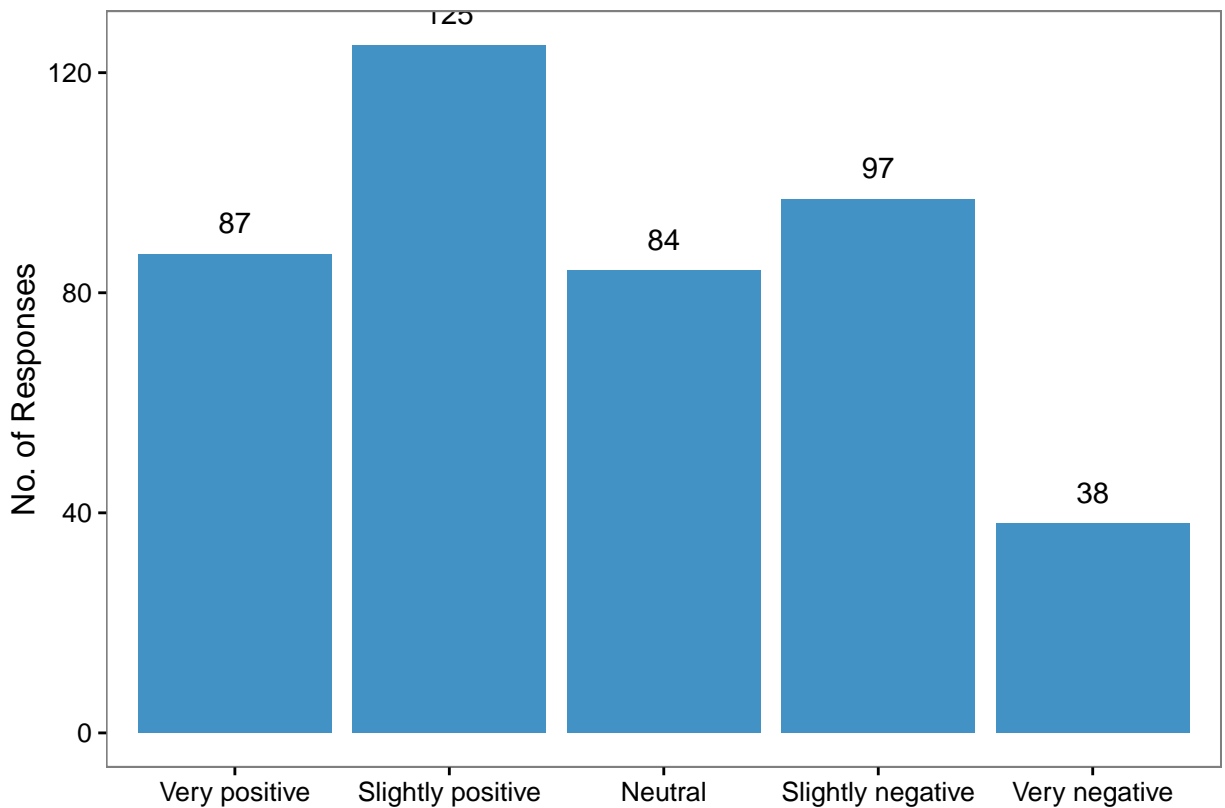


Figure 8: View of Change in partnership

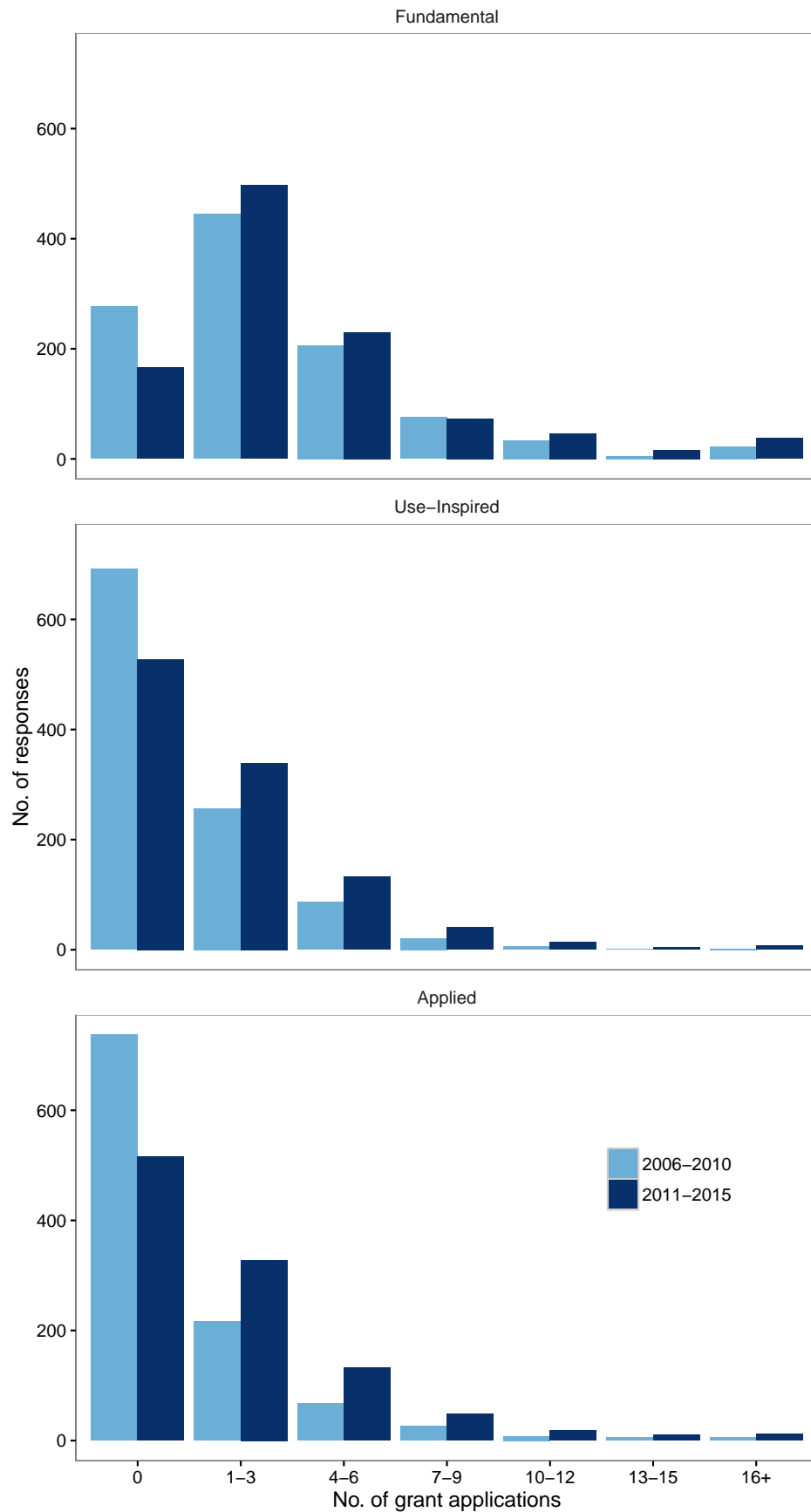


Figure 9: Number of external research grant applications

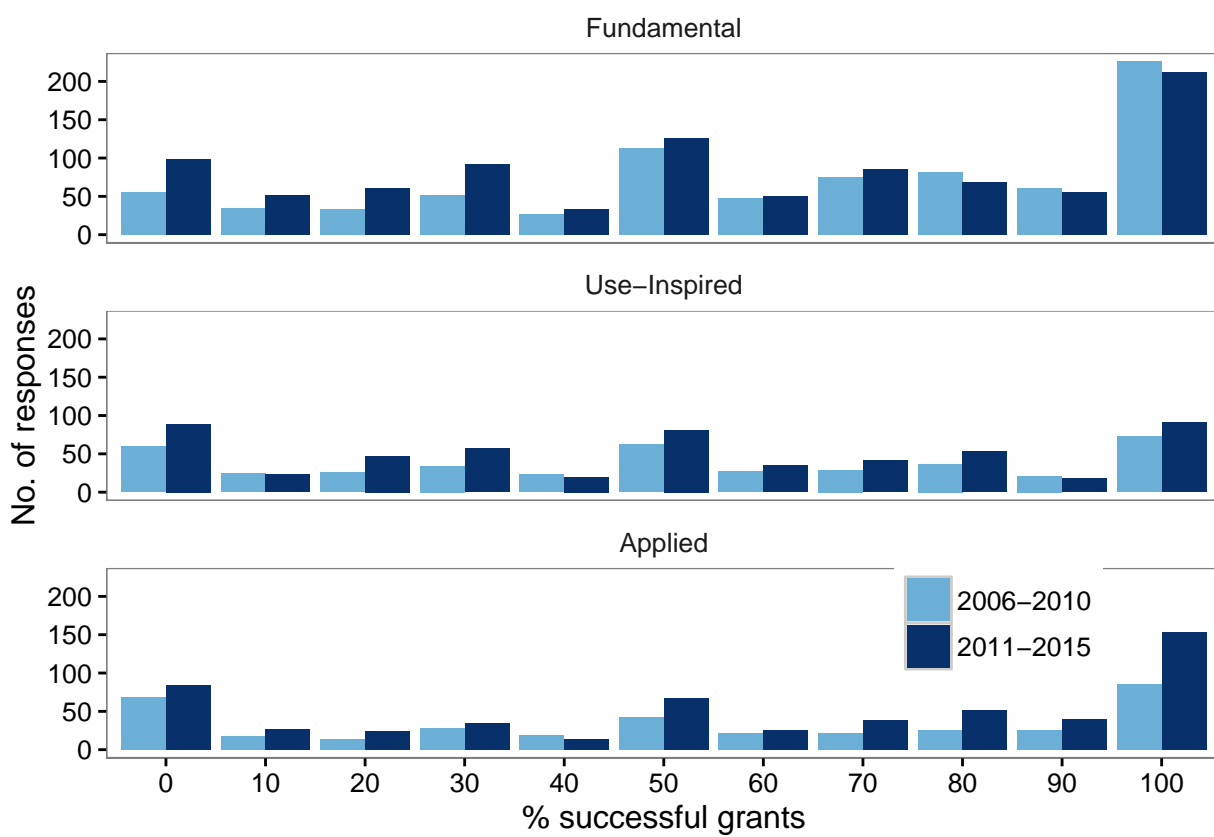


Figure 10: Percentage of research grant application success

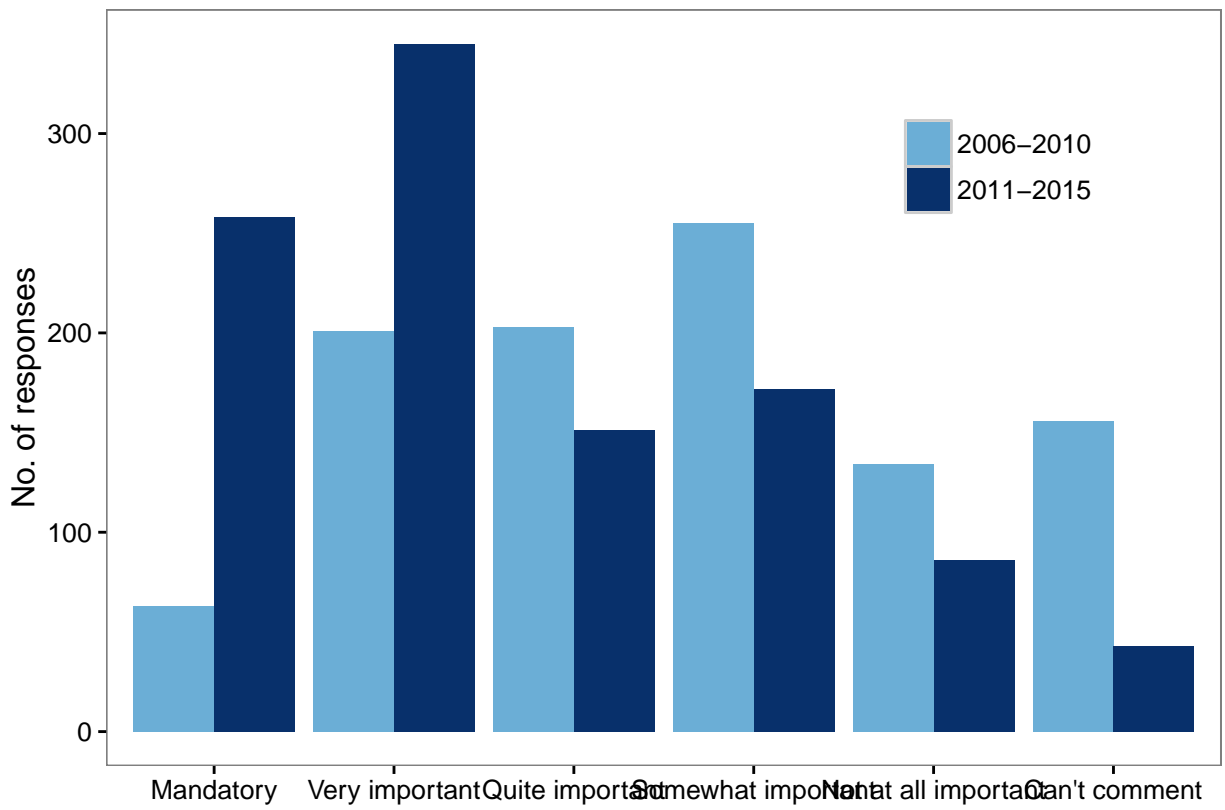


Figure 11: Importance of suggesting practical applications of the research for the grant to be successful

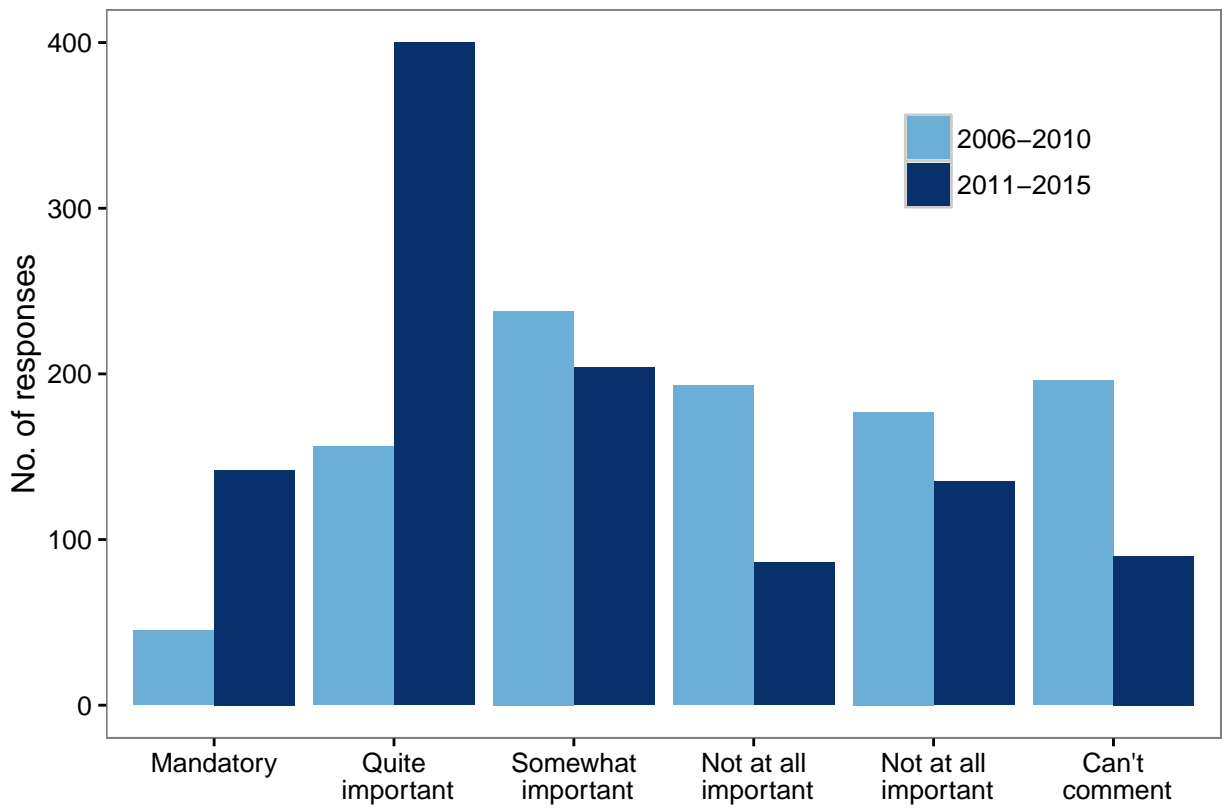


Figure 12: Importance of including partners from for-profit or non-governmental sectors in grant success

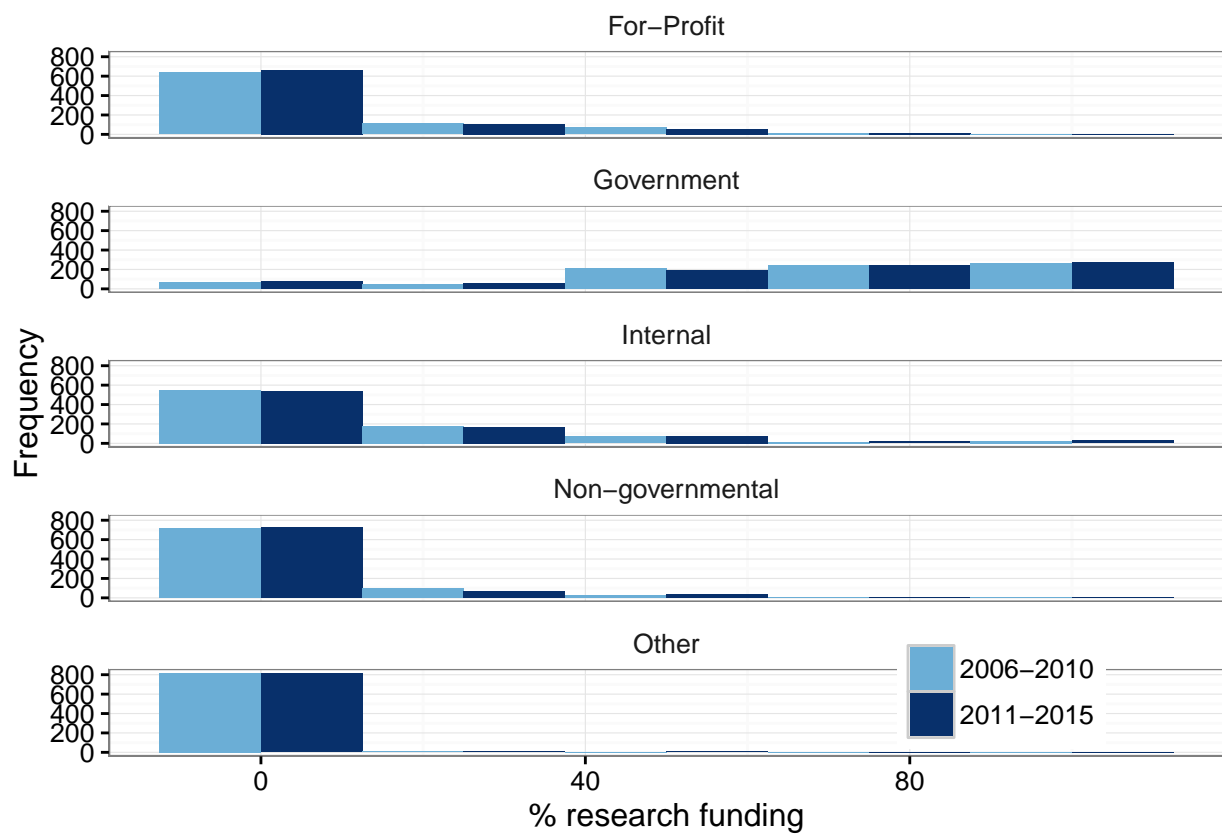


Figure 13: Distribution of research funding

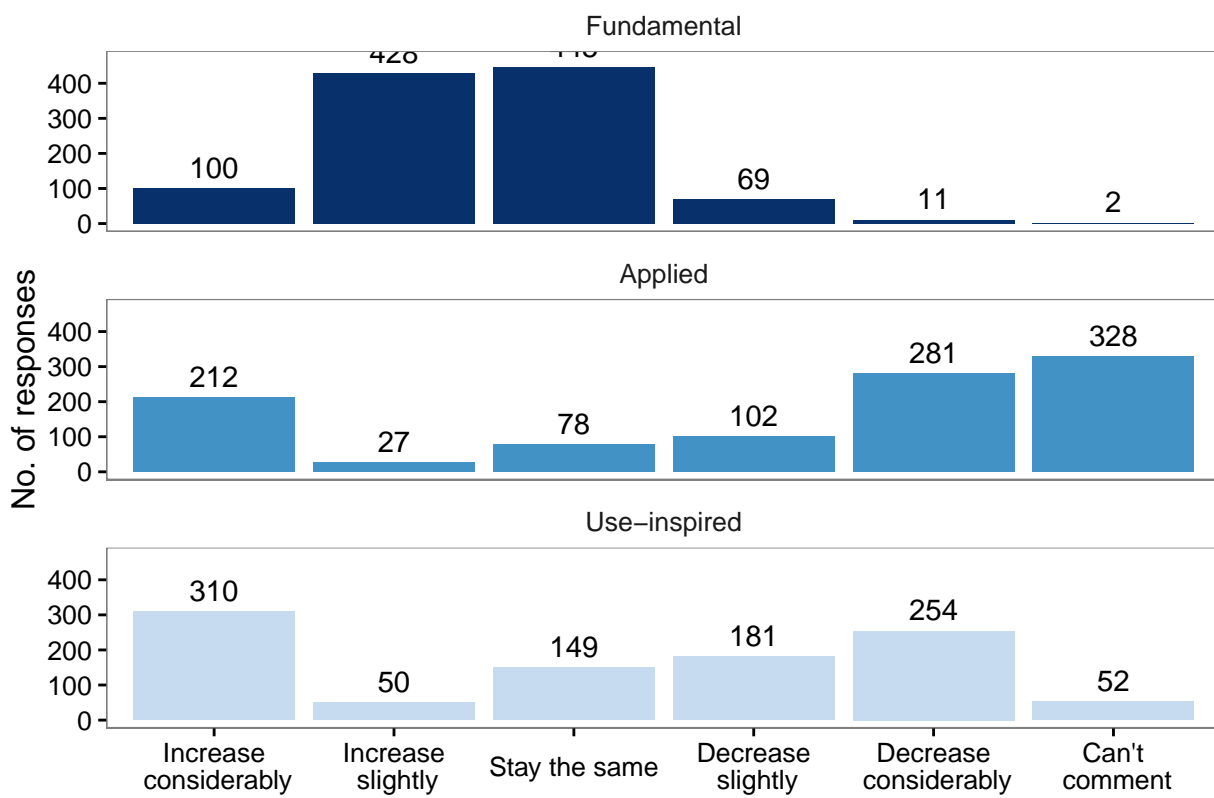


Figure 14: Grant success rates change over the past 10 years

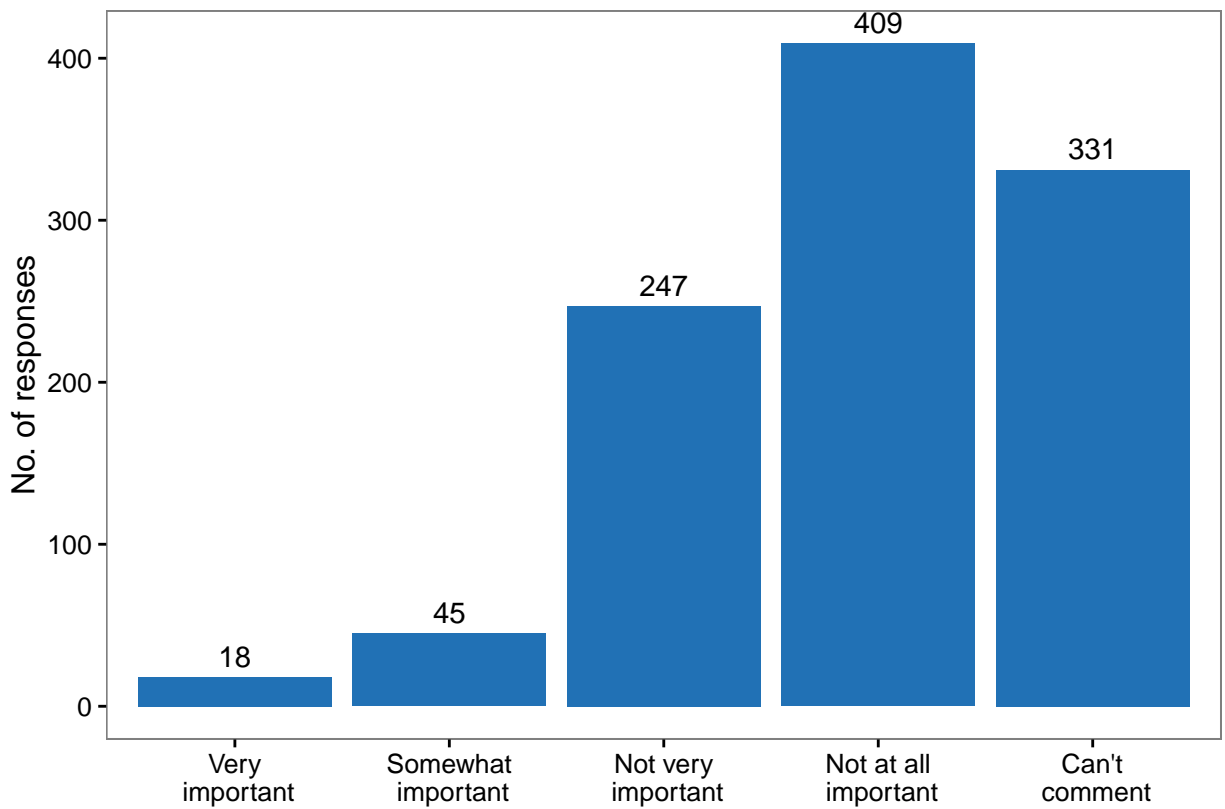


Figure 15: Perceived importance of fundamental research to Canada need to elaborate here but waiting to see if significant tests for gender, career, and stage return anything

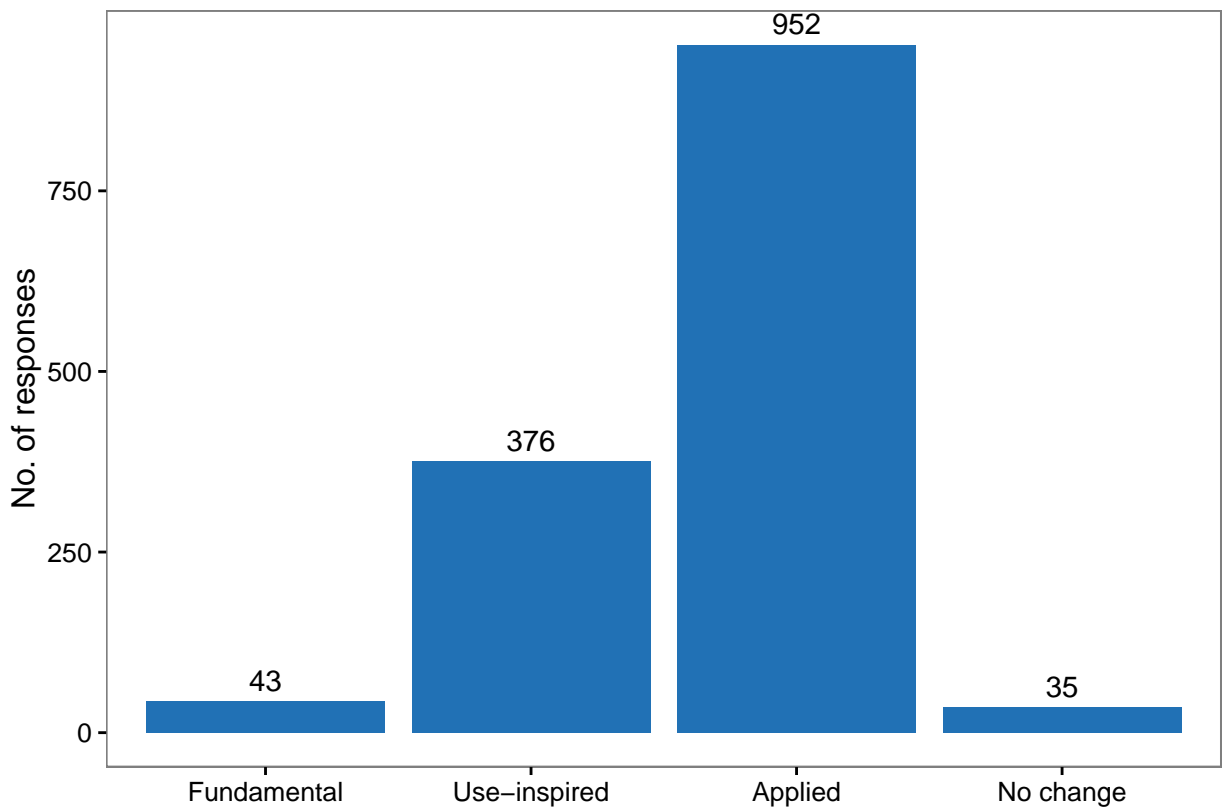


Figure 16: Perceived change in research priority by Canadian government need to elaborate here but waiting to see if significant tests for gender, career, and stage return anything

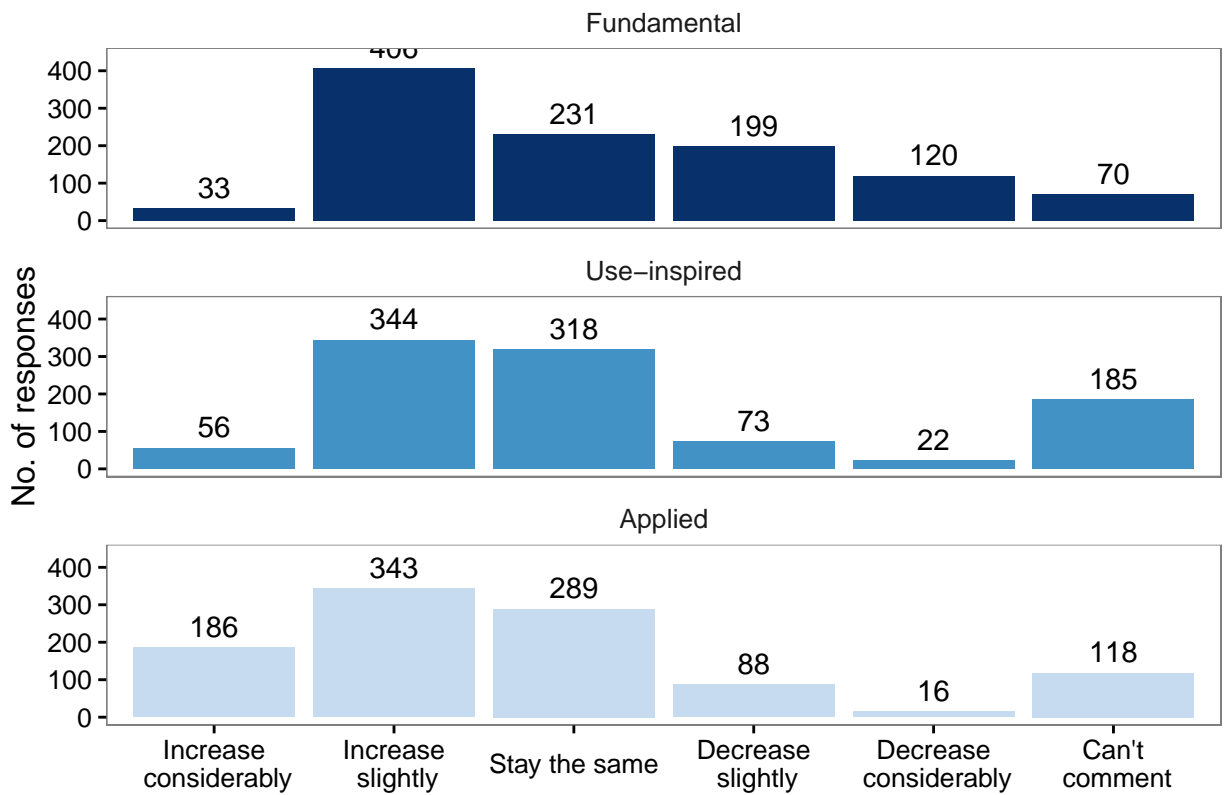


Figure 17: Anticipated change in research funding in next 5 years in Canada need to elaborate here but waiting to see if significant tests for gender, career, and stage return anything

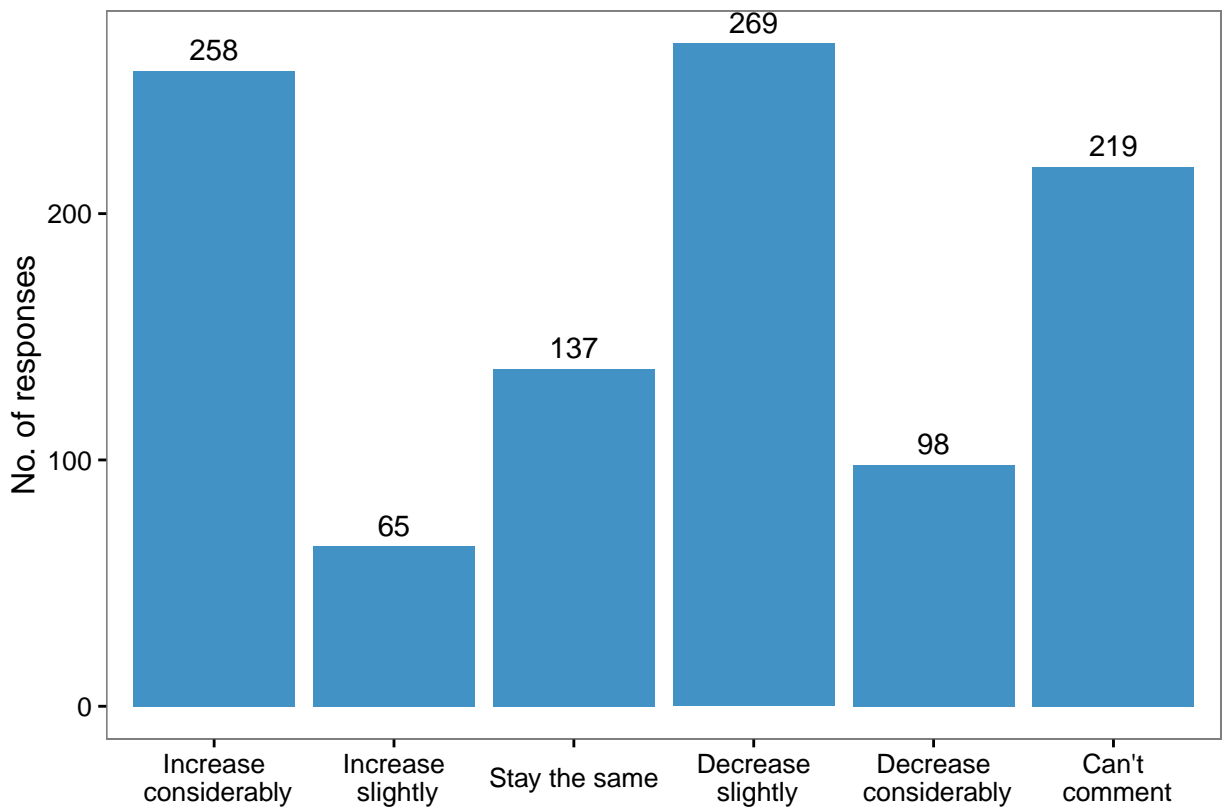


Figure 18: Effect of change in research funding on research careers of next generation in Canada need to elaborate here but waiting to see if significant tests for gender, career, and stage return anything