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Gender mainstreaming research funding: a study of effects on STEM research proposals

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Abstract

Policymakers increasingly try to steer researchers to choose topics of societal concern and to conduct research in ways that reflect such concerns. One increasingly common approach is prompting researchers to integrate certain perspectives into the content of their research, but little is known about the effects of this governance modality. We analyze 1,189 science, technology, engineering, and mathematics research proposals submitted to the Swedish Research Council which, starting in 2020, required all applicants to consider including the sex and/or gender perspectives in their research. We identify three overarching strategies upon which researchers rely (content-, performer-, and impact-centered) and analyze the ways in which researchers across disciplines motivate, through text, the inclusion or exclusion of these perspectives. Based on our findings, we discuss the scope of the desired effect(s) of a requirement of this kind.

Key words: research governance; gender mainstreaming; policy instruments; research funding; research proposals.

1. Introduction

Contemporary science policy is steeped in ideas that the research community should conduct societally-relevant research (Kearnes and Wienroth 2011; Schot and Steinmuller 2018; Kaltenbrunner 2020). Accordingly, research funding organizations (RFOs) across the globe are taking various actions to steer researchers to choose topics of societal concern and to conduct research in ways that reflect those concerns (Rodríguez et al. 2013; Ramos-Vielba et al. 2022). Various types of funding instruments are used toward this end, of which the more straightforward ones are targeted (or strategic) funding schemes, which earmark money for a preselected topic (e.g. COVID-19). An additional steering modality used to increase the likelihood that funded research reflects public policy goals involves what we may refer to as ‘prompting’ researchers to integrate a certain perspective into their research (e.g. gender or sustainability). When RFOs ‘prompt’ researchers they do not direct them to focus on a specific topic or theme but rather to problematize an otherwise autonomously chosen topic by integrating a pre-given perspective. This approach asks researchers to reconsider research problems, methods, analytical approaches, and the synthesis of results. This type of integration ‘prompt’ should not be confused or equated with efforts to promote interdisciplinary research (Ramos-Vielba et al. 2022) since a prompt does not include requests that researchers cross disciplinary boundaries or engage in cross-disciplinary collaboration.

Importantly, few RFOs make integration of a certain perspective mandatory, instead requesting that researchers (applicants) include it *when the researcher herself considers it relevant*. One example is the European Commission which ‘invites’ Horizon Europe applicants ‘to describe how

the gender dimension (i.e. sex and/or gender analysis) is taken into account in the project’s R&I content’ (European Commission 2022: 15). Another example is language from the Irish Research Council whose application form states that: ‘[a]ll applicants are required to give careful consideration to whether there is a potential sex or gender dimension that may arise in the course of their research’. This type of wording suggests a delegation of the decision to integrate a certain perspective from the funder to the individual researcher. In essence, it represents an interesting and understudied way of handling the trade-off between achieving public policy priorities while also respecting the independence of researchers (Braun 2003).

Despite the increasing reliance on this way of trying to influence the content of research, we have a limited understanding of how it works and what types of effects it produces (see GENDER-NET Plus (2022) for a recent review of RFO initiatives). Existing studies aim to quantify explicit references to policy-defined aims in research proposals (Keuken et al. 2007; Haverfield and Tannenbaum 2021; van Hagen et al. 2021) or use surveys to determine researchers’ opinions of such policies (Rosenlund et al. 2017). This focus on quantifiable effects reflects a long tradition of empiricist thinking within and about science policymaking, where governance is thought of as a matter of applying instruments whose impacts can be measured in a straightforward manner. While such studies are helpful, we posit that qualitative studies are also needed if we wish to better understand the effects on researcher behavior of this type of governmental intervention. The detailed insights produced by such qualitative studies not only add to our understanding of the mechanisms through which science policy translates into behavioral and epistemic

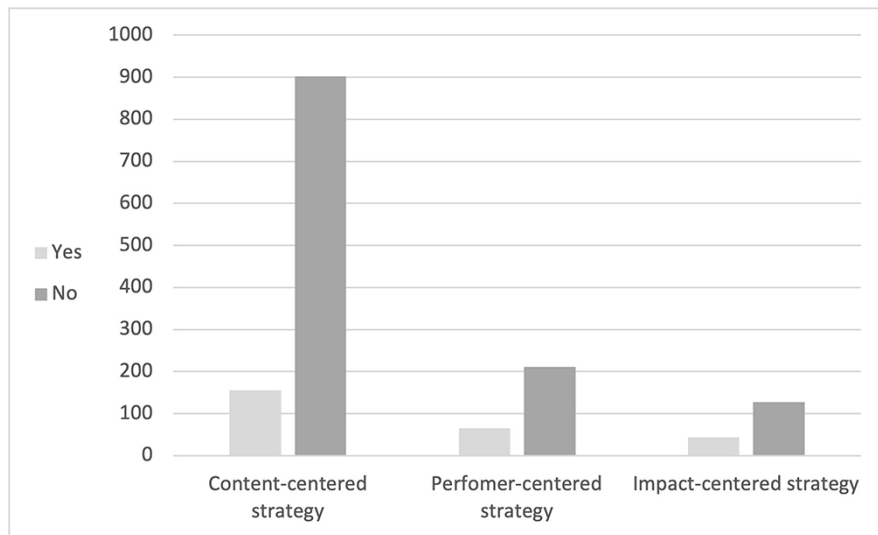


Figure 2. The number of times the three strategies feature across both 'yes' and 'no' proposals ($n = 1,504$ proposals). The total numbers do not sum to 1,189 since applicants may combine strategies in their motivation.

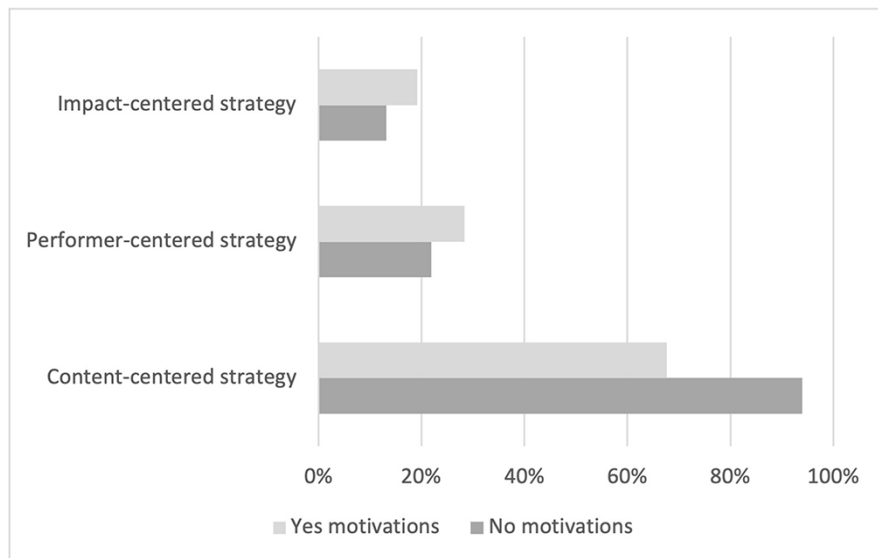


Figure 3. Use of the three overarching strategies across both 'yes' and 'no' motivations ($n = 1,189$ proposals). The total numbers do not sum to 100 since applicants may combine strategies in their motivation.

more than one strategy to motivate their inclusion or exclusion of the sex and gender perspectives. This section also addresses the qualitative differences in how authors of 'yes' and 'no' motivation structure these types of strategy combinations.

5.1 'Yes' motivations

Table 3 quantifies how often the overarching strategies occur in the six disciplines with more than ten 'yes' proposals. The table is ordered by percentage from highest to lowest, where a high percentage represents a larger share of the total number of 'yes' proposals. Biological Sciences proposals are by far the most common among the 'yes' proposals, with twice as many proposals as in the next most common discipline (Computer and Information Sciences). Furthermore, Biological Sciences relies heavily on content-centered strategies

(it features in 92 per cent of the sixty-six applications). None of the twenty-five applications within Medical Engineering relied upon a performer-based strategy.

5.1.1 Content-centered strategies

The most common strategy featured in the 'yes' motivations is content-centered (Fig. 3), explicating how or why the sex and/or gender perspectives are relevant, or not relevant, for the proposed research.³ This type of strategy is used in nearly all the Biological Sciences proposals in the 'yes' category. Other disciplines where this type of strategy is common are Computer and Information Sciences and Medical Engineering. Together, these disciplines account for 68 per cent of the content-centered 'yes' motivations. Among these, the majority refer to the inclusion of the sex perspective (e.g. in Biological Sciences, the sex of plants or animals), and only Computer and

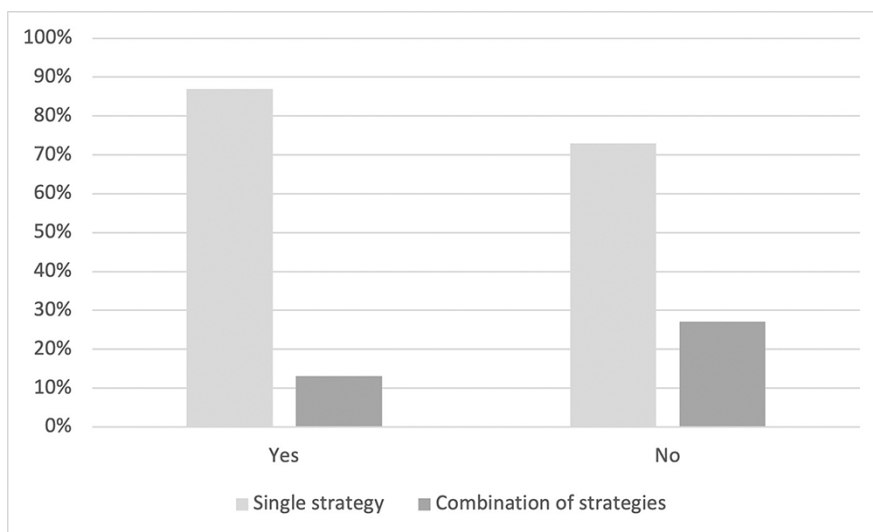


Figure 5. A comparison of strategies used across 'yes' and 'no' motivations (per cent).

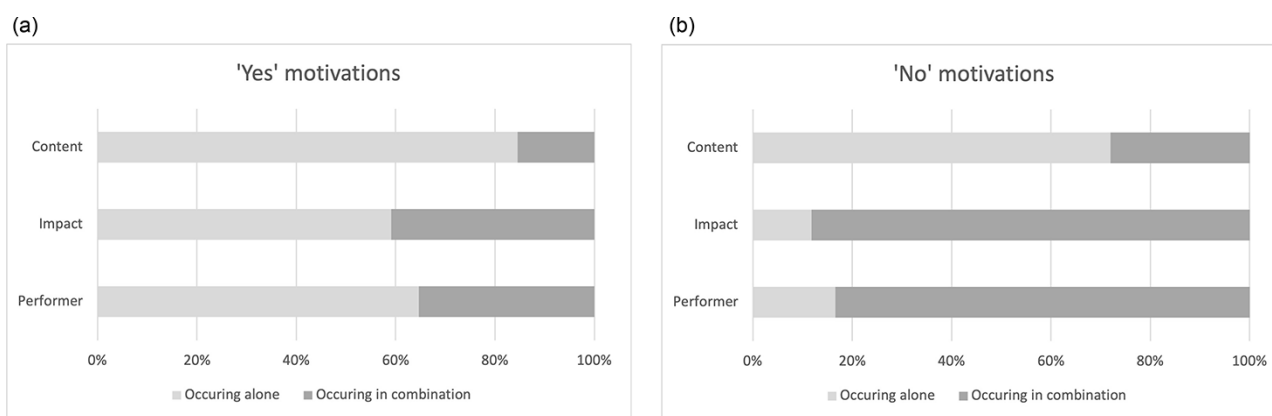


Figure 6. (a, b) Single and combined strategies in 'yes' and 'no' motivations.

research might be relevant for future activities on the front of energy needs related to sex, which are different for different sexes. (Earth and Related Environmental Sciences)

Second, we also find moves that can be characterized as 'neither-this-nor-that', indicating that there is no sex or gender perspective in the research content, impacts, and/or actions of the research performers. For example:

The research carried out in the proposed project lies within the pure mathematical field of Partial Differential Equations and Harmonic Analysis, in which no biological characteristics or gender considerations are relevant at any step of the research cycle (implementation, development, and dissemination). The application of the results of the research does not affect human beings either directly or indirectly.

6. Discussion

This article studies the types of effects that arise when researchers are required to consider integrating the sex and gender perspectives into their proposed research. The study

represents a baseline of sorts—it only includes an initial year of data and does not compare across the treated and control groups—and therefore does *not* represent an evaluation of the implementation of this requirement.

We conducted a detailed qualitative analysis of nearly 1,200 research proposals to examine how proposal writers motivate the inclusion or exclusion of the sex and gender perspectives in their proposed research. Of the proposals reviewed, 19 per cent ($n = 229$) include one or both perspectives ('yes' motivations). We categorized both 'yes' and 'no' motivations in terms of three overarching strategies upon which applicants relied, including those centered on (1) the content of the proposed research, (2) the future impact of the research, and (3) the researchers who perform the research, including actions they may take during the research. Figure 7 provides a stylized summary of the six possible strategy uses across all motivations (combinations not included), where (A) can be seen as the preferred policy outcome, given that the stated desire is to influence the content of research.

Notably, 155 of the 229 proposals that motivated the inclusion of a sex or gender perspective relied on a content-centered strategy (A in Fig. 7). More than two-thirds of these are found within Biological Sciences, Computer and Information Sciences, and Medical Engineering, where, judging

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