Research impacts - the perspective of the academic community: summary of the main findings from an online survey – June 2011

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1 – Introduction and Methodology

This document summarises the main results from an online questionnaire survey that explored the ways in which academics across different institutions and disciplines understand their research to have an 'impact' in the broadest possible sense. The aim of this project is to contribute to a better understanding of the range of both academic and non-academic impacts that result from different forms of research and their possible relationships to activities such as teaching, consultancy, professional practice, commercialisation and public engagement. The findings of the survey point to the need for current debates to view the societal impact of research and its assessment in the context of the total activity of academics and the environments in which they work. Future outputs from this project will develop the empirical analysis and policy implications of these findings.

The purpose of the survey (stated in the introduction to the questionnaire) was not to measure the impact of participant's research but to determine in which areas this impact lies, the factors that affect this, and how these vary across different disciplinary areas, academic positions, and institutions. Most of the results cited in this document refer to the number of individual participants (normally expressed as a percentage) who indicated that they thought their research has a certain impact, or is

affected by a certain factor, without taking into consideration how the size of that impact varies between academics in different positions and universities. The survey was predicated on the assumption (also stated in the introduction) that all forms of academic research potentially have some form of wider impact.

Invitations to participate in the survey were sent to a random sample (one third) of all academic staff (including research staff) from six universities in three large provincial English cities (Bristol, Newcastle, and Sheffield) during the summer of 2010. These three cities were selected in-part because each has one 'Pre 1992' research-intensive university and one former polytechnic 'Post 1992' university, so that comparison between these different types of institution would be possible. The three cities also reflect varied local environments on which research may have an impact.

University		**Disciplinary areas**	
Bristol University	168	Medicine and Health Sciences	131
Newcastle University	190	Biological Sciences	76
The University of Sheffield	157	Physical Sciences	65
'Pre 1992' total	***515***	Mathematics and Statistics	36
		Computer Science	20
University of the West of England	65	Engineering	57
Northumbria University	75	***'NAFS' total***	***385***
Sheffield Hallam University	56		
'Post 1992' total	***196***	Business, Management, and Economics	42
		Architecture, Planning, and Built Environment	40
Total	**711**	Social Sciences	116
		Law	21
		Humanities and Languages	80
		Arts and Design	27
		'HSS' total	***326***
		Total	**711**

Table 1.1 – Number of participants by university and disciplinary areas

In total 711 responses were received from a sample of 2,372, giving an overall response rate of almost 30%. Table 1.1 breaks these 711 participants down according to the only two question fields in the survey that required a response; their university and with which of twelve disciplinary areas they most closely identified. The differences in numbers of participants between the Pre 1992 (Bristol, Newcastle, and Sheffield) and Post 1992 (UWE, Northumbria, and Sheffield Hallam) universities

largely reflect the different population sizes of eligible academic staff that we could identify from the institution's website, rather than large disparities in response rates. For simplicity, in the summary that follows we frequently employ a distinction between the top six disciplinary areas in the table above – a group that we will refer to collectively as the 'natural, applied, and formal sciences' (NAFS) – and the bottom six – that we will refer to as the 'human or social subject' areas (HSS). The totals for these two groups are also listed in the table. A longer version of this document is available that includes more detailed discussion of differences between individual disciplinary areas.

The questionnaire had three sections:

1) *Research Profile* - consisted of background questions about the participant and their research activities; including their institution, disciplinary area, position, whether they were members of a university research centre or part of a lab team, and which sources (research council and non-research council) they had received research funding from in the previous five years.

2) *Research Impact* - consisted of questions about the areas of their research impacts, the groups or organisations who are beneficiaries of the research, the 'mechanisms' and 'intermediaries' they use to deliver these research impacts, and whether their research impact was concentrated in any geographical area.

3) *Research Drivers and Barriers* - consisted of questions about the personal, institutional, and wider environmental factors that encouraged or supported their research and its intended impact, and the factors that they had experienced as barriers to their research and its intended impact.

The rest of this document outlines the main findings and preliminary descriptive statistical analysis for sections 2 and 3 of the questionnaire. It concentrates on results for the overall participation and key differences between disciplinary areas, academic positions, and Pre and Post 1992 universities.

Section 2 - Research Impacts

The main three questions in section 2 of the questionnaire enquired about the broad areas in which participants thought their research was having an impact, the groups or organisations that are beneficiaries of the research, and the mechanisms they use to deliver these research impacts. For these three questions, we introduced a distinction between ‘primary’ and ‘secondary’ research impacts or beneficiaries to differentiate between the different direct and less direct ways in which research can have an impact. This distinction was presented in the questionnaire using the following definitions: “By a primary impact or beneficiary we mean the main areas of groups for which your research is designed to directly and intentionally result in benefits. By a secondary impact or beneficiary we mean the other areas or groups that your research may indirectly benefit, even if this impact is not one of the main aims of the research”.

In the three question areas, participants were asked to indicate, for various given categories, whether they thought they were having a primary impact, secondary impact, no impact, or whether the option was not applicable to them. Between ten and fourteen potential areas, beneficiaries or mechanisms were selected as categories for each of these three questions. Shortened labels for these categories are given in figures 2.1 to 2.3 below, which present the primary and secondary impact response for the overall participation in the survey as a stacked bar. Elsewhere in this document the full phrasing for these categories as they appeared in the questionnaire is used.

These graphs show that the categories with clearly the largest positive response, at the level of the overall participation referred to ‘academic’ areas of impact. For the three questions in this section these categories were ‘contribution to scientific/academic knowledge or method’ (areas of research impact), ‘academics or postgraduate researchers in your discipline’ (beneficiaries of research impact), and

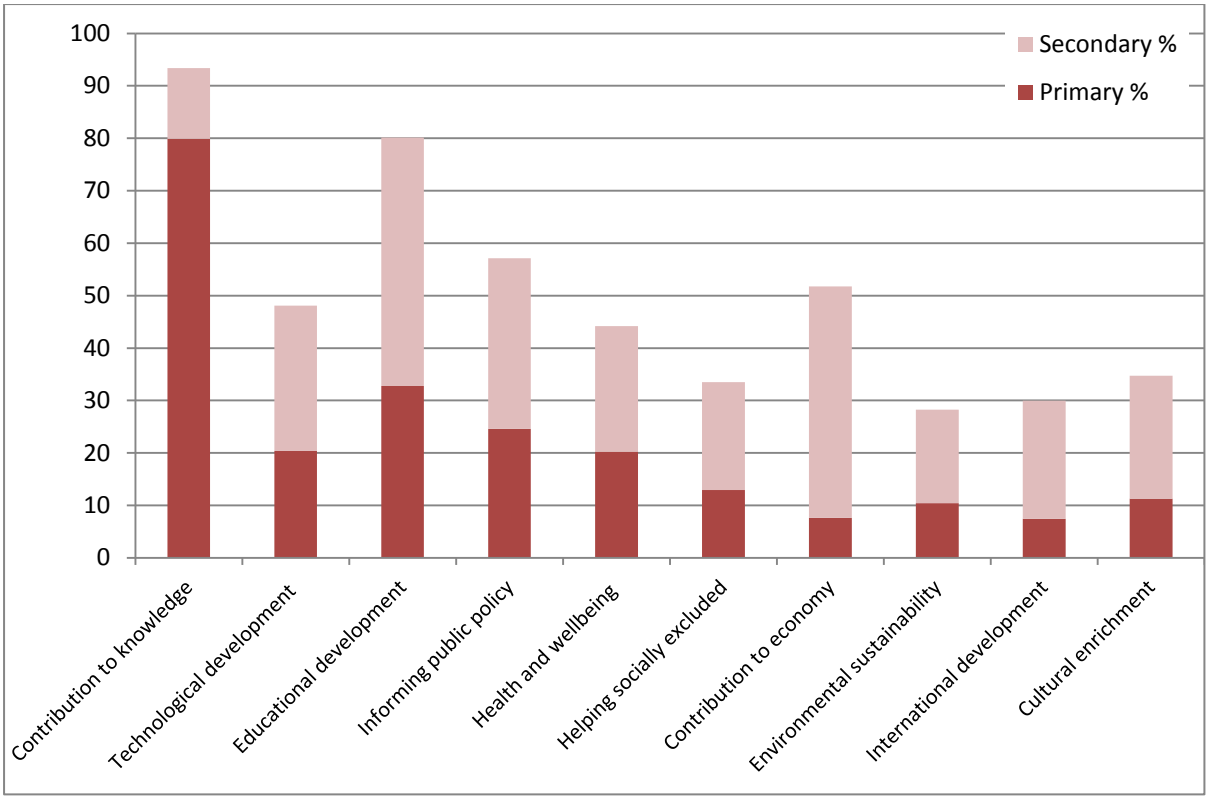

Figure 2.1 - In which of the following areas do you think your research is having either a primary or secondary impact? – Overall (n=711).

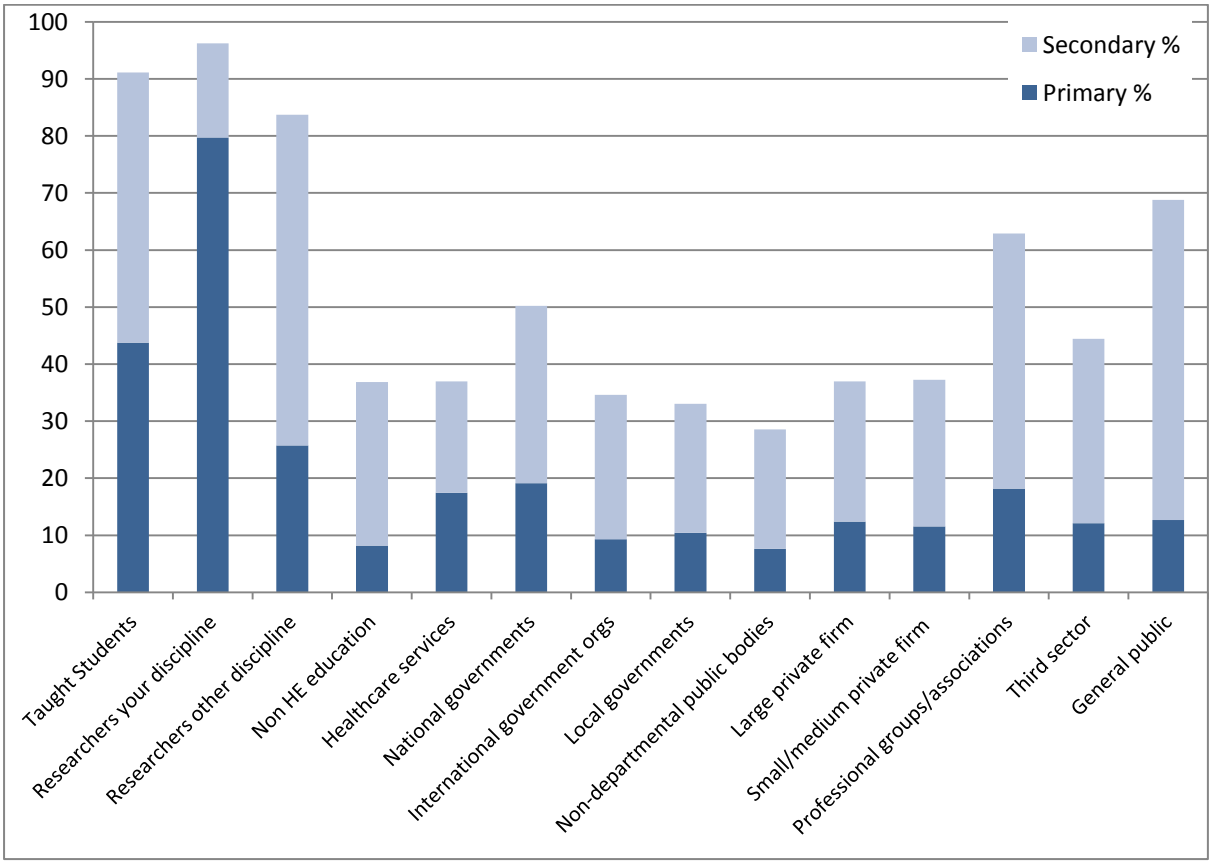

Figure 2.2 - Which of the following types of group or organisation do you think are either primary or secondary beneficiaries of your research? – Overall (n=711).

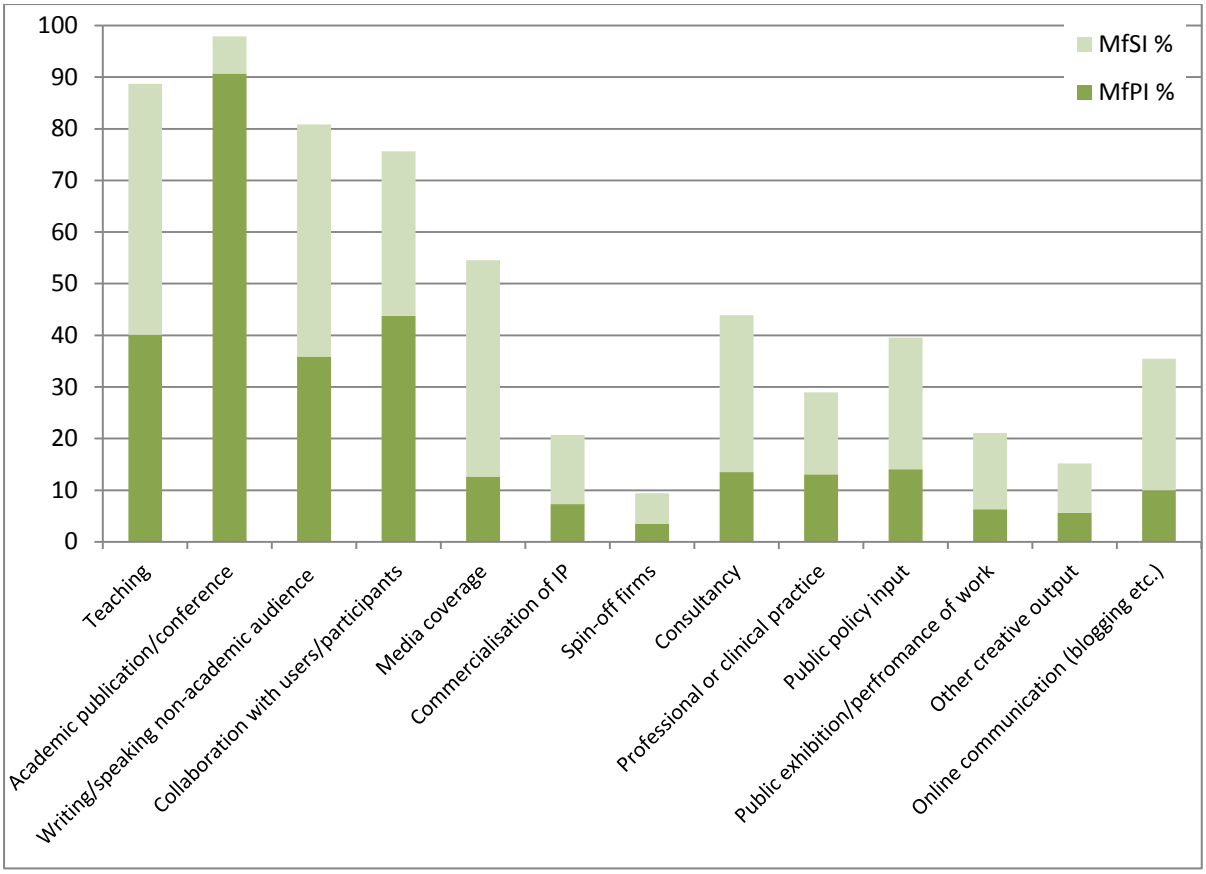

Figure 2.3 - Which of the following mechanisms do you use to deliver either the primary or secondary impacts of your research? – Overall (n=711).

'dissemination through academic publications or conferences' (mechanism of research impact). Respectively, 93.4%, 96.2%, and 97.9% of all participants responded that these categories were either a primary or a secondary impact. Moreover, most participants indicated that their impact in these categories was a primary impact (79.9%, 79.7% and 90.7% respectively), which indicates that it is a direct and intended product of their research activity.

At the level of individual disciplinary areas, these three categories also had the highest positive response for their respective questions in almost all cases. Table 2.1 shows the results for the 'contribution to scientific/academic knowledge or method' category (area of research impact) for the twelve disciplinary areas in order of total (positive+secondary) impact. This shows that the levels of primary impact and total positive impact remain relatively high for most disciplinary areas.

Rank	Discipline Area (n)	Primary %	Secondary %	**Total %**	*Primary% /Total %*
1st	Physical Sciences (65)	96.9	3.08	**100**	*0.97*
2nd	Biological Sciences (76)	90.8	9.21	**100**	*0.91*
3rd	Medicine and Health Sciences (131)	90.1	9.92	**100**	*0.9*
4th	Social Sciences (116)	70.7	25.9	**96.6**	*0.73*
5th	Engineering (57)	75.4	19.3	**94.7**	*0.8*
6th	Architecture, Planning and Built Environment (40)	70	22.5	**92.5**	*0.76*
7th	Mathematics and Statistics (36)	86.1	5.56	**91.7**	*0.94*
8th	Computer Science (20)	85	5	**90**	*0.94*
9th	Business, Management, and Economics (42)	66.7	21.4	**88.1**	*0.76*
10th	Humanities and Languages (80)	78.8	3.75	**82.5**	*0.95*
11th	Law (21)	66.7	14.3	**81**	*0.82*
12th	Arts and Design (27)	44.4	22.2	**66.7**	*0.67*

Table 2.1 – Disciplinary area ranking for 'Contribution to scientific/academic knowledge or method' (as an area of research impact)

The other main form of broadly 'academic' research impacts were in categories that indicated a relationship between research and teaching – 'undergraduate or postgraduate taught students' as beneficiaries of research (figure 2.2), and 'teaching' as a mechanism for delivering research impact (figure 2.3). These are both the categories with the second largest positive response at the level of the overall participation for their questions – respectively 91.1% and 88.8% (primary+secondary impact). Table 2.2 below shows how the results for the 'teaching' as a mechanism for delivering research impact category varies between participants from disciplinary areas on the NAFS and HSS sides (see table 1.1). The most notable difference here is that the mechanism for primary impact response is much higher for the HSS disciplines (53.1%) than it is for the NAFS disciplines (29.1%), which indicates that teaching is more integral to the delivery of the main intended benefits of research in the HSS disciplinary areas. Table 2.2 also shows the results just for those participants who are classified as lecturers, and not professors/readers or research associates/fellows (see table 3.1) who may not be directly involved with teaching. Unsurprisingly, the response for both primary and total impact is higher for the lecturers sub-group than it is for the overall participation, indicating that this relationship between research and teaching is further strengthened when only participants who are likely to teach are considered.

	MfPI%	MfSI%	**Total%**	*MfPI%/Total %*
Overall (n=711)	40.1	48.7	**88.8**	*0.45*
'NAFS' (n=385)	29.1	57.7	**86.8**	*0.34*
'HSS' (n=326)	53.1	38	**91.1**	*0.58*
Lecturers only (n=313)	46	46	**92**	*0.5*

Table 2.2 – Results for 'Teaching' (as a mechanism of delivering research impact). Overall, NAFS, HSS, and Lecturers only.

The other 'non-academic' categories of research impact included in these questions, unsurprisingly, have lower response levels for the overall participation, and vary much more in response levels between disciplinary areas, reflecting different areas of specialisation and engagement across different academic fields. Many categories show much higher response levels for disciplinary areas on either the HSS or NAFS sides in our classification. For instance, the HSS disciplinary areas rank higher for the 'dissemination through writing or speaking for non-academic audiences' category as a mechanism for delivering research impact, whilst perhaps surprisingly, the NAFS disciplinary areas generally rank higher for the 'collaboration with research participants or users (including action research)' category for the same question. Tables 2.3 and 2.4 show the ranking of the twelve disciplinary areas for these questions by the total (primary+secondary) response.

Rank	Discipline area (n)	MfPI%	MfSI%	**Total %**	*MfPI% /Total%*
1st	Social Sciences (116)	54.3	36.2	**90.5**	*0.6*
2nd	Architecture, Planning, and Built Environment (40)	47.5	42.5	**90**	*0.53*
3rd	Business, Management, and Economics (42)	50	35.7	**85.7**	*0.58*
4th	Law (21)	33.3	52.4	**85.7**	*0.39*
5th	Arts and Design (27)	37	48.1	**85.2**	*0.43*
6th	Humanities and Languages (80)	25	58.8	**83.8**	*0.3*
7th	Medicine and Health Sciences (131)	38.2	45	**83.2**	*0.46*
8th	Engineering (57)	35.1	43.9	**78.9**	*0.44*
9th	Biological Sciences (76)	21.1	56.6	**77.6**	*0.27*
10th	Computer Science (20)	35	40	**75**	*0.47*
11th	Physical Sciences (65)	27.7	41.5	**69.2**	*0.4*
12th	Mathematics and Statistics (36)	11.1	36.1	**47.2**	*0.24*

Table 2.3 – Disciplinary area ranking for 'Dissemination through writing or speaking for non-academic audiences' (as a mechanism of research impact)

Rank	Discipline area (n)	MfPI%	MfSI%	**Total%**	*MfPI% /Total%*
1st	Engineering (57)	50.9	38.6	**89.5**	*0.57*
2nd	Biological Sciences (76)	53.9	31.6	**85.5**	*0.63*
3rd	Medicine and Health Sciences (131)	42	41.2	**83.2**	*0.5*
4th=	Physical Sciences (65)	66.2	13.8	**80**	*0.83*
4th=	Architecture, Planning, and Built Environment (40)	32.5	47.5	**80**	*0.41*
6th	Social Sciences (116)	35.3	41.4	**76.7**	*0.46*
7th	Mathematics and Statistics (36)	55.6	16.7	**72.2**	*0.77*
8th	Arts and Design (27)	48.1	22.2	**70.4**	*0.68*
9th	Business, Management, and Economics (42)	33.3	33.3	**66.7**	*0.5*
10th	Computer Science (20)	60	5	**65**	*0.92*
11th	Humanities and Languages (80)	32.5	26.3	**58.8**	*0.55*
12th	Law (21)	19	14.3	**33.3**	*0.57*

Table 2.4 – Disciplinary area ranking for 'Collaboration with research participants or users (including action research)' (as a mechanism of research impact)

The 'non-academic' categories of research impact differ from the main 'academic' categories even more markedly in terms of the proportion of their total positive response that is for primary impact. This indicates that, for most participants, impact relating to these categories is secondary or indirect to the main purpose of their research activity. This pattern is particularly clear for the contribution to the economy category: only 7.6% of all participants responded that their research had a primary impact in this area (compared to 44.2% a secondary impact) (figure 2.1). Table 2.5 below gives the disciplinary ranking for this category. The *Primary%/Total%* column on the right-hand side of the table shows the proportion of the total positive impact that is a primary impact (between 0 and 1). This remains low (<0.3) for all the disciplinary areas including engineering and computer science that rank highly for this and other economic related categories. This means that while many academics feel that their research makes some contribution to the economy, little of this is direct; which suggests that research impact in this area may be harder to demonstrate and assess.

In general, instances of a significant proportion of participants from any of the twelve individual disciplinary areas indicating that their research had a primary impact in any

Rank	Discipline Area (n)	Primary%	Secondary%	**Total%**	*Primary%/ Total %*
1st	Engineering (57)	24.6	61.4	**86**	*0.29*
2nd	Computer Science (20)	15	55	**70**	*0.21*
3rd	Physical Sciences (65)	10.8	56.9	**67.7**	*0.16*
4th	Business, Management, and Economics (42)	14.3	52.4	**66.7**	*0.21*
5th	Biological Sciences (76)	6.6	55.3	**61.8**	*0.11*
6th	Architecture, Planning, and Built Environment (40)	5	50	**55**	*0.09*
7th	Mathematics and Statistics (36)	2.8	50	**52.8**	*0.05*
8th	Arts and Design (27)	14.8	37	**51.9**	*0.29*
9th	Medicine and Health Sciences (131)	3.8	40.5	**44.3**	*0.09*
10th	Social Sciences (116)	4.3	31.9	**36.2**	*0.12*
11th	Humanities and Languages (80)	1.3	30	**31.3**	*0.04*
12th	Law (21)	4.8	23.8	**28.6**	*0.2*

Table 2.5 - Disciplinary area ranking for 'Contribution to the economy' (as an area of research impact)

'non-academic' category was relatively rare. Tables 2.6 to 2.8 below show the only disciplinary areas for which 30% or more of participants indicated that the corresponding category was a primary area, beneficiary, or mechanism of research impact. This does not include the 'dissemination through writing or speaking for non-academic audiences' and 'collaboration with research participants or users' categories shown in tables 2.3 and 2.4.

Area of Research Impact	Disciplinary Area (n)	Primary%	Total%
Informing public policy	Architecture, Planning, and Built Environment (40)	52.5	85
	Social Sciences (116)	50	87.9
	Business, Management, and Economics (42)	38.1	83.3
	Law (21)	38.1	71.4
Healthcare or public health and wellbeing	Medicine and Health Sciences (131)	59.5	91.6
Helping socially excluded or disadvantaged groups	Social Sciences (116)	30.2	69.8
Sustainable development or environmental protection	Architecture, Planning, and Built Environment (40)	30	70
Cultural development or enrichment	Arts and Design (27)	59.3	81.5
	Humanities and Languages (80)	42.5	90

Table 2.6 – Disciplinary areas above 30% primary impact for non-academic areas of impact.

Beneficiary of Research Impact	Disciplinary Area (n)	Primary%	Total%
Healthcare services	Medicine and Health Sciences (131)	57.3	90.8
National governments	Law (21)	38.1	66.7
	Social Sciences (116)	37.9	75
	Architecture, Planning, and Built Environment (40)	35	65
Large private sector firms (over 250 employees)	Engineering (57)	45.6	80.7
Small or medium private sector firms (under 250 employees)	Computer Science (20)	35	75
	Engineering (57)	31.6	80.7
Professional groups or organisations	Business, Management, and Economics (42)	33.3	76.2

Table 2.7 – Disciplinary areas above 30% primary impact for non-academic beneficiaries of impact.

Mechanism of Research Impact	Disciplinary Area (n)	MfPI%	Total%
Professional or clinical practice	Medicine and Health Sciences (131)	39.7	65.6
Public policy input	Social Sciences (116)	31.9	65.5
Public exhibition or performance of work	Arts and Design (27)	51.9	70.4
Other creative output	Arts and Design (27)	44.4	66.7

Table 2.8 – Disciplinary areas above 30% primary impact for non-academic mechanisms of impact.

These tables show that most categories have only one or two specialised disciplinary areas above even this fairly low threshold of 30%, and in only a few specialised cases is the level of response for primary (direct and intended) impact at or above 50%. Many of the categories of non-academic impact shown in figures 2.1 to 2.3 have no disciplinary areas with a 30% or above response for primary impact.

For many categories in this section there were clear differences in the response for participants from Pre 1992 and Post 1992 universities. These are shown for the overall participation in figures 2.4 to 2.6 overleaf. The differences observed in figures 2.4 to 2.6 could, however, be in-part the product of variations in the composition of

the sample population for these two types of institutions in terms of disciplinary backgrounds. For instance, the higher response by participants from Pre 1992 universities for the 'technological development and innovation' or 'healthcare or public health and wellbeing' categories in the areas of research impact question (figure 2.4) seem largely due to the higher proportion of Pre 1992 participants from disciplinary areas such as Engineering or Medicine and Health Sciences. These variations in composition of respondents are shown in table 2.9 overleaf that gives the breakdown of participants from Pre 1992 and Post 1992 universities by disciplinary areas. The major overall pattern is that a much lower proportion of the Post 1992 university participation came from the NAFS disciplinary areas side (and correspondingly a much higher proportion from the HSS side), which is attributable to the comparative rarity of large medical, science, and engineering research groups in Post 1992 universities.

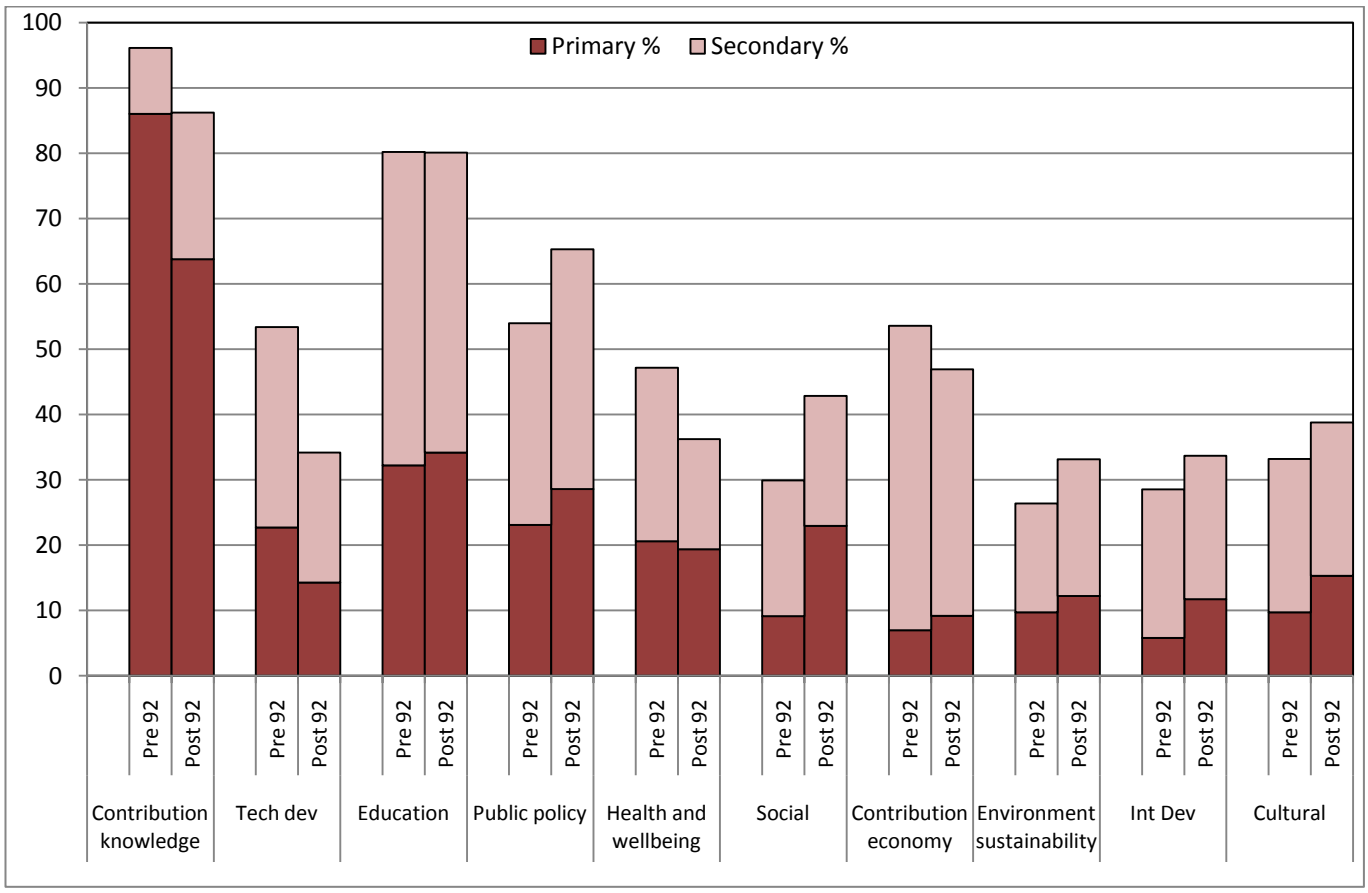

Figure 2.4 - In which of the following areas do you think your research is having either a primary or secondary impact? – Overall Pre and Post 1992 universities (n=515/196).

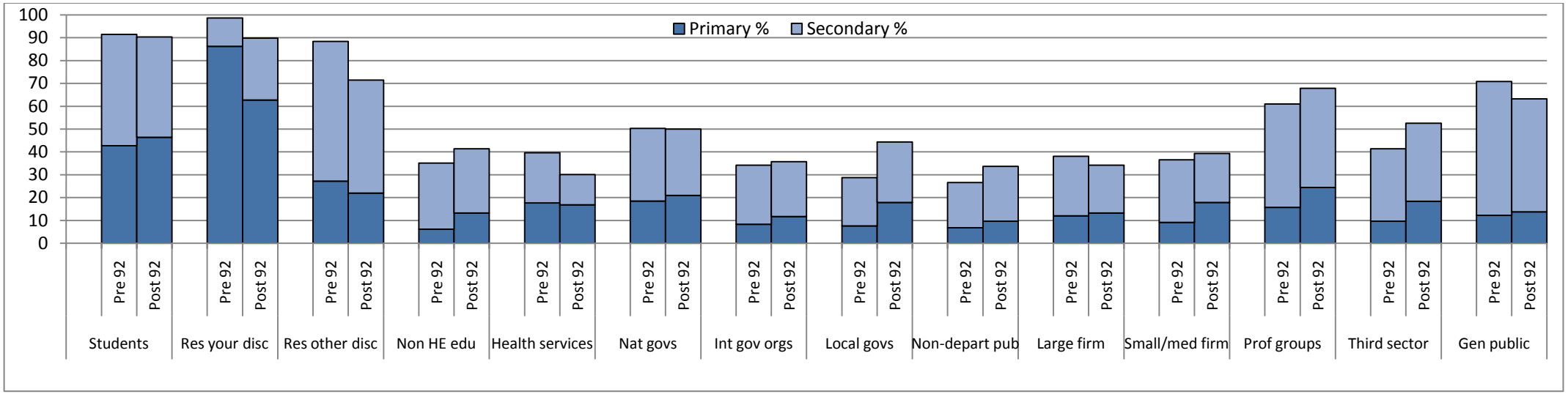

Figure 2.5 - Which of the following types of group or organisation do you think are either primary or secondary beneficiaries of your research? Overall Pre and Post 1992 universities (n=515/196).

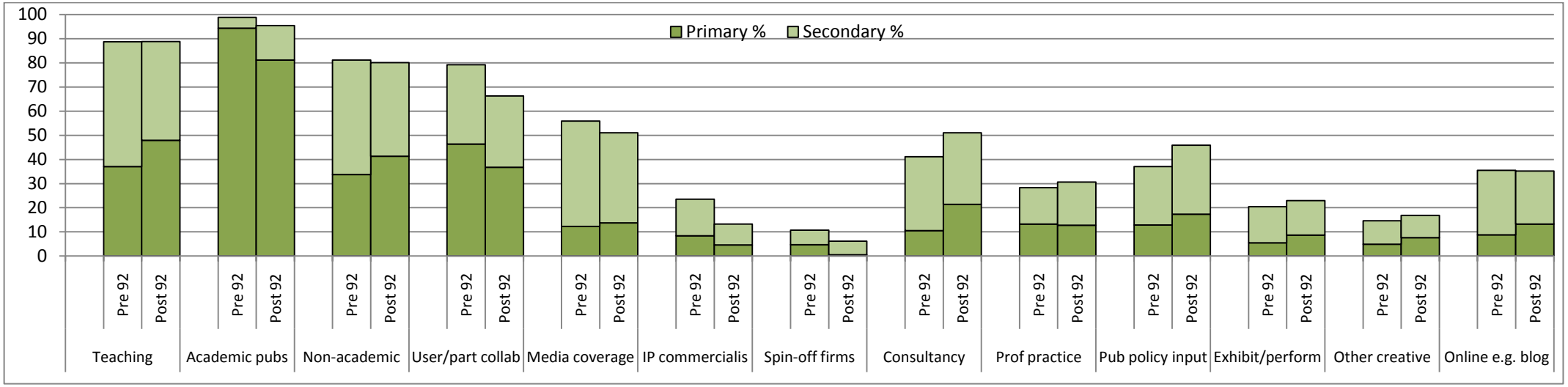

Figure 2.6 - Which of the following mechanisms do you use to deliver either the primary or secondary impacts of your research? Overall Pre and Post 1992 universities (n=515/196)

Disciplinary area	Pre 1992 (n)	*Share*	Post 1992 (n)	*Share*
Medicine and Health Sciences	112	*21.7%*	19	*9.7%*
Biological Sciences	68	*13.2%*	8	*4.1%*
Physical Sciences	58	*11.3%*	7	*3.6%*
Mathematics and Statistics	30	*5.8%*	6	*3.1%*
Computer Science	13	*2.5%*	7	*3.6%*
Engineering	50	*9.7%*	7	*3.6%*
'NAFS'	**331**	***64.3%***	**54**	***27.6%***
Business, Management, and Economics	15	*2.9%*	27	*13.8%*
Architecture, Planning, and Built Environment	17	*3.3%*	23	*11.7%*
Social Sciences	79	*15.3%*	37	*18.9%*
Law	6	*1.2%*	15	*7.7%*
Humanities and Languages	60	*11.7%*	20	*10.2%*
Arts and Design	7	*1.4%*	20	*10.2%*
'HSS'	**184**	***35.7%***	**142**	***72.4%***
Total	**515**		**196**	

Table 2.9 – Number of participants by disciplinary area from Pre and Post 1992 universities.

To examine the effect that these variations in sample composition have, we have also compared the results for Pre and Post 1992 university participants for different disciplinary groupings to see if similar differences in response recur at the level of these smaller units. Tables 2.10 to 2.12 show, for selected categories in each of the three questions, the difference in primary (and not total) impact response between Pre and Post 1992 universities for the overall, NAFS, and HSS participation. A positive figure indicates that the Pre 1992 response is higher, and a negative that the Post 1992 is higher.

These tables show that for some categories clear differences between participants from Pre and Post 1992 universities in the overall response also exist for participants from both the NAFS and HSS sides. This corroborates that in these areas the varying institutional orientation and culture of these two types of university does have a demonstrable effect on individual research practice. Categories for which the Post 1992 university response is clearly higher for different disciplinary groupings (by those indicating that their research has a primary impact) are: 'helping socially excluded or disadvantages groups' (areas of research impact); 'small or medium

firms in the private sector' (beneficiaries of research impact); and 'consultancy' (mechanisms of research impact). Categories for which the Post 1992 response is higher, but by a less conclusive amount, or for only one of either the NAFS or HSS disciplinary groups, are 'local governments', 'third sector' (beneficiaries of research impact); 'dissemination through writing or speaking for non-academic audiences', and 'teaching' (which is shown in table 2.13) (mechanisms of research impact).

	Pre 1992 Primary %	*Post 1992 Primary %*	***Primary % Difference***	*Pre 1992 Total %*	*Post 1992 Total %*
Contribution to scientific/academic knowledge or method					
Overall (n=515/196)	86	63.8	**+ 22.2**	96.1	86.2
NAFS (n=331/54)	90.3	77.8	**+ 12.5**	98.8	92.6
HSS (n=184/142)	78.3	58.5	**+ 19.8**	91.3	83.8
Technological development or innovation					
Overall (n=515/196)	22.7	14.3	**+ 8.4**	53.4	34.2
NAFS (n=331/54)	31.7	31.5	**+ 0.2**	73.4	61.1
HSS (n=184/142)	6.5	7.7	**- 1.2**	17.4	23.9
Healthcare or public health and wellbeing					
Overall (n=515/196)	20.6	19.4	**+ 1.2**	47.2	36.2
NAFS (n=331/54)	25.7	37	**- 11.3**	59.8	59.3
HSS (n=184/142)	11.4	12.7	**- 1.3**	24.5	27.5
Helping socially excluded or disadvantaged groups					
Overall (n=515/196)	9.1	23	**- 13.9**	29.9	42.9
NAFS (n=331/54)	5.7	16.7	**- 11**	20.2	33.3
HSS (n=184/142)	15.2	25.4	**- 10.2**	47.3	46.5

Table 2.10 – Differences in primary and total impact % between Pre and Post 1992 universities for selected areas of research impact. Comparison - overall participation, NAFS, and HSS.

	Pre 1992 Primary %	*Post 1992 Primary %*	***Primary % Difference***	*Pre 1992 Total %*	*Post 1992 Total %*
Academics or postgraduate researchers in your discipline					
Overall (n=515/196)	86.2	62.8	**+ 23.4**	98.6	89.8
NAFS (n=331/54)	85.8	68.5	**+ 17.3**	98.2	90.7
HSS (n=184/142)	87	60.6	**+ 26.4**	99.5	89.4
Local Governments					
Overall (n=515/196)	7.6	17.9	**- 10.3**	28.7	44.4
NAFS (n=331/54)	3.9	16.7	**- 12.8**	22.4	42.6
HSS (n=184/142)	14.1	18.3	**- 4.2**	40.2	45.1
Small or medium firms in the private sector (under 250 employees)					
Overall (n=515/196)	9.1	17.9	**- 8.8**	36.5	39.3
NAFS (n=331/54)	11.2	20.4	**- 9.2**	45.3	44.4
HSS (n=184/142)	5.4	16.9	**- 11.5**	20.7	37.3
Third sector (charities, community/voluntary organisations, social enterprises)					
Overall (n=515/196)	9.7	18.4	**- 8.7**	41.4	52.6
NAFS (n=331/54)	6.9	7.4	**- 0.5**	36	44.4
HSS (n=184/142)	14.7	22.5	**- 7.8**	51.1	55.6

Table 2.11 – Differences in primary and total impact % between Pre and Post 1992 universities for selected beneficiaries of research impact. Comparison - overall participation, NAFS, and HSS.

	Pre 1992 Primary %	*Post 1992 Primary %*	***Primary % Difference***	*Pre 1992 Total %*	*Post 1992 Total %*
Dissemination through academic publications or conferences					
Overall (n=515/196)	94.4	81.1	**+ 13.3**	98.8	95.4
NAFS (n=331/54)	96.7	87	**+ 9.7**	99.1	96.3
HSS (n=184/142)	90.2	78.9	**+ 11.3**	98.4	95.1
Dissemination through writing or speaking for non-academic audiences					
Overall (n=515/196)	33.8	41.3	**- 7.5**	81.2	80.1
NAFS (n=331/54)	29	35.2	**- 6.2**	76.7	66.7
HSS (n=184/142)	42.4	43.7	**- 1.3**	89.1	85.2
Collaboration with research participants or users (including action research)					
Overall (n=515/196)	46.4	36.7	**+ 9.7**	79.2	66.3
NAFS (n=331/54)	53.2	44.4	**+ 8.8**	83.7	72.2
HSS (n=184/142)	34.2	33.8	**+ 0.4**	71.2	64.1
Consultancy					
Overall (n=515/196)	10.5	21.4	**- 10.9**	41.2	51
NAFS (n=331/54)	12.1	20.4	**- 8.3**	43.2	48.1
HSS (n=184/142)	7.6	21.8	**- 14.2**	37.5	52.1

Table 2.12 – Differences in primary and total impact % between Pre and Post 1992 universities for selected mechanisms of research impact. Comparison - overall participation, NAFS, and HSS.

The only categories for which the Pre 1992 response is consistently much higher for all the groupings looked at are the main 'academic' forms of research impact for each question mentioned above (respectively, 'contribution to scientific/academic knowledge or method', 'academics or postgraduate researchers in your discipline', and 'dissemination through academic publications or conferences'). 'Collaboration with research participants or users' (mechanisms of research impact) also has a clearly higher response from Pre 1992 participants from the NAFS side, but only marginally from the HSS side.

As table 2.13 below shows, the Post 1992 university response was also clearly higher by primary impact for the teaching category as a mechanism of delivering research impact for all participants (48% compared to 37.1%) and even more so just for participants who are Lecturers (54.4% compared to 41.2%). However, the results at the level of both the NAFS and HSS disciplinary groupings are much closer, indicating that the overall difference is as much down to the higher proportion of Post 1992 respondents from the HSS side.

		Primary %	Secondary %	**Total %**	*Primary%/Total %*
Overall (n)	Pre 92 (515)	37.1	51.7	**88.7**	*0.42*
	Post 92 (196)	48	40.8	**88.8**	*0.54*
'NAFS' (n)	Pre 92 (331)	28.7	58.3	**87**	*0.33*
	Post 92 (54)	31.5	53.7	**85.2**	*0.37*
'HSS' (n)	Pre 92 (184)	52.2	39.7	**91.8**	*0.57*
	Post 92 (142)	54.2	35.9	**90.1**	*0.6*
Lecturers only (n)	Pre 92 (199)	41.2	50.8	**92**	*0.45*
	Post 92 (114)	54.4	37.7	**92.1**	*0.59*

Table 2.13 – Comparison of Pre and Post 1992 universities (Overall, 'NAFS', 'HSS', and Lecturers only) for 'Teaching' (as a mechanism of delivering research impact).

Section 3 - Research Drivers and Barriers

The third and final section of the survey included three question areas. The first two concerned 'drivers' for research, covering the personal factors that motivate participants' research and its intended impact, and then the institutional or environmental factors that encourage or support this activity. The third question area covered the factors that participants have experienced as 'barriers' to their research and its intended impact.

For the questions in this section we also analysed the data by the academic positions of participants, because we expect the results to vary meaningfully along these lines. Table 3.1 gives the response to the section 1 question 'which of the following most closely describes your current position', along with how this varies between participants from the 'NAFS' and 'HSS' groupings, and from Pre 1992 and Post 1992 universities. This question had eight options to choose from. For simplicity, we have collated these into three larger groups – Professors and Readers, Lecturers, and Research Fellows and Associates – that we will refer to in the analysis below. This was not a compulsory question in the survey, but received 707 responses out of 711 participants in total.

	Overall	*Share*		'NAFS'	*Share*	'HSS'	*Share*		Pre 1992	*Share*	Post 1992	*Share*
Professors and Readers	245	*34.6%*		141	*36.6%*	104	*32.3%*		193	*37.7%*	52	*26.7%*
Lecturers	313	*44.3%*		136	*35.3%*	177	*55.0%*		199	*38.9%*	114	*58.5%*
Research Fellows and Associates	149	*21.1%*		108	*28.1%*	41	*12.7%*		120	*23.4%*	29	*14.9%*
Total	**707**			**385**		**322**			**512**		**195**	

Table 3.1 – Number of participants by academic position (overall, 'NAFS' and 'HSS' disciplinary area groupings, and Pre and Post 1992 universities').

For the two 'drivers' questions, participants were asked to rate a number of given categories - selected in the survey design as possible personal or institutional/environmental factors that motivate or encourage/support their research and its impact - on a four point scale of high importance, moderate importance, low importance, and no importance or not applicable. There were eight categories for both questions, which are listed in the tables 3.2 and 3.3 below.

Personal factors motivating research and intended impacts	High %	Moderate %	Low %	No %
Making a contribution to scientific/academic knowledge	86.9	10.4	1.1	0.7
It supports your teaching	26.4	42.3	21.9	7.7
Your intellectual curiosity or personal interest in the subject	86.9	10.7	0.7	0.1
Advancement of your career	36.1	45.1	14.3	2.5
Your political or ethical beliefs and values	30.7	31.5	18	17.7
Boosting status of your department/school/research centre or institute	30.5	48.7	16.3	2.8
The public benefits (social, economic, or other) for the home city or region of your university	26.2	34.2	24.9	13.4
The public benefits (social, economic, or other) nationally or internationally	44	32.3	14.2	7.6

Table 3.2 – How important are the following factors in personally motivating your research and its intended impacts? – Overall (n=711).

The results for the first 'drivers' question in this section indicated that by far the most important factors that personally motivated respondents' research and its intended impacts were 'making a contribution to scientific/academic knowledge' and 'intellectual curiosity or personal interest in the subject'. For both these categories, 86.9% of all participants responded that the factor was of high importance. This general finding also broadly applies for almost all individual disciplinary areas and

also for all academic position groups (Professors and Readers, Lecturers, Research Associates and Fellows). For other categories in this question, the levels of the overall participation who responded that the given personal factor is of high importance are significantly lower. However, the importance invested in most factors was notably higher for certain sub-groupings of disciplinary area or academic position. For instance, the categories 'your political or ethical beliefs and values', 'the public benefits (social, economic, other) for the home city or region of your university, and the 'public benefits ... nationally or internationally' were all more important to participants from most disciplinary areas on the HSS side and also from the individual disciplinary area Medicine and Health Sciences on the NAFS side. Those categories that seem to vary more by academic position are: 'it supports your teaching' (higher for Lecturers), 'advancement of your career' (higher for Research Associates and Fellows), and 'boosting status of your department/school/research centre or institute' (higher for Professors and Readers).

Institutional or environmental factors encouraging or supporting research and intended impacts	**High %**	**Moderate %**	**Low %**	**No %**
The research culture of your university	51.1	37.3	8.7	1.8
The research culture of your department, school, research centre or institute	70	22.1	4.8	1.8
The availability of research funding opportunities	66.1	22.9	7	2.4
Time allowed for research (including related dissemination and engagement) in your workload.	80.7	13.2	3.1	1.8
Valuation of the impacts of your research amongst academic peers in your discipline	50.2	38.3	7.9	2.1
Valuation of the impacts of your research in university promotion criteria	26.3	43.3	22.2	6.6
Valuation of the impacts of your research in the criteria for the RAE/REF	36	42.9	14.9	4.6
The presence of strong relationships with external (non-academic) groups or organisations	39.7	31.9	18.3	8.3

Table 3.3 – How important are the following institutional or environmental factors in encouraging or supporting your research and its intended impacts? – Overall (n=711).

The number of participants indicating that the eight institutional or environmental factors given in the next question (table 3.3) were of high importance to their research and its intended impact were on average slightly higher (52.5%) than for the corresponding eight personal factors covered above (46%), and the range of levels for those responding these categories were of high importance varied less

between the different categories. The institutional or environmental category with the largest response was ‘time allowed for research (including related dissemination and engagement) in your workload’, which 80.7% of all participants indicated was of high importance, and was a main factor for all disciplinary areas and academic positions. A high proportion of all participants also indicated that ‘the research culture of their department or research centre’, and to a lesser extent ‘the research culture of their university’, was of either high or moderate importance to them. Another factor for which the response was generally high was ‘the availability of research funding opportunities’, which was of particular importance to certain disciplinary areas (the Medicine and Health, Biological, and Physical Sciences) and academic positions (Research Associates and Fellows). By contrast, a much lower proportion of participants responded that categories related to the ‘valuation of the impacts of your research’, particularly ‘in university promotion criteria’ and ‘the criteria for the REF/RAE’, were of high importance.

The final question asked participants which, of seven pre-selected possible issues, they had experienced as a barrier to their research and its intended impact. The response options for each issue were a major barrier, a minor barrier, not a barrier, and not applicable to me. Table 3.4 gives the overall response to this question (with the total % column the sum of the response for major % and minor % barrier).

Potential barrier to research and intended impacts	**A major barrier %**	**A minor barrier %**	Total %	**Not a barrier %**
Lack of time for research (including related dissemination and engagement) in your workload	59.2	27	**86.2**	10.4
The impacts of your research not valued by academic peers in your discipline	12	30.7	**42.6**	50.6
Lack of funding opportunities for your research	40.2	42.2	**82.4**	14.3
Lack of support or resources for your research activities from within your university	25.3	39.9	**65.3**	30.8
Being unable to effectively communicate or translate your research to intended beneficiaries	3.9	22.9	**26.9**	64
Lack of knowledge of how, where, or with whom your research could have an impact	4.1	27.4	**31.5**	59.2
Lack of demand for the applications of your research from external (non-academic) groups or organisations	5.9	21.4	**27.3**	58.5

Table 3.4 – Which of the following have you experienced as either a major or minor barrier to your research and its intended impacts? – Overall (n=711).

Broadly aligning with the findings of the institutional/environmental factors driver question, the categories in the final question that the most participants indicated they had experienced as either a major or minor barrier to their research and its intended impact were 'lack of time for research (including related dissemination and engagement) in your workload' (86.2% of all participants) and 'lack of funding opportunities for your research' (82.4%). By contrast, three categories given in this question that refer to potential challenges in leveraging wider impacts out of research ('being unable to effectively communicate or translate your research to intended beneficiaries'; 'lack of knowledge of how, where, or with whom your research could have an impact'; 'lack of demand for the applications of your research from external (non-academic) groups or organisations') all had low numbers responding that the had experienced as a barrier (under 6% for all three categories as a major barrier).

The responses for this question seemed to vary most consistently by different academic position groups, suggesting that this factor had a bigger effect on the chance that certain issues will be experienced as a barrier than the disciplinary area of participants. Table 3.5 breaks the results down for the three academic position groupings. For two of the categories – 'lack of time for research (including related dissemination and engagement) in your workload' and 'lack of support or resources for your research activities from within your university' – the response was higher (as either a major or minor barrier) for Lecturers than for Professors and Readers, or for Research Associates and Fellows. For the five other categories the response was highest for Research Associates and Fellows and lowest for Professors and Readers.

Potential barrier to research and intended impacts	**A major barrier %**	**A minor barrier %**	Total %	**Not a barrier %**
Lack of time for research (including related dissemination and engagement) in your workload				
Professors and Readers	49.4	35.9	**85.3**	11.8
Lecturers	74.8	18.2	**93**	4.5
Research Associates and Fellows	43	30.9	**73.8**	20.1
The impacts of your research not valued by academic peers in your discipline				
Professors and Readers	6.9	30.6	**37.6**	55.9
Lecturers	15.3	28.4	**43.8**	49.2
Research Associates and Fellows	13.4	35.6	**49**	44.3

Lack of funding opportunities for your research				
Professors and Readers	33.5	46.9	**80.4**	15.1
Lecturers	43.8	38.7	**82.4**	14.7
Research Associates and Fellows	44.3	42.3	**86.6**	11.4
Lack of support or resources for your research activities from within your university				
Professors and Readers	22	42	**64.1**	33.1
Lecturers	29.1	39.3	**68.4**	27.2
Research Associates and Fellows	22.1	38.9	**61.1**	34.2
Being unable to effectively communicate or translate your research to intended beneficiaries				
Professors and Readers	2	18	**20**	70.6
Lecturers	5.4	23	**28.4**	62.6
Research Associates and Fellows	4	30.9	**34.9**	55.7
Lack of knowledge of how, where, or with whom your research could have an impact				
Professors and Readers	2	20	**22**	67.3
Lecturers	4.5	29.4	**33.9**	58.1
Research Associates and Fellows	6.7	35.6	**42.3**	47.7
Lack of demand for applications of your research from external groups or organisations				
Professors and Readers	5.3	17.1	**22.4**	65.3
Lecturers	5.7	24.3	**30**	56.2
Research Associates and Fellows	7.4	22.8	**30.2**	51

Table 3.5 - Which of the following have you experienced as either a major or minor barrier to your research and its intended impacts? - Comparison by academic position grouping (n=245/313/149).

Many of the categories for the three questions in this section also varied in the response for participants from Pre and Post 1992 universities. These are shown in tables 3.6 to 3.8 below. For the two drivers questions (tables 3.6 and 3.7), the categories for which a clearly larger percentage of participants from Pre 1992 universities responded were of high importance are ‘making a contribution to scientific/academic knowledge’ (personal factors), ‘the research culture of your university’, ‘the research culture of your department/research centre’, ‘the availability of research funding opportunities’, and ‘time allowed for research (including related dissemination/engagement) in your workload’ (institutional/environmental factors). The categories for which the Post 1992 response was clearly higher are ‘it supports your teaching’, ‘your political or ethical beliefs and values’, ‘the public benefits for the home city or region of your university’ (personal factors), ‘valuation of the impacts of your research in the criteria for RAE/REF’, and ‘presence of strong links with external groups or organisations’ (institutional/environmental factors).

Personal factors motivating research and intended impacts	High %	Moderate %	Low %	No %
Making a contribution to scientific/academic knowledge				
Pre 1992 universities	90.5	8	0.58	0.19
Post 1992 universities	77.6	16.8	2.6	2
It supports your teaching				
Pre 1992 universities	22.9	42.1	25.8	8.2
Post 1992 universities	35.7	42.9	11.7	6.6
Your intellectual curiosity or personal interest in the subject				
Pre 1992 universities	88.5	9.9	0.6	0
Post 1992 universities	82.7	12.8	1	0.5
Advancement of your career				
Pre 1992 universities	36.3	45.8	14	2.3
Post 1992 universities	35.7	43.4	15.3	3.1
Your political or ethical beliefs and values				
Pre 1992 universities	28.2	30.9	19.6	19.8
Post 1992 universities	37.2	33.2	13.8	12.2
Boosting status of your department/research centre				
Pre 1992 universities	29.9	49.3	16.9	2.7
Post 1992 universities	32.1	46.9	14.8	3.1
The public benefits for home city or region of your university				
Pre 1992 universities	23.9	34	27	14.4
Post 1992 universities	32.1	34.7	19.4	10.7
The public benefits nationally or internationally				
Pre 1992 universities	43.3	34	14.6	6.8
Post 1992 universities	45.9	28.1	13.3	9.7

Table 3.6 – 'How important are the following factors in personally motivating your research and its intended impacts?' Comparison Pre and Post 1992 universities (n=515/196).

Institutional or environmental factors encouraging or supporting research and intended impacts	High %	Moderate %	Low %	No %
The research culture of your university				
Pre 1992 universities	54.2	37.5	6.2	1.2
Post 1992 universities	42.9	36.7	15.3	3.6
The research culture of your department/research centre				
Pre 1992 universities	73.2	21.4	3.5	1
Post 1992 universities	61.7	24	8.2	4.1
The availability of research funding opportunities				
Pre 1992 universities	71.7	20.8	5.1	1.8
Post 1992 universities	51.5	28.6	12.2	4.1
Time allowed for research (and related) in workload				
Pre 1992 universities	83.7	12	2.3	1.2
Post 1992 universities	73	16.3	5.1	3.6
Valuation of impacts of your research amongst academic peers				
Pre 1992 universities	51.5	38.1	7.8	1.8
Post 1992 universities	46.9	38.8	8.2	3.1
Valuation of impacts of your research in promotion criteria				
Pre 1992 universities	27.8	45.4	19.6	6.2
Post 1992 universities	22.4	37.8	29.1	7.7
Valuation of impacts of your research in criteria for RAE/REF				
Pre 1992 universities	33.2	46.8	15	4.1
Post 1992 universities	43.4	32.7	14.8	6.1
Presence of strong links with external groups or organisations				
Pre 1992 universities	35.7	33.6	19.4	9.5
Post 1992 universities	50	27.6	15.3	5.1

Table 3.7 – 'How important are the following institutional or environmental factors in encouraging or supporting your research and its intended impacts?' Comparison Pre and Post 1992 universities (n=515/196).

The responses to the barrier question, by contrast, varied remarkably little between participants from Pre and Post 1992 universities (see table 3.8 below). The only notable differences are in the slightly higher proportion of participants from Post 1992 universities responding that 'lack of time for research (and related) in your workload' was a major barrier, and the slightly higher proportion of participants from Pre 1992 universities responding that 'the impacts of your research not valued by academic peers in your discipline' was either a major or minor barrier.

Potential barrier to research and intended impacts	**A major barrier %**	**A minor barrier %**	Total %	**Not a barrier %**
Lack of time for research (including related dissemination and engagement) in your workload				
Pre 1992 universities	57.7	27.8	**85.4**	11.7
Post 1992 universities	63.3	25	**88.3**	7.1
The impacts of your research not valued by academic peers in your discipline				
Pre 1992 universities	12	32	**44.1**	49.9
Post 1992 universities	11.7	27	**38.8**	52.6
Lack of funding opportunities for your research				
Pre 1992 universities	40.2	42.7	**82.9**	14.8
Post 1992 universities	40.3	40.8	**81.1**	13.3
Lack of support or resources for your research activities from within your university				
Pre 1992 universities	25.4	40	**65.4**	31.8
Post 1992 universities	25	39.8	**64.8**	28.1
Being unable to effectively communicate or translate your research to intended beneficiaries				
Pre 1992 universities	4.3	23.3	**27.6**	63.9
Post 1992 universities	3.1	21.9	**25**	64.3
Lack of knowledge of how, where, or with whom your research could have an impact				
Pre 1992 universities	4.1	28	**32**	58.4
Post 1992 universities	4.1	26	**30.1**	61.2
Lack of demand for the applications of your research from external (non-academic) groups or organisations				
Pre 1992 universities	5.6	20.6	**26.2**	59.2
Post 1992 universities	6.6	23.5	**30.1**	56.6

Table 3.8 - Which of the following have you experienced as either a major or minor barrier to your research and its intended impacts? - Comparison Overall Pre and Post 1992 universities (n=515/196).

As with the questions in section 2, however, there is a high chance that the differences between the responses for Pre and Post 1992 universities are in-part a result of differences in the composition of participants in terms of disciplinary areas and, for the three questions in this section, also academic position (particularly the

higher proportion of Lecturers from Post 1992 universities). At first glance, it would appear that many of the differences between Pre and Post 1992 response in the categories identified above could be explained by differences in participation. However, because of the interplay of different variables here, further statistical analysis is needed to isolate the true effect of differences in the institutional orientation and culture of these two types of universities on the drivers and barriers to research practice and its impact.

Section 4 – Key Findings

This concluding section will highlight some key provisional findings from the two sections covered above.

1) The categories of areas, beneficiaries, and mechanisms of research impact that received the highest response for either primary or secondary impact were those that related to 'academic' impacts: 'contribution to scientific/academic knowledge or method', 'academics or postgraduate researchers in your discipline', and 'dissemination through academic publications or conferences'. Moreover, most participants indicated that their impact in these categories was a primary impact, and therefore a direct and intended product of their research activity. By contrast, for most non-academic categories, there were more participants indicating that they had a secondary impact than a primary impact; meaning that the impact was indirect and not necessarily one of the main aims of doing the research. If secondary impacts are interpreted as being potentially harder to demonstrate, this could create challenges for many academics related to the assessment of the wider impact of their research.

2) The results of the survey demonstrate the relationship between research and other activities such as teaching, consultancy, external engagement, or professional

practice. This indicates the need to view the impact of research in the context of the total activity of academics. The strongest link is to teaching as a mechanism of delivering research impact: 88.8% of all participants responded that they used this as a mechanism for delivering either primary or secondary research impacts. This figure rose further for participants who were Lecturers only (and therefore highly likely to be directly involved in teaching), and even more so (as a mechanism for primary impacts) for participants from the human and social (HSS) disciplinary areas.

3) For the areas, beneficiaries, and mechanisms of research impact questions there are some clear differences in responses between participants from Pre 1992 and Post 1992 universities. However, many of these differences could be attributable to varying compositions of the sample population for these two types of institution, particularly the higher number of academics in science and engineering related disciplines in Pre 1992 universities. Further analysis indicated that for some categories these differences stayed relatively consistent at the level of smaller disciplinary groupings, suggesting areas where contrasts in the institutional orientation and culture of Pre and Post 1992 universities do seem to have a general effect on individual research practice. For Pre 1992 universities these categories with a consistently higher response were the three main categories of ‘academic’ impact mentioned above. For Post 1992 universities they included ‘helping socially excluded or disadvantaged groups’, ‘small or medium firms in the private sector’, and ‘consultancy’.

4) The results from section 3 indicate that participants’ research was driven more by the factors ‘making a contribution to knowledge’ and ‘intellectual curiosity or personal interest’ than other personal factors such as advancing their career or the public benefits of the research. The key institutional or environmental factors that were important in encouraging or supporting this research and its intended impact were ‘time allowed for research (and related dissemination/engagement) in your workload’, ‘the availability of research funding opportunities’, and ‘the research culture of your department or research centre’ (and not those related to the ‘valuation of the research impacts’ in ‘university promotion criteria’ or the ‘criteria for the RAE/REF’).

The responses to these main driver factors were generally also high for most individual disciplinary areas and academic positions. They did, however, vary by type of university; with participants from Pre 1992 universities more likely to indicate that these five personal or institutional/environmental categories were of high importance.

5) Correspondingly, the main factors that participants had experienced as a major barrier to their research and its impact related to ‘lack of time’ and ‘lack of funding opportunities’, rather than categories relating to leveraging or translating research into impact. The response to this barrier question seemed to vary more between participants from different academic positions than disciplinary areas or Pre and Post 1992 universities. In particular, a very high level of Lecturers (74.8%) responded that they had experienced ‘lack of time’ as a major barrier. For most other categories, including ‘lack of funding opportunities’, a higher number of Research Associates and Fellows than Lecturers or Professors and Readers indicated that they had experienced the factor in question as a barrier. Future analysis will examine how these drivers and barriers vary between respondents whose research has different types of academic and non-academic impacts.