Letter: Small really is beautiful in university science research

From Luka Gebel, Chander Velu and Toni Vidal-Puig

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Your correspondent Andrew Jack cites a recent research study of US academics published last month in Nature Biotechnology, a leading peer-reviewed journal, that shows that larger teams are less innovative in scientific research and contribute to limited career prospects for junior scientists ("Big research teams blamed for curbing careers", Report, August 20).

Our study published in Nature in June shows that smaller teams also enhance innovation by making breakthrough scientific discoveries at the institutional level in basic science which consist of high-stakes innovative research with significant risk of failure.

For example, the Laboratory of Molecular Biology in Cambridge, which has an enviable record of winning Nobel Prizes, aims to keep its research teams small as it enables economies of scope by synergistically exploring several related areas, allows for the resilience and sharing of failure and encourages teams to aim higher due to the positive externalities from healthy competition.

Despite the benefits of smallness, it is puzzling that there has been a rise in team size in academic science. One explanation for this trend might be due to the smaller proportion of funding going to basic science.

For example, a larger share of the US National Institutes of Health's extramural funding over the past decade has gone to translational and applied research than to basic science. Translational and applied research are relatively less risky compared to basic science and it requires larger teams to scale up the process of scientific discovery to develop solutions based on original breakthroughs.

Science policymakers and funders need to revisit the balance of funding between basic and applied science to encourage the development of optimal team size in scientific research to enhance innovation.

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