

176

An empirical analysis of the determinants of the NSS overall satisfaction scores: Do universities produce scores efficiently?

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Research Domains

Management, leadership, governance and quality (MLGQ)

Abstract

This paper offers empirical evidence on the determinants of satisfaction scores elicited from the UK's National Student Survey (NSS) which little is known. The methodology adopted allows university efficiency in 'producing' favourable results to enter the analysis. The analysis is conducted within a stochastic production function framework using a data panel of 116 UK institutions covering a thirteen-year period from 2008 to 2020. Universities are found to be relatively efficient in 'producing' favourable outcomes. However, spending on student/staff academic services and facilities have little effect on raising student satisfaction and spending on central administrative services has a negative impact. These results suggest that universities could increase student satisfaction though reallocating spending to areas that could possibly enhance satisfaction scores. The results also suggest further policy options a university may pursue to improve student satisfaction in particular developing a better understanding of the needs and expectations of foreign students.

Full paper

This paper examines the determinants of the outcomes from the UK's National Student Survey (NSS) for the period 2008-2020. It also examines whether the 116 UK universities included produce

'efficient' outcomes using a stochastic frontier methodology. The outcomes considered are favourable 'overall satisfaction' scores and favourable satisfaction scores for 'teaching on my course', 'assessment and feedback' and 'learning resources'.

To date there is little systematic empirical literature on the determinants of the survey outcomes. Early empirical research using multilevel techniques finds some association between gender, course, ethnicity and UCAS entry scores and student satisfaction, see Surridge (2008) for the period 2005-2007 and HEFCE (2014) for 2008-2013. However, the effect of these variables on student satisfaction is mixed both across the dimensions examined and over time. Burgess et al (2018) for the period 2007-2016 find that 'teaching quality' and 'organisation and management' were the best predictors of 'overall satisfaction' (OSS). Recent systematic studies have offer more solid policy option. Lenton (2015) using fixed and random effects and course level data for the period 2007-2010 suggests that universities can raise the OSS through changes in expenditure, changes in the staff-student ratio (SSR) and a focus on employability. Lee and Johnes (2022) using DEA analysis examined the determinants of TEF outcomes for 2015 found that only 41-46% of universities in their sample, produced efficient outcomes which included 'teaching on my course', 'assessment and feedback' and 'academic support'. The study did find that high entry scores improved efficiency in meeting these 'outputs', but a rise in the proportion of foreign students was efficiency reducing. Beyond this literature little is known empirically about the determinants of NSS outcomes.

The current study adds to this literature by examining the factors that may influence NSS outcomes controlling for their 'efficient' production. The explanatory variables used in the analysis are grouped into three:

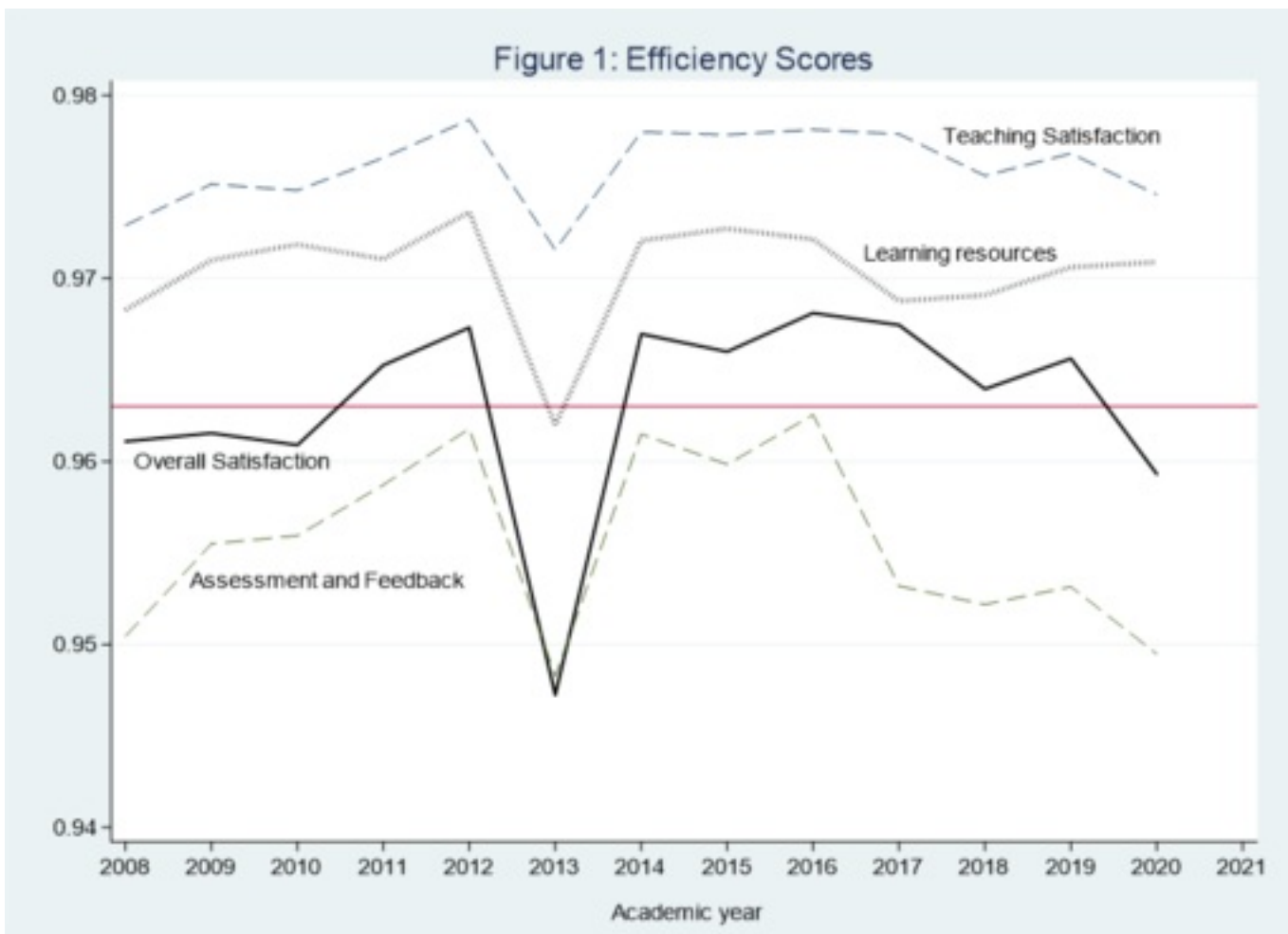
- 1) 'Input' variables: spending on central services, academic services and student-staff facilities and the SSR.
- 2) Final year student characteristics: % of foreign students, % of female, % SET, % 'upper degrees' and UCAS entry score.
- 3) University characteristics: FTE students (PG+UG - a measure of

'size') and years since institution received the Royal Charter (a measure of 'prestige').

Table 1

Variable	Mean	Std. Dev.
<i>Output variables^a</i>		
Overall satisfaction score	84.36	4.68
Teaching	84.92	4.04
Assessment and feedback	76.48	6.89
Learning resources	82.79	5.11
<i>Input variables</i>		
Staff-student ratio ^b	16.98	3.15
Exp on academic services per student (£s 2015=100) ^{b, c, d}	1,226	528
Exp on central services per student (£s 2015=100) ^{b, c, e}	513	256
Exp on staff/student per student facilities (£s 2015=100) ^{b, c, f}	1,839	832
<i>Characteristics of final year students</i>		
UCAS entry score ^b	283.05	81.89
% female ^b	56.34	6.65
% upper degrees (1 st and 2:1) ^b	69.19	11.36
% taking SET subjects ^b	44.51	15.59
% non-UK domiciled ^b	20.98	12.13
<i>Institution characteristics</i>		
FTE Students (UG and PG) ^b	14,265	7,067
Years since Royal Charter (years)	63.37	99.42
pre 1992 universities	0.46	na
post 1992 universities	0.35	na
post 2003	0.19	na
Number of observations	1508	
Number of institutions	116	

The results from a 'true' fixed effects frontier (that controls for efficiency) suggest that universities are highly efficient at producing favourable outcomes (figure 1)



The analysis also offers possible pathways a university may pursue to improve student satisfaction (table 2). For example, students who expect an ‘upper’ degree classification register high satisfaction scores but it may conceal the possibility that students who do not expect such an outcome or finding the curriculum too challenging may not be receiving the personal support needed for academic or personal development. In addition, as the proportion of final year international students increase satisfaction scores fall. This provides further evidence of a need to improve the university experience of foreign students (Ryan 2011; Hazelkorn 2014; Lee and Johnes 2022). These results generally concur with the extant literature.

Table 2 True Fixed Effects/ Fixed Effects Estimates

	OSS	Teaching	Ass. and Feedback	Learning Resources	OSS
<i>a) Inputs</i>					
Staff-student ratio	-0.001 (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.000 (0.001)	-0.002 (0.001)
(ln) exp on academic services	-0.001 (0.006)	-0.004 (0.004)	-0.002 (0.007)	-0.001 (0.005)	-0.004 (0.006)
(ln) exp on staff student services	-0.001 (0.004)	-0.001 (0.003)	-0.001 (0.005)	-0.003 (0.003)	-0.004 (0.014)
(ln) exp on central services	-0.017*** (0.006)	-0.015*** (0.005)	-0.022** (0.009)	-0.004 (0.004)	-0.020*** (0.019)
<i>b) Final Year Student</i>					
(ln) % FTE female	-0.046** (0.024)	-0.001 (0.020)	-0.005 (0.042)	-0.012 (0.021)	-0.055** (0.026)
(ln) UCAS entry score	0.037 (0.024)	0.029 (0.021)	0.049 (0.034)	0.010 (0.017)	0.042 (0.027)
(ln) % upper degrees	0.046** (0.023)	0.056*** (0.020)	0.085*** (0.031)	0.036** (0.019)	0.048* (0.027)
(ln) % SET qualification	-0.010 (0.009)	-0.014 (0.008)	-0.015 (0.017)	-0.011 (0.007)	-0.011 (0.010)
(ln) % FTE foreign domiciled	-0.005*** (0.002)	-0.004** (0.002)	-0.002 (0.004)	-0.006*** (0.001)	-0.003* (0.002)
<i>c) Institution Characteristics</i>					
(ln) total FTE students	-0.029 (0.017)	-0.033** (0.014)	-0.075*** (0.025)	-0.002 (0.013)	-0.033* (0.019)
Years since Royal Charter	0.004 (0.003)	0.006*** (0.002)	0.014*** (0.005)	0.016*** (0.003)	0.007*** (0.002)
<i>d) Year Dummies</i>					
	yes	yes	yes	yes	yes

Robust standard errors in parentheses clustered by university.

Moreover, there is little evidence that spending on staff and student facilities and central services is associated with student satisfaction which resonates with Lenton (2015) even though there is evidence to suggest that students would prefer their tuition fees were spent on learning facilities and resources and staff/student support services (Neves and Hewitt 2021). However, spending on central services that include administrative costs reduce student satisfaction. It may also suggest that the use of resources to provide central services may be more effectively employed in other areas of teaching provision to raise student satisfaction. The precise mechanism by which university spending in these areas impact student satisfaction warrants further research. The SSR had little significant impact on the OSS this possibly reflecting that large classes are becoming the 'norm' as participation rates for young adults in UK HE increased

over the period of our data. However, the negative impact of the SSR on the average score for 'assessment and feedback' may reflect the possibility that staff workload associated with teaching larger classes hinders staff to provide timely and detailed feedback. Whether the SSR reflects 'value for money' as suggested by Lenton (2015) or the possibility that it contributes to students' sense of class or course inclusiveness (see for example, Tight 2020; Yorke 2016; McDonald 2013) warrants further research given that the Office for Students has recently published a strategy to assess the 'value for money' of HE (Office for Students 2019).

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