

RESEARCH FUNDING

The current grant assessment procedure.

It is doing harm to our discipline. Many grant holders (particularly those with small grants or from small universities) are being cut off, and morale is on the wane.

There are several international studies showing that research quality in math has low correlation with grant size. Since math/stat researchers can do good things with small grants, either NSERC should rethink its commitment to excellence or Math/Stat should be treated as an outlier.

The commitment to excellence can be maintained, albeit from a slightly different angle. Right now few applicants are excellent in all three areas, and a more realistic requirement would be excellence in two areas, with a minimal support level of say 5k per area. This would make a huge difference at the lower end, and little at the top end.

Next, "proposals" should be judged by innovation – by the potential not just to produce new theorems, but (say) to produce new collaborations at any level. As an example, someone might suggest an international project involving cooperation between different granting agencies. While such things do exist, they're not very common and usually involve assessment as individual projects outside the orbit of Discovery Grants.

Research success for the Math and Stats community requires a longer range of funding stability. Funding should allow support research on hard fundamental problems and on the proper development of new methodology, both of which may have far reaching impacts on science and our society.

The support to the HQP training component of a Discovery Grant needs to be increased by NSERC. The Math and Stats community cannot be expected to compete with other disciplines if most members of the community cannot even support one student financially.

Seed Research Funding

NSERC often makes a point that its programs are "Grants in Aid of Research (GAR)", but this is not implemented correctly, not sufficiently promoted and in fact discouraged instead of rewarded.

Finding exactly what GAR means is not so easy, even by searching through NSERC's own website. The details are in fact detailed in the "Peer Review Manual" (http://www.nserc-crsng.gc.ca/_doc/Reviewers-Examineurs/CompleteManual-ManualEvalCompleting_eng.pdf).

In particular "The Discovery Grant (DG) is a grant-in-aid and usually does not pay for the entire research program. It is expected that other sources of funding will be required and the applicant should make it clear how these funds are being used." Researchers are not entirely aware of this fact, and many researchers do not use their grants in that manner, and that researchers successful using their NSERC grants to obtain further funding are not adequately rewarded.

Addressing this issue and promoting this aspect of DG is likely to increase overall research spending in Canada, make better use of scarce NSERC dollars by spreading the funding instead of the recent trend of awarding more to fewer researchers, and as a result advance research productivity which is certainly one of the main objective of these programs. Instead, NSERC in its information quickly cautions about duplication of funds. This is understandable, but it is blurring the above point, and it is misleading researchers and even

committee members. The "Merit of the proposal" criteria strongly warn: " Is there a clear explanation of the relationship between the proposed work and the applicant's research programs funded by other grants?". To the contrary there are no suggestions at all that bringing other sources of funding, not for duplication purposes, but to increase one's funding for the proposed research is the right thing to do, encouraged, and should be rewarded.

This is a true mistake of the system. Fortunately many researchers (and committee members) have learned to do the right thing anyway with brilliant success. An obvious example is to use NSERC resources as matching funds from other sources toward a Postdoctoral fellow. This is also regularly done to support graduate students, as universities typically provide all sorts of support. But one could imagine also doing so for collaborations, visits, equipment, some conferences, etc.

NSERC does not have sufficient funds to fully fund any substantial research, and its recent trend of awarding more funds to a smaller group of researchers is very misguided as it does not have the means to make a substantial impact in that direction. In particular the recent trend in lowering success rate for first applicants is very detrimental to the community.

In summary, NSERC funds should be strongly promoted as seed research funding, a catalyst to seek further and matching funding elsewhere for one's research program. In that direction only relatively small amounts are needed, and therefore a larger base of applicants can be supported.

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