

Does autonomy of colleges make a difference to academic outcomes?

P. Mukhopadhyay, Murari P. Tapaswi and P. K. Sudarsan

There is a belief that ‘the only safe and better way to improve quality of higher education in India is to delink most of the colleges from affiliating structure. Colleges with academic and operational freedom are doing better and have more credibility’¹. In order to attain autonomy, colleges are expected to have ‘Academic/extension/research achievements of the faculty’, as one of the stated objectives to grant autonomy is to ‘Promote research in relevant fields’¹.

The critique of the affiliating university system is that it treats every college alike, irrespective of its strength, weakness and location, resulting in retarding the academic development of individual colleges. Grant of autonomy would unshackle the colleges from such regulatory systems and make them ‘centres of excellence’.

The idea of autonomous colleges in India can be traced to the Education Commission (1964–66). The granting of autonomous status to colleges began in late 1980s. However, some colleges in Tamil Nadu were granted autonomous status as early as 1978–79. The XI as well as XII Five-Year Plans targeted to grant autonomy to about 10% colleges that deserved such status. As of today, the country has 621 autonomous colleges (170 Government and 451 non-Government) spread over 24 states covering 104 universities².

The hypothesis that autonomous colleges would become centres of excellence remains an untested claim to the best of our knowledge and therefore, is a knowledge gap both in the literature as well as policy-making. We examine this hypothesis with data from the top 100 colleges in the National Institutional Ranking Framework (NIRF) 2017. Our findings challenge the claim of superiority for autonomous colleges over constituent or affiliated colleges. Therefore, policy focusing on academic excellence may be misguided by equating autonomy with excellence.

If we look at the distribution of colleges by the state of autonomy, we find that 46 colleges in the top 100 are autonomous, of which 44 are non-Government (Table 1). The top 20 colleges have an equal

share of autonomous and non-autonomous colleges. It is only in the second band that the number of autonomous colleges is more. In all the other bands, non-autonomous colleges are either equal or dominate. Therefore, prima facie there is no evidence of autonomous colleges performing better than the non-autonomous ones in this group of the top 100 colleges.

Among the 54 non-autonomous colleges, 41 are non-Government and 13 are Government or constituent colleges. In the top 100 colleges, non-Government colleges (85) dominate the Government or constituent colleges (15). Despite the fact that NIRF 2017 uses a transparent mechanism for ranking colleges in India, the ranking methodology itself has been questioned³. Loyola College, Chennai, is a complete outlier with 1249 post-graduate students, 522 Ph D students, 525 Scopus publications (an average of 19.3 publications per faculty member) in three years. On the other hand, the other 99 colleges had an average 502 PG students, 42 Ph D students, 28 Scopus publications (an average of 1.7 publications per faculty number). Yet, Loyola College is ranked second by NIRF³.

One reason could be that NIRF uses perceptions to rank institutions and this can lead to systematic errors, especially size bias⁴. Earlier contributions provide a way to overcome this problem⁵ and therefore we propose to use the exergy measure as discussed in the literature. This allows us to examine concrete measurable outcomes that are based on research output (as this is one of the objectives for grant of autonomy). There is an existent methodology to do this and we borrow the same to answer the question⁵ – does autonomy significantly explain academic outcomes.

We restrict to our publication data to Scopus journals for creating the exergy indices because its coverage is broader than Web of Science (WoS) and Indian Citation Index (ICI) thereby avoiding the possibility of double counting. Information from the dataset of NIRF 2017 on the top 100 colleges is augmented by extracting information from the respective college websites about their status of

being autonomous, affiliated or constituent colleges.

Before we proceed to discuss the regression analysis, we present results of the *t*-test to check for difference of means in publication rate (Scopus publications per faculty). We have excluded Loyola College from this as it is an outlier, as discussed earlier. A *t*-test for equality of means (assuming unequal variances) comparing autonomous and non-autonomous colleges by management type indicates that there is no reason to reject the null hypothesis (that means are equal).

We use an ordinary least squares model to predict research outcomes⁶. Four alternative measures are used namely, number of Scopus publications per faculty (Scopus-per-faculty) and three exergy measures as defined below.

Scopus_Per_faculty=Total Scopus publications/total faculty.

X_Exergy_Scopus=(Citations_Scopus/total Scopus Publications)*citations_Scopus.

X_ScopusPerFaculty=X_Exergy_Scopus/total faculty.

X_Scopus_perRs_Expenditure=X_Exergy_Scopus/(Total expenditure in 2015–16 in million rupees).

These are treated as outcome variables which are determined by a set of independent variables (whether the college is autonomous or not, size of faculty, total annual expenditure of the college in 2015–16 (million rupees)).

A linear regression function is used with each of the above dependent variables being predicted by the same set of independent variables.

Dependent variable = $\beta_0 + \beta_1 \cdot$
Autonomous + $\beta_2 \cdot$ Total Faculty +
 $\beta_3 \cdot$ (Total_Faculty)² + $\beta_4 \cdot$ Annual
Expenditure + ϵ_i .

On average a college publishes 0.23 articles in a Scopus journal with a minimum of zero and a maximum of 3.16. Colleges differ in faculty size from a minimum of 8 to a maximum of 357, and

Table 1. Rank of colleges by type of management and autonomy

Rank band	Non-autonomous				Autonomous			
	Constituent	Government	Non-Government	Sub-total	Constituent	Government	Non-Government	Sub-total
1–20	2	3	5	10			10	10
21–40	2	2	3	7		1	12	13
41–60		1	13	14			6	6
61–80		3	10	13			7	7
81–100			10	10		1	9	10
Total	4	9	41	54	0	2	44	46

Source: Authors' calculations and NIRF 2017.

Table 2. Regression results

	Scopus per faculty	X_Exergy_Scopus	X_ScopusPerFaculty	X_Scopus_perRs_Expenditure
Variables	Model 1	Model 2	Model 3	Model 4
Autonomous	0.07	-27.68	-0.609	-0.77
Total Faculty	0.004***	15.16***	0.0829***	0.052***
(Total Faculty) ²	-1.38e-05***	-0.0427***	-0.000258***	-0.0001***
Annual expenditure	0.002***	3.220***	0.0179**	0.001
Constant	-0.23***	-1,066***	-4.508***	-1.535*
R-squared adjusted	0.298	0.44	0.294	0.17
F	11.51	20.17	11.33	6.19
Notes	N = 100			

Source: Authors' calculations. ***P < 0.01, **P < 0.05, *P < 0.1.

also in annual total expenditure from Rs 3.1 to Rs 411 million.

Table 2 presents the regression results of the four models. The four dependent variables used are listed in the first row. The first column lists the independent variables and the corresponding cells present the estimated coefficients. The degree of significance is indicated by the asterisks marked next to the numbers.

The reason for presenting the four models (even though they may seem repetitive) is to exhibit the robustness of our results – in all the four models autonomous is not significant (and in models 2–4, it is negative). Faculty size seems to significantly impact research outcomes and has a nonlinear effect (rising at a decreasing rate – positive coefficient for total faculty and negative coefficient for the square of total faculty). Total spending by a college also positively influences research output in all the models

(except model 4). The adjusted R² value that provides goodness-of-fit measure indicates a range from 0.2 to 0.46. Since the dependent variables are different in these cases, they are not comparable (as they explain different outcomes).

We conclude that there is no clear evidence to suggest that autonomy is a window for academic excellence as evidenced from research output by analysing the NIRF 2017 and associated data. There is therefore a need for policy makers to revisit the reliance on autonomy to propel excellence and look at other drivers in the system.

1. UGC guidelines for autonomous colleges. University Grants Commission, 2017; www.ugc.ac.in/9165907_Revised_guidelines_for_autonomous_colleges-15=05-2017.pdf
2. UGC, Status list of approved 621 autonomous colleges as on 08=09-2017. 2017;

www.ugc.ac.in/autonomous_colleges-list_pdf_2016-17.pdf

3. Prathap, G., *Curr. Sci.*, 2017, **113**(4), 551–553.
4. Mukhopadhyay, P., Sudarsan, P. K. and Tapaswi, M. P., *The Wire*, 2017; <https://thewire.in/139651/nirf-framework-biased-favour-large-heis/> (cited 25 May 2017).
5. Prathap, G., *Curr. Sci.*, 2016, **111**(3), 470–474.
6. Mukhopadhyay, P., Tapaswi, M. P., Sudarsan, P. K. and Sudarsan, K., *Curr. Sci.*, 2018, **114**(6), 1167–1173.

P. Mukhopadhyay and P. K. Sudarsan are in the Department of Economics, Goa University, Goa 403 206, India; Murari P. Tapaswi is in the Internal Quality Assurance Cell, Goa University, Goa 403 206, India.*

**e-mail: tapaswimurari@unigoa.ac.in*