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Abstract

University staff frequently engage in Public Service Activities (PSAs), over and above their core roles, making a valuable contribution to society and the economy, although little is known about such activity. This study examines the extent of PSA among university staff — both academic and non-academic. The data come from a survey carried out in 2014 of the staff of University College Dublin (UCD), an Irish research university with a wide disciplinary coverage. The survey collected information about whether staff have taken part in PSAs and the amount of time spent engaging in these activities. Overall, 59 per cent of UCD academics and senior administrative staff report having taken part in PSAs over the past 12 months. The most common type of PSA is public engagement which encompasses talks, lectures and involvement in public debate through various media. Academic staff are much more likely than administrative staff to engage in PSA, but there is a significant contribution also from senior administrative staff. PSA engagement varies by discipline (with Arts and Humanities staff having the highest rates of PSA), by seniority and by length of tenure. Among those who have taken part in PSAs, the mean total yearly number of hours engaged in these activities is 167, ranging from 122 hours among researchers to 218 hours among professors. We estimate that all academics and senior administrators at UCD contributed over 150,000 hours in PSA over the course of the 2013-14 academic year, with an estimated value of nearly €11.5 million.

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1 Introduction

This paper examines the prevalence of Public Service Activities (PSAs) among both academic and non-academic staff at University College Dublin (UCD), an Irish research university with a wide disciplinary coverage. The prevalence of these activities is examined across different university staff groups stratified by job title, academic/administrative unit, affiliation with research institutes, tenure length and gender. As well as assessing the prevalence of PSA, the amount of time that university staff spend on these activities is also analysed. This allows for the intensity and the monetary value of Public Service Activities to be estimated.

The survey data analysed in this paper covers two main types of activity, namely i) public engagement and ii) advisory work, service on boards or committees and public consultation. The analysis excludes remunerated consultancy work. Existing literature in this area often focuses solely on either public engagement or on commercial collaborations between academia and the industry. In addition, few existing surveys capture data on university staff from such a comprehensive range of academic disciplines.

Among academic staff, 62 per cent report taking part in Public Service Activities. When it comes to non-academic staff, 37 per cent report some PSA related activity. The most common types of PSA are public engagement (public talks or lectures and taking part in public debate through media) and advisory services to academic and professional organisations. Among those who have taken part in PSAs, the mean total yearly number of hours engaged in these activities is 167, ranging from 122 hours among research staff to 218 hours among professors. The activities that participants spend the most time on are advisory services to international NGOs and academic/professional organisations.

The remainder of this paper is structured as follows: Section 2 summarises the existing literature in this area. Section 3 describes the data, provides summary statistics of the covariates use in later analysis, and presents bivariate analyses of the variation of PSA prevalence and hours spent on PSA. Section 4 presents findings of multivariate analyses. Section 5 contains an analysis of the aggregate monetary value of the Public Service Activities carried out at UCD. Section 6 concludes.

2 Existing studies of Public Service Activities

According to Wilkinson (2014), public engagement among academics has been encouraged for many reasons: capturing public insights, aligning to democratic principles, and creating more socially robust knowledge. Also, public engagement is seen to be appropriate in particular when research is publically funded. Public Service Activities are sometimes referred to as Third Stream activities,[1] encompassing

[1]The first two streams being teaching and research.

interaction with the world outside academia, through activities such as liaison with commercial companies, teaching outside university, working with public sector organisations, both inside and outside working hours.[2]

Existing research in this area commonly focuses on either academics' engagement with the public or on commercial collaborations between academics and the industry. We are unaware of existing empirical work that encompasses both public engagement and non-commercial advisory work. In addition, existing analyses have focused only on academic staff, often from a select sub-group of academic disciplines. This analysis examines the activities of both academic and non-academic university staff, working in all faculties and administrative units.

The existing studies that focus exclusively on public engagement, which takes the forms of appearances in the media, public lectures to non-academic audiences, activities with schools, etc., include work by Wellcome Trust (2000), The Royal Society (2006), Poliakoff and Webb (2007), Abreu et al. (2009) and Davies (2013).

Research by the Wellcome Trust (2000), The Royal Society (2006), Poliakoff and Webb (2007) and Abreu et al. (2009) examine the motivations of scientists in the UK in taking part in public engagement. The Wellcome Trust (2000) report uses data from interviews with 1,540 scientists to examine what motivates or inhibits science communication. The findings highlight that scientists are concerned about the time that public engagement takes from research, and the perceptions that colleagues have about public engagement. The Royal Society (2006) report summarises the findings of a survey of 1,485 UK scientists and engineers about the prevalence of and attitudes towards public engagement, including engagement with policy makers. Poliakoff and Webb (2007) collect survey data from academic staff and postgraduate students at three science faculties at the University of Manchester. They find that past public engagement, personal attitudes towards public engagement, personal feelings of capability, and perceptions among colleagues are the four most important predictors of public engagement activities among scientists. Abreu et al. (2009) examine the prevalence of knowledge exchange between academics and businesses, the public and the "third sector". They also analyse business collaborations such as patents, licensing of research outputs, spin-out companies and paid consultancy work.

Davies (2013) focuses on a sample of UK contract researchers and analyses data collected from 273 individuals via an online questionnaire, distributed via research networks and public engagement networks. 68 per cent of the respondents indicated having ever been involved in some form of public engagement activity.[3] The three most common types of public engagement activity (with the percent-

[2]Wedgwood (2006) discusses why Third Stream activities are beneficial from the societal point of view.

[3]Davies defines public engagement activities to consist of public talks and lectures, going into a school or working with school children, involvement in university open days or science festivals, writing to public audiences, volunteering, knowledge transfer activities or working with industry, giving a media interview, presenting at a museum or science

age taking part in brackets) were giving public talks or lectures (43.8%), going into a school or working with schoolchildren (39.0%), and being involved in a university open day (37.6%). The survey collected limited information about the *frequency* of the engagement, reporting that most often (29.5% of those who take part) do so two or three times per year. Davies also examines the prevalence of public engagement activity stratified by discipline and length of career. She finds public engagement activity to be spread relatively evenly across disciplines, with the lowest figure among biomedical researchers (57.9%) and highest among physical science and engineering (78.1%). She finds no correlation between length of career (measured as years of post-doctoral experience) and public engagement activity. Davies also analyses qualitative data from small focus groups interviewed in three UK universities. She explores how public engagement is viewed by researchers and what challenges are faced.

Besley et al. (2012) analyse data from two separate surveys, from the UK (2006) and the US (2009) to examine the motivations behind scientists' involvement in communication with the public and the media. They find that public engagement is more common among scientists who are in the middle of their careers, those with more research experience, males, and those working in medicine, while it is less common among chemists than other scientists.

3 Data

This study is based on an on-line survey carried out in October 2014 of the academic and senior administrator staff working at University College Dublin (UCD). UCD is the largest university in Ireland with over 30,000 students of a wide range of disciplines taught in seven colleges: Science; Agriculture, Food Science and Veterinary Medicine; Arts and Celtic Studies; Business and Law; Engineering and Architecture; Health Sciences; and Human Sciences. A sample of 50 per cent of staff across the University was drawn, stratified by grade and organisational unit. The total number of staff employed at UCD in the relevant grades was 1,580, and therefore the resulting number of staff to whom the survey was sent was 790. Fieldwork was conducted over a two week period. A total of 466 responses were recorded, yielding an overall response rate of 59 per cent.

A possible concern with the analysis is selection bias: if individuals not engaging in PSA are less likely to take part in the survey, the data are not missing at random (NMAR). The selection bias is an issue if response rates are correlated with the prevalence of Public Service Activity. An examination of the response rates across groups with differential PSA rates indicates whether selection bias appears to be an issue. Survey non-response appears to be somewhat related to grade seniority — see Table 1 listing the survey response rates across job grade types. Although in general response rates are higher

centre, carrying out participatory or action research, carrying out public consultation or community-informed research, acting as a science ambassador or role model, participating in a dialogue event or process, interacting on-line with the public, teaching research to public groups, or participating in or running a science/research cafe.

among more senior job grades where PSA prevalence is also highest (see Table 3), the response rate is highest among administrative staff — who report lowest rates of PSA.

Table 1: Survey response rate

Job title	Mean
Post-doctoral Fellow	51.9
Research Fellow	43.4
Lecturer	57.9
Senior Lecturer	63.5
Associate Professor	63.7
Professor	61.2
Administrative Officer	69.0
Total	58.9

Due to non-response on specific questions, the final sample size with data available for all relevant variables is 421. The data were re-weighted with respect to job title (grade) in order to render it representative of the distribution of relevant staff at UCD, and to gross up the results to estimate the total value of public service contribution by the staff in the grades surveyed.

3.1 Background variables

As well as a series of questions relating to Public Service Activities, the questionnaire included a number of questions about the respondent's background and role at UCD. Table 2 presents summary statistics for these variables of the (weighted) analysis sample. Academics make up 85 per cent of the total sample and the remaining 15 per cent work in senior administrative roles, mainly in Human Resources, Registry, Research or unspecified areas of the University. The sample of academic staff is relatively evenly split between different academic units, ranging from 9 per cent working in the College of Engineering and Architecture to 23 per cent working in the College of Sciences.

The majority of staff are not affiliated with a research institute within UCD. In terms of affiliated staff numbers, the largest research institute at UCD is the Conway Institute of Biomolecular and Biomedical Research, which 15 per cent of academics and 1 per cent of administrative staff are affiliated with. All of the non-academic staff that were surveyed are Administrative Officers (of varying grades), whereas academic staff include Post-doctoral and Research Fellows, Lecturers, Senior Lecturers, Associate Professors and Professors. The vast majority of staff work full-time. None of the administrative staff report having been on sabbatical, research or other leave during the 2013-14 academic year, whereas 8 per cent of the academic staff report having been on leave during the period. One-fifth of the academic staff have started working in their current role within the past year, while one quarter have worked in their current role for more than a decade. Among the senior administrative staff, longer tenures in current positions are observed. Overall, 59 per cent of the individuals are male. The gender division

is more equal among the non-academic staff, whereas males are more likely to work in academic roles.

3.2 Public Service Activity data

The PSA questions refer to activities engaged in outside of UCD but related to the respondent's professional role during the reference period — the academic year 2013-14. Remunerated consultancy work is excluded, but activities in which an individual received expense payments or nominal honoraria (e.g. nominal payments less than €200, or gifts) are included. Those who had participated in a PSA were asked to indicate the total number of hours spent on that activity during the reference year (including preparation and travel time).

Public Service Activities that are covered in this study are divided into five main sub-groups, listed below. In the discussion that follows, activity in the second, third and fourth categories (advisory work, service on boards or committees, public consultation) is referred to as "advisory work".

1. Public engagement:
   Talks or lectures
   Debate through print or broadcast media
   Debate through social media
2. Advisory work, service on boards or committees, public consultation: Government and international organisations
   (local/regional/Irish government; international organisations)
3. Advisory work, service on boards or committees, public consultation: NGOs and industry
   (local/national/international NGOs; national/international industry)
4. Advisory work, service on boards or committees, public consultation: Academic/professional organisations
   (national/international)
5. Other public service activity

Table 3 contains the percentages of UCD staff who report taking part in the different types of Public Service Activity. Overall, 59 per cent of staff indicated that they participated in some form of PSA during the 2013-14 academic year. Of the different categories of PSA, the most common is public engagement, with 44 per cent of staff having engaged in this activity. In particular, 40 per cent of staff have given public talks or lectures, while 21 and 12 per cent of staff have taken part in public debate through traditional media and social media, respectively. The second most common type of PSA is advisory service to academic or professional organisations. Approximately 40 per cent of staff report having taken part in this activity, with advice to international organisations being more common than advice to Irish organisations. Just below a third of staff have provided advisory services to NGOs

Table 2: Descriptive statistics of UCD staff characteristics

	Type of role		
	Academic	**Non-academic**	**Total**
	%	%	%
Academic/administrative unit			
Access & Lifelong Learning; Development & Alumni Relationships	0.0	1.6	0.2
Estates & Other	1.6	21.1	4.1
Finance	0.0	9.7	1.2
Human Resources	0.0	17.0	2.2
IT Services & Library	0.0	7.5	1.0
Registry	0.3	14.1	2.0
Research	3.9	12.6	5.0
Agriculture, Food Science and Veterinary Medicine	13.1	1.9	11.6
Arts & Celtic Studies	10.4	0.0	9.0
Business & Law	9.7	5.9	9.2
Engineering & Architecture	9.4	2.1	8.5
Health Sciences	16.3	4.8	14.8
Human Sciences	12.7	0.0	11.1
Science	22.7	1.8	20.0
Institute			
None	67.1	95.1	70.7
Conway Institute	14.7	1.3	13.0
Earth Institute	5.1	0.0	4.4
Geary Institute	3.2	0.0	2.8
Humanities Institute	4.3	1.9	4.0
Institute of Food and Health	3.8	0.0	3.4
Energy Institute	1.8	1.8	1.8
Job title			
Post-doctoral Fellow	18.8	0.0	16.4
Research Fellow	7.8	0.0	6.8
Lecturer	37.4	0.0	32.6
Senior Lecturer	17.4	0.0	15.2
Associate Professor	7.3	0.0	6.4
Professor	11.3	0.0	9.8
Administrative Officer	0.0	100.0	12.8
Full-time / part-time			
Full-time	91.4	92.1	91.5
Part-time	8.6	7.9	8.5
Sabbatical			
No	91.7	100.0	92.7
Yes	8.3	0.0	7.3
Current position duration			
Less than 1 year	20.3	9.5	18.9
1-3 years	28.1	19.4	27.0
4-6 years	15.7	20.4	16.3
7-9 years	11.1	33.8	14.0
10+ years	24.8	16.9	23.8
UCD career duration			
Less than 1 year	11.3	1.6	10.1
1-4 years	21.2	9.7	19.7
5-9 years	21.7	34.4	23.3
10-19 years	30.4	45.5	32.3
20+ years	15.4	8.8	14.6
Gender			
Female	39.4	49.4	40.7
Male	60.6	50.6	59.3
N	358	63	421

or industry — with the former being more common than the latter. A quarter of UCD staff report having advised local or national governments or international organisations. Finally, 18 per cent report having engaged in PSAs other than those discussed above.

Table 3: Percentages of UCD staff engaging in PSAs

	(1) Mean
Any public service activity	59.0
Public engagement	44.0
Public talks/lectures	39.7
Public debate: traditional media	21.2
Public debate: social media	11.8
Advice to government	24.6
Local government	4.5
Irish government	15.1
International org.	15.2
Advice to NGOs or industry	31.8
Local NGOs	14.0
National NGOs	14.1
International NGOs	9.3
National industry	8.2
International industry	5.6
Advice to academic or professional organisations	39.8
National academic/prof. org.	25.4
International academic/prof. org.	30.1
Other PSA	17.5
Other advice service	14.5
Other public service	3.6
Sample size	421

Table 4 presents more detailed data about how the prevalence of various types of Public Service Activities varies across different university staff groupings. Columns 1 to 5 present the figures for the five sub-categories of PSAs, whereas column 6 combines these data to present the prevalence of any PSA. Overall, Public Service Activities are most prevalent among staff working in the College of Arts and Celtic Studies.[4] The high rates of PSA within this College are driven by the prevalence of public engagement and advisory services to academic and professional organisations in particular. Staff from Human Sciences and Business and Law are particularly likely to part-take in public engagement and advisory services to the government. The lowest rates of PSA are reported among staff working in

[4]For this analysis, UCD Colleges have been organised into below five groupings: 1) Human Sciences; Business and Law 2) Health Sciences 3) Arts and Celtic Studies 4) Science; Engineering and Architecture and 5) Agriculture, Food Science and Veterinary Medicine.

Science and Engineering and Architecture.

As expected, the prevalence of PSA increases with the seniority of the staff member (see Table 4). On average, researchers (Post-doctoral Fellows and Research Fellows) are less likely to engage in PSA than lecturers and professors. Senior administrative staff are generally more active than researchers but less active than lecturers and professors. Affiliation with a UCD research institute[5] is associated with a slightly higher prevalence of public engagement, but lower rates of other types of PSA. The general patterns indicate increased Public Service Activity associated with both longer service in the current role at UCD, and with longer career with UCD in total. Males are more likely to take part in PSA in general. This finding is driven by the higher prevalence of advisory services to NGOs, industry and academic or professional organisations among male staff.

[5]See Table 2 for a list of UCD research institutes.

Table 4: Prevalence of PSA, percentages

	(1) Public engagement	(2) Government	(3) NGO/industry	(4) Academic/prof.	(5) Other PSA	(6) Any PSA
College						
Human Sciences; Business and Law	62.8	41.4	38.5	49.1	20.1	73.5
Health Sciences	42.9	25.4	44.5	43.9	26.5	60.4
Arts and Celtic Studies	82.1	18.9	46.5	72.6	21.8	91.8
Science; Engineering and Archit.	25.7	14.5	17.8	30.2	14.7	44.9
Agric., Food Sci. and Vet. Med.	55.8	33.4	39.7	43.1	13.5	65.8
Grade						
Researcher	16.8	6.0	8.8	13.3	5.3	23.2
Lecturer	55.4	29.9	41.0	48.6	19.6	74.4
Professor	71.3	45.3	45.3	69.9	34.3	82.2
Administrative Officer	16.0	12.5	22.0	16.8	10.1	37.1
Institute affiliation						
No	43.2	26.5	31.9	40.5	17.7	61.6
Yes	46.0	20.1	31.4	38.2	16.9	52.9
Years in current position						
0	27.8	11.8	19.3	25.3	9.7	40.0
1-3	40.4	19.4	21.0	31.6	7.8	50.7
4-6	51.5	24.9	40.3	48.2	26.5	69.1
7-9	46.7	33.0	40.0	41.9	23.8	61.9
10+	54.1	35.6	43.3	53.6	24.8	75.0
Years at UCD						
0	12.1	4.8	4.8	7.5	5.0	17.4
1-4	33.3	11.9	15.0	23.8	2.6	38.4
5-9	43.3	22.2	35.9	40.3	18.6	63.4
10-19	55.7	33.3	43.6	50.3	25.1	74.9
20+	55.6	40.1	40.3	59.6	27.5	73.5
Gender						
Male	43.3	22.4	32.5	41.7	23.1	62.3
Female	44.4	26.1	31.3	38.5	13.6	56.8
Sabbatical						
No	43.0	24.1	31.3	39.0	16.6	58.2
Yes	57.0	31.2	38.2	50.3	28.1	70.1
Part-time						
No	43.7	23.9	31.2	40.3	17.4	58.7
Yes	47.1	32.1	38.1	34.7	18.6	62.8
Sample size						421

3.3 Hours of Public Service Activity

Table 5 presents the mean values for the annual hours that UCD staff spend engaging in Public Service Activities, conditional on being engaged in these activities (i.e. we present the mean values for PSA hours, conditional on this value being greater than zero). Among those who have taken part in PSAs, the mean total yearly number of hours engaged in these activities is 167. If a 7-hour working day is assumed, this equates to approximately 24 working days. Among the five sub-groups of PSAs, the conditional mean number of hours is the highest in the advisory services to academic and professional organisations and to NGOs and industry.

The heterogeneity in hours committed to PSA is examined in Table 6. Examining the data in Column 6 which presents the conditional mean annual hours of all PSA, the highest number of hours (209 corresponding to 30 working days) is reported by staff working at the College of Health Sciences, even though the prevalence of PSA is the second lowest among the staff working in this college (see Table 4). The high number of hours recorded for Health Sciences staff reflects the advisory services provided to NGOs, industry, academic and professional organisations in particular. In the College of Arts and Celtic Studies, where PSA is most prevalent, conditional hours are high on aggregate, and especially when it comes to public engagement and advice to governments and international organisations.

As with the prevalence rates of PSA, the conditional hours increase with the seniority of the role of the staff member. Similar patterns are observed when it comes to the length of tenure in current role at UCD and the length of employment at UCD in total. Although females are less likely to engage in PSA than men are, the conditional hours for women are higher than those for men, especially in the areas of advisory services to governments and international organisations as well as NGOs and industry. Comparing the figures between Tables 4 and 6, the staff who have taken sabbatical (or other) leave and those who work part time are generally more likely to engage in PSA. They are also generally more likely to spend more time on these activities.

Table 5: Annual hours of PSA, conditional mean values

	Mean hours
All Public Service Activity	167.0
Public engagement	49.8
Public talks/lectures	32.1
Public debate: traditional media	20.1
Public debate: social media	41.5
Advice to government	59.6
Local government	23.2
Irish government	41.9
International org.	48.1
Advice to NGOs or industry	72.0
Local NGOs	35.7
National NGOs	46.1
International NGOs	59.8
National industry	41.6
Interntional industry	43.1
Advice to academic or professional organisations	72.8
National academic/prof. org.	46.9
International academic/prof. org.	57.0
Other PSA	55.0
Other advice service	50.1
Other public serice	64.4
Sample size	421

Table 6: Annual hours of PSA, conditional mean values and standard errors

	(1) Public engagement		(2) Government		(3) NGO/industry		(4) Academic/prof.		(5) Other PSA		(6) Any PSA	
	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.
College												
Human Sciences; Business and Law	57.7	10.8	54.3	8.3	65.8	14.3	79.7	13.2	31.7	5.4	180.4	24.7
Health Sciences	37.1	7.0	64.4	16.0	98.3	26.5	81.0	17.9	55.7	15.8	209.3	30.1
Arts and Celtic Studies	69.2	21.6	83.9	42.0	73.5	22.2	72.9	17.2	53.3	16.0	186.7	36.6
Science; Engineering and Archit.	26.9	5.4	53.8	11.3	40.2	8.5	62.4	9.9	62.9	14.4	111.3	16.6
Agric., Food Sci. and Vet. Med.	50.4	10.4	58.9	23.3	65.4	17.5	62.4	18.7	95.5	42.5	172.4	27.1
Grade												
Researcher	21.1	4.7	125.9	55.8	44.3	18.7	72.9	21.5	41.5	16.4	122.0	39.6
Lecturer	53.4	8.3	45.7	6.0	67.9	10.9	66.3	7.6	62.8	12.0	155.4	13.6
Professor	50.7	8.4	73.8	13.5	79.4	17.2	84.6	14.2	39.5	5.9	218.0	27.2
Administrative Officer	52.6	26.9	60.7	21.5	100.0	17.5	80.3	26.1	78.2	6.6	160.1	30.1
Institute affiliation												
No	52.4	7.5	60.4	8.4	79.3	10.4	64.3	6.5	54.6	8.3	162.7	12.7
Yes	43.9	7.2	57.2	9.9	54.3	11.2	94.3	15.1	56.2	13.1	179.0	23.8
Years in current position												
0	54.4	14.1	42.0	11.9	64.0	15.2	64.6	21.0	72.4	31.3	144.7	25.9
1-3	62.4	17.4	47.9	10.1	71.9	25.7	61.5	11.5	98.9	32.6	152.3	26.5
4-6	40.8	7.7	54.1	14.4	67.0	10.0	72.8	16.4	39.1	6.5	154.7	22.7
7-9	45.3	10.4	73.4	13.9	95.2	26.8	84.7	16.3	64.6	17.8	217.0	31.5
10+	45.4	8.2	66.6	14.9	65.3	11.4	77.9	10.9	40.3	5.6	171.0	19.7
Years at UCD												
0	35.2	16.2	15.5	6.7	105.0	67.4	25.0	6.9	80.8	14.2	92.4	43.4
1-4	62.6	26.2	59.3	19.5	69.6	35.9	57.4	10.4	95.0	33.4	144.0	31.4
5-9	51.7	10.6	68.4	13.4	90.2	19.9	79.2	13.5	41.2	6.8	172.7	26.6
10-19	47.1	7.4	56.2	10.4	60.9	7.5	66.8	10.4	65.3	13.6	163.9	14.5
20+	45.2	6.2	61.8	15.4	71.0	19.8	89.4	15.0	41.0	7.3	194.6	28.8
Gender												
Male	48.9	10.6	49.1	7.3	61.7	11.2	85.0	11.6	52.8	10.5	162.0	14.6
Female	50.4	6.3	65.8	9.8	79.2	11.3	63.7	7.0	57.6	9.1	170.8	16.3
Sabbatical												
No	50.0	6.0	62.7	7.4	71.9	8.4	71.8	6.7	56.0	7.9	166.8	11.5
Yes	47.9	17.7	29.4	6.7	72.4	29.5	82.0	23.5	47.8	9.0	169.6	45.8
Part-time												
No	50.7	6.2	62.7	7.5	67.8	8.0	69.6	6.1	58.3	7.6	164.6	11.6
Yes	40.3	8.0	35.1	8.8	109.1	36.5	112.3	40.8	22.4	3.7	192.3	43.8
Sample size												421

4 Multivariate analysis

This section presents the findings of multivariate analyses where the dependent variable is either the probability of an individual staff member engaging in a PSA or the (unconditional) annual number of hours engaged in that activity. The multivariate analyses allow for further conclusions to be drawn about the heterogenous patterns of Public Service Activity, while controlling for other covariates that are likely to be correlated with the variables of interest.

The binary outcome in the probit models is the probability of a UCD staff member taking part in a Public Service Activity.

The estimated model is:

$$P(PSA)_i = f(\alpha_0 + \alpha_1 Female_i + \alpha_2 Grade_i + \alpha_3 College_i + \alpha_4 YearsAtUCD_i + \alpha_5 InstituteAffiliation_i + \alpha_6 PartTime_i + \alpha_7 Sabbatical_i + u_i) \quad (1)$$

where:
$f(.)$ is the standard normal cumulative distribution function
$P(PSA)_i$ is the probability of a staff member i engaging in a PSA
$Female_i$ = a variable that equals 1 if staff member i is female, and 0 otherwise
$Grade_i$ = a vector of dummy variables indicating staff member i's grade
$College_i$ = a vector of dummy variables indicating staff member i's college affiliation
$YearsAtUCD_i$ = a vector of dummy variables indicating staff member i's length of career at UCD
$InstituteAffiliation_i$ = a variable that equals 1 if staff member i is affiliated with a UCD research institute, and 0 otherwise
$PartTime_i$ = a variable that equals 1 if staff member i normally works part-time, and 0 otherwise
$Sabbatical_i$ = a variable that equals 1 if staff member i was on a period of sabbatical, research or other leave during the 2013-14 academic year, and 0 otherwise
u_i = residual term of staff member i

The estimates of the probit models for $P(PSA)_i$ are presented in Table 7. The columns contain the estimated marginal effects and the associated standard errors, estimated at the mean values of the explanatory variables (see Table 2 for summary statistics). The estimates of the probability that a staff member takes part in any PSA is estimated in Model 1, whereas the probability that a staff member takes part in a particular type of PSA is fitted in Models 2 to 5.

The results suggest that the probability of a staff member taking part in a PSA is not significantly

different across genders, nor is the prevalence influenced by institute affiliation, part-time work status or sabbatical (or other leave) activity, once the other covariates are controlled for. The statistically significant differences in PSA prevalence are identified by the grade of the staff member, the college they are working in, and the length of their career at UCD. Reflecting the patterns emerging from the bivariate analysis in the preceding section, in comparison with lecturers (the reference group), Researchers and Administrative Officers are less likely to engage in PSAs, whereas professors are more likely to take part in these activities. As an example, professors are 15 percentage points more likely to take part in a PSA than lecturers are, while taking account of the other covariates. The patterns are consistent across specific types of PSA (Models 2-5), except for advisory services to NGOs and industry (Model 4) where the difference between lecturers and professors is not statistically significant.

In comparison with staff working at the Colleges of Human Sciences and Business and Law, the general finding is that staff working at the College of Arts and Celtic Studies are more likely to engage in PSAs (with the exception of advisory services to governments and international organisations), and staff from the Colleges of Science and Engineering and Architecture are less likely to carry out Public Service Activities of all types. In the multivariate setting, the differences between PSA prevalence between the other colleges and the Colleges of Human Sciences and Business and Law are not statistically significant. Confirming the findings of the bivariate analysis, the prevalence of PSA increases in all categories with the length of the staff member's career at UCD. The effect of tenure length diminishes in the longest tenure category (20+ years) for PSA overall, and for all PSA sub-categories except for advisory services to governments and international organisations (see Model 3).

The next section of the analysis focuses on the determinants of the total number of hours per year that a UCD staff member carries out Public Service Activities for. To account for the non-normal distribution — arising from the large proportion of individuals with zero hours of PSA — a tobit specification is chosen. The tobit model is specified as:

$$PSAhours_i = \begin{cases} PSAhours_i^* & \text{if } PSAhours_i^* > 0 \\ 0 & \text{if } PSAhours_i^* \leq 0 \end{cases}$$

where $PSAhours_i^*$ is a latent variable:

$$PSAhours_i^* = f(\beta_0 + \beta_1 Female_i + \beta_2 Grade_i + \beta_3 College_i + \beta_4 YearsAtUCD_i + \beta_5 InstituteAffiliation_i + \beta_6 PartTime_i + \beta_7 Sabbatical_i + v_i) \quad (2)$$

$f(.)$ is the standard normal cumulative distribution function and the explanatory variables are the

Table 7: Probit models of the probability that a UCD staff member takes part in a Public Service Activity ($P(PSA)_i$), marginal effects at means.

	(1) Any PSA	(2) Public eng.	(3) Gvt	(4) NGO/Ind.	(5) Aca&prof.
Gender					
Female	0.07	-0.05	-0.02	-0.01	0.05
	(0.06)	(0.06)	(0.04)	(0.05)	(0.06)
Grade					
Researcher	-0.36***	-0.32***	-0.24***	-0.29***	-0.26***
	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)
Professor	0.15*	0.19**	0.11*	0.02	0.23***
	(0.09)	(0.08)	(0.06)	(0.07)	(0.08)
Administrative officer	-0.49***	-0.49***	-0.34***	-0.28**	-0.36***
	(0.12)	(0.14)	(0.11)	(0.12)	(0.13)
College					
Health Sciences	-0.07	-0.17*	-0.09	0.10	0.03
	(0.09)	(0.09)	(0.07)	(0.08)	(0.09)
Arts and Celtic Studies	0.34**	0.23**	-0.24***	0.02	0.23**
	(0.15)	(0.12)	(0.08)	(0.09)	(0.10)
Science; Engin. & Archit.	-0.21***	-0.38***	-0.21***	-0.19***	-0.13*
	(0.08)	(0.08)	(0.06)	(0.07)	(0.08)
Agric., Food Sc. & Vet.Med.	-0.07	-0.07	-0.04	0.02	-0.04
	(0.10)	(0.09)	(0.07)	(0.08)	(0.09)
Non-academic	-0.00	-0.08	0.08	0.04	-0.03
	(0.12)	(0.13)	(0.11)	(0.12)	(0.13)
Years at UCD					
1-4 years	0.20*	0.31**	0.15	0.19	0.21
	(0.12)	(0.13)	(0.12)	(0.14)	(0.14)
5-9 years	0.44***	0.35***	0.26**	0.42***	0.37***
	(0.12)	(0.13)	(0.11)	(0.14)	(0.14)
10-19 years	0.47***	0.44***	0.30***	0.44***	0.41***
	(0.12)	(0.13)	(0.11)	(0.13)	(0.13)
20+ years	0.34***	0.29**	0.32***	0.37***	0.39***
	(0.13)	(0.14)	(0.12)	(0.14)	(0.14)
Institute affiliation					
Yes	-0.02	0.10	-0.03	0.08	-0.01
	(0.07)	(0.07)	(0.05)	(0.06)	(0.06)
Part-time					
Yes	-0.07	-0.03	0.06	0.03	-0.15
	(0.10)	(0.10)	(0.07)	(0.09)	(0.10)
Sabbatical					
Yes	0.00	0.03	0.05	-0.01	0.01
	(0.12)	(0.11)	(0.08)	(0.09)	(0.10)
Observations	421	421	421	421	421

Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
Reference categories: Gender: Male. Grade: Lecturer. College: Human Sciences; Business and Law. Years at UCD: Less than 1 year. Institute affiliation: None. Part-time: No. Sabbatical: No.

same as in the probit model specified in Equation 1.

The tobit model marginal effect estimates (at the means values of the explanatory variables) and the associated standard errors are presented in Table 8. The estimates of the hours spent on all PSA is fitted in Model 1, whereas the hours spent on a particular type of PSA is modelled in Columns 2 to 5. The findings are largely in line with the estimates of the probit models. In the model of hours spent on advisory services to academic/professional organisation, the effect of the female dummy is positive and statistically significant at the 10 per cent level.

Table 8: Tobit models of (unconditional) number of annual hours engaged in PSA. Marginal effects at means.

	(1) Any PSA	(2) Public eng.	(3) Gvt	(4) NGO/Industry	(5) Aca&prof.
Gender					
Female	13.24	-10.36	-7.41	-15.01	25.03*
	(23.99)	(11.01)	(14.24)	(17.07)	(14.18)
Grade					
Researcher	-166.24***	-74.96***	-55.61**	-106.05***	-56.70**
	(40.85)	(19.06)	(27.90)	(32.35)	(24.77)
Professor	86.43***	24.47*	47.67***	18.75	52.42***
	(32.64)	(14.41)	(17.89)	(22.62)	(18.47)
Administrative officer	-172.32***	-83.51***	-104.10***	-71.05*	-79.79**
	(58.24)	(28.40)	(37.49)	(42.49)	(35.12)
College					
Health Sciences	7.76	-35.57**	-19.57	45.09*	0.76
	(38.33)	(17.25)	(21.57)	(25.63)	(22.05)
Arts and Celtic Studies	56.65	37.00**	-56.44**	10.39	25.49
	(42.08)	(18.17)	(26.33)	(29.20)	(23.74)
Science; Engin. & Archit.	-108.68***	-73.86***	-67.12***	-69.08***	-40.49**
	(34.02)	(15.88)	(20.14)	(25.10)	(19.76)
Agric., Food Sc. & Vet.Med.	-19.96	-12.97	-14.29	4.58	-20.14
	(40.44)	(17.53)	(21.99)	(27.75)	(23.64)
Non-academic	-3.72	-20.99	25.73	8.25	-16.50
	(56.77)	(26.39)	(34.17)	(41.66)	(34.03)
Years at UCD					
1-4 years	110.96*	74.63***	59.35	64.00	65.18*
	(58.82)	(28.75)	(41.87)	(51.42)	(39.24)
5-9 years	201.51***	69.28**	99.06**	135.55***	114.62***
	(58.42)	(28.54)	(40.87)	(50.23)	(39.00)
10-19 years	196.15***	74.25***	104.60***	124.73**	121.81***
	(57.33)	(27.82)	(40.09)	(49.40)	(38.49)
20+ years	176.68***	49.77*	114.79***	110.62**	129.36***
	(62.26)	(29.93)	(42.13)	(52.28)	(40.64)
Institute affiliation					
Yes	-1.46	10.12	-17.39	11.86	11.45
	(27.56)	(12.34)	(16.50)	(19.53)	(15.94)
Part-time					
Yes	-13.41	-19.95	3.11	28.32	-7.08
	(42.26)	(19.50)	(23.89)	(28.32)	(25.00)
Sabbatical					
Yes	-2.23	-2.22	-3.62	1.82	5.64
	(44.15)	(19.81)	(25.46)	(30.33)	(24.96)
Observations	421	421	421	421	421

Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
Reference categories: Gender: Male. Grade: Lecturer. College: Human Sciences; Business and Law. Years at UCD: Less than 1 year. Institute affiliation: None. Part-time: No. Sabbatical: No.

5 Value of UCD Public Service Activities

Given that we have detailed information about the structure of the population of UCD staff from which the sample was drawn, we are able to aggregate our survey results to generate an estimate of the extent of Public Service Activities of all UCD staff in academic and senior administrative posts. This estimates indicate that, overall, UCD staff in academic and senior administrative positions contributed a total of 21,961 working days to Public Service Activities in the academic year 2013-14.[6]

An estimate of the value of these Public Service Activities is based on standard costing practices in grant applications, which cover salary costs and social charges and pension contributions, as well as a standard 20 per cent overhead charge for administrative, infrastructural and operational expenses. Applying these standard charge rates to the total number of days engaged in Public Service Activities indicates that in the academic year 2013-14, UCD staff in academic and senior administration posts contributed approximately €11.4 million worth of services to the local, national and international communities in addition to their core teaching, research and administrative work at UCD. €11.4 million is equivalent to over 4% of the university's total staff costs of €266 million in 2013 (University College Dublin, 2013).

Table 9: Value of Public Service Activities of UCD staff

Grade	**€ per day**	**Avg. PSA days**	**N (pop)**	**Value of PSA**
Post-doctoral Fellow	300	1.6	242	€116,160
Research Fellow	350	11.0	112	€431,200
Lecturer	400	14.8	503	€2,977,760
Senior Lecturer	450	20.0	260	€2,340,000
Associate Professor	600	31.9	88	€1,684,320
Professor	750	21.0	214	€3,370,500
Senior Administrative Officer II	600	23.1	18	€249,480
Senior Administrative Officer III	500	5.3	42	€111,300
Senior Administrative Officer IV	450	3.5	101	€159,075
Total			**1,580**	**€11,439,795**

6 Conclusion

This paper has sought to fill a gap in our knowledge about the extent of Public Service Activities (PSA) of university staff. In a context of increased interest in the impact of universities, it is important to measure the contribution of university staff above and beyond their core roles in teaching and research.

[6] This calculation was made assuming a 7-hour working day.

We conducted a sample survey of both academic and administrative staff at University College Dublin, which is the largest university in Ireland and has a wide disciplinary coverage. We found that almost 60% of staff engaged in some form of PSA during the 2013-2014 academic year. The most common form of PSA is public engagement, including public talks or lectures and contributions to public debate through traditional and on-line social media — some 44% of staff engage in this kind of activity.

Academic staff are much more likely than administrative staff to engage in such activity, but there is a significant contribution also from senior administrative staff. Academic staff in Arts and Humanities are more likely than their colleagues in other faculties to engage in PSA and this is partly because they are much more engaged in public engagement. PSA is related to seniority: professors are more likely than their junior colleagues to engage in PSA, as are those who have worked at the university for 10 years or more, compared to those with shorter periods of employment.

We estimate that the staff categories covered by the survey, all academics and senior administrators, contributed over 150,000 hours in PSA over the course of the 2013-14 academic year, with an estimated value of almost €11.5 million which is equivalent to over 4% of the university's total staff costs of €266 million in 2013 (University College Dublin, 2013).

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