

Studying and Earning: Teacher's Notes

Activity 1: Average salaries for different subjects

Summary: This activity is designed to draw students' attention to average differences in earnings of graduates with different degrees. The task requires you to randomly divide students into 2 groups and then to give students a series of options in which they can either stick with the salary they have from the previous round or switch to another option. Once students have decided whether to stick or switch you will tell them what they would earn (or would have earned) if they switched to the new option. The outcomes are different for the two groups (Males and Females). See Table 1 on Page 4.

Procedure

1. **Randomly Allocate the students into two groups 1 and 2.** Tell Group 1 they will be the 'females' and Group 2 the 'males'. Tell them that that they will start with an income that is average for people with at least 2 A levels **who choose not to go to university.**
2. The annual income for **Group 1 is £22000 and for Group 2 £27500.**
3. Tell students they will now face a series of choices about whether to continue with their study and if so what to study and they will be told what they are likely to earn as a result.
4. The first choice is whether to go out to work with A levels or to study for an Arts degree (e.g. Art History, English, History of Philosophy). Ask students to commit to one of these choices and record it on their form.

So a Student in Group1 who decided to do an Arts degree would have a student sheet which looked like this after you have given them the option of sticking with their previous choice or doing an Arts Degree

	Group 1 (Circle)	2	Typical annual earnings	Change in Annual Earnings
	Leaving education with 2 or more A levels		£22000	
1	Arts Degree			
2				
3				
4				
5				
Etc.				

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5. Announce to students that for those who switched to an Arts Degree the new salaries are:

	With Arts Degree
Group 1	26000
Group 2	26500

So a student in Group 1 who switched an Arts degree would now have a student form looking like this:

	Group 1 2 (Circle)	Typical annual earnings	Change in Annual Earnings
	Leaving education with 2 or more A levels	£22000	
1	Arts Degree	26000	4000
2			
3			
4			
5			
Etc.			

The figure in this final column is the difference between the £22000 and the £26400.

6. Now give students the option of sticking with their current choice or opting for a History degree (point out that History is one kind of Arts degree)

Once they made their choices, announce the salary outcomes. For those who choose to switch to a History Group are:

	With History Degree
Group 1	26000
Group 2	30000

Ask students to write the salary they now get (according to their choice) in the middle column and work out the extra salary they got in the third column.

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A student in **Group 2** who decided to stick with leaving after A levels should have a record sheet that looks like this:

	Group 1 (Circle) 2	Typical annual earnings	Change in Annual Earnings
	Leaving education with 2 or more A levels	£27500	
1	Stick with 2 A levels	£27500	0
2	Stick with 2 A levels	£27500	0
3			
4			
5			
E t c .			

The amount a male with at least 2 A levels but no degree earns

No change – as decision not changed

A student in **Group 1** who decided to switch first to an Arts degree and then to a History degree should have a record sheet that looks like this:

	Group 1 2 (Circle)	Typical annual earnings	Change in Annual Earnings
	Leaving education with 2 or more A levels	£22000	
1	Arts Degree	£26000	0
2	History Degree	£26000	0
3			
4			
5			
E t c .			

No change – because the mark-up for woman with a degree in History is the same as for Arts subjects on average

- Continue this process (Give students the choice of sticking with their current choice – e.g. leaving after A levels or an Arts Degree- ask them to write their choice in the first column, announce the salaries for the new degree option and get students to write the salary for

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their choice in the middle column and the change in salary in the right hand column). Use the figures in Table 1 which follows.

Table 1 The sequence of subjects and average earnings for each group.

	Group 1 2 (Circle)	Typical annual earnings		Change in Annual Earnings
		Group 1 (Females)	Group 2 (Males)	
	Leaving education with 2 or more A levels	£22000	£27500	
1	Arts Degree	£26000	£26,500	
2	History Degree	£26000	£30,000	
3	Education Degree	£32250	£33,500	
4	Science Degree	£28000	£33,000	
5	Psychology Degree	£27000	£31,500	
6	Business or Financial Degree	£30000	£33,500	
7	Law	£32750	£34,000	
8	Engineering	£30000	£36,750	
9	Politics	£26000	£30,500	
10	Maths or Computing	£31250	£36,500	
11	Languages	£27000	£31,500	

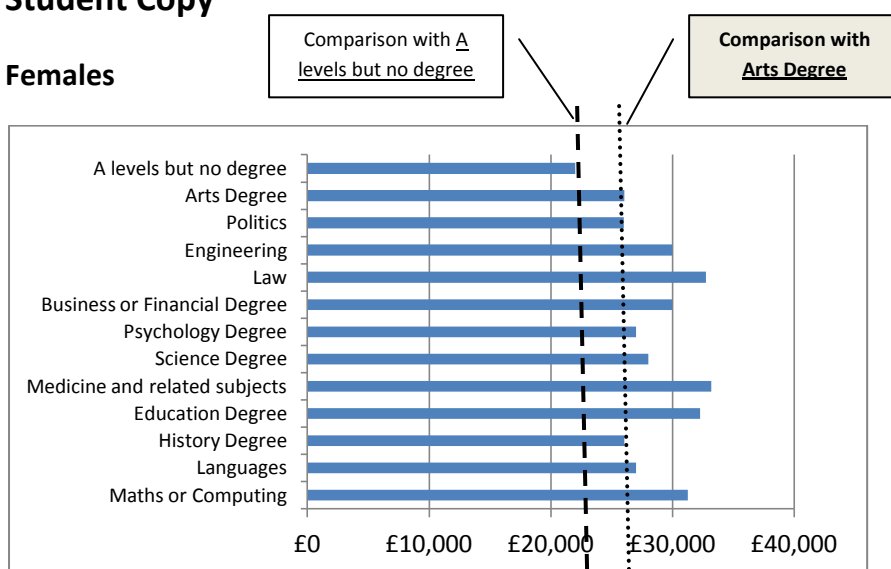
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Activity 2: Variations in the distribution of salaries for different subjects

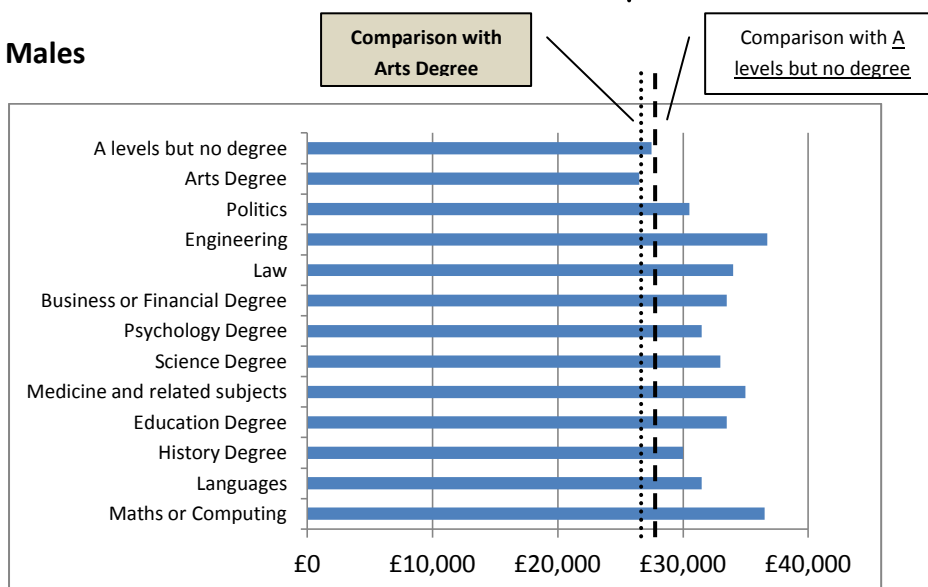
Summary: This activity is designed to consolidate students' awareness of the information used in the first activity. You may choose to organise this as an individual or a paired activity according to what you think is most suitable for the class. Two vertical lines on each bar chart are intended to draw students' attention to two comparisons: with average earnings of a student who has at least two A level passes but does not go to university and average earnings of a student who graduates with any degree in the category 'Arts'.

Student Copy

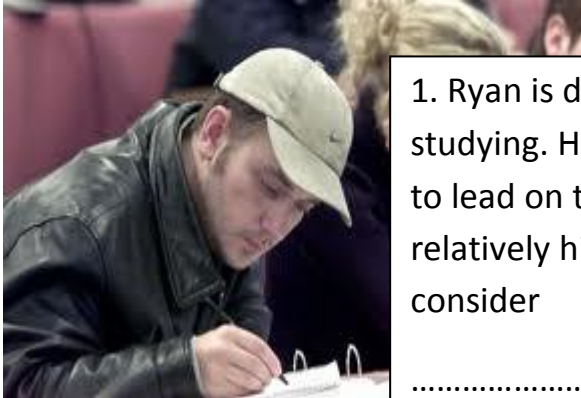
Females



Males



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1. Ryan is doing well in each of the subjects he is studying. He wants to study a subject which is likely to lead on to a job where his earnings will be relatively high. Suggest three subjects he might consider

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2. Steph also intends to go to university. She is particularly interested in History, Politics and Education. She wants to study a subject which is likely to lead on to a job where her earnings will be relatively high. Which subject does it make most sense for her to choose?

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3 Do the salaries differences encourage men who are very motivated by high earnings to study the same subjects as women who are very motivated by high earnings? (explain your answer)

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Teacher's Copy

Follow on questions

1	Ryan's choice	Engineering, Maths and Computing, Law offer the highest earnings on average relative to other subjects in the list (Accounting and Economics also offer high earnings, but the average for all Business subjects is somewhat lower)
2	Steph's choice	Education offers the highest earnings amongst these three subjects.
3	Female/male differences	For every subject, the difference between leaving education after A levels and going to university was greater for women. For some subjects (notably Law, Education and Medicine), there was little difference in the relative advantage for men and women.

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Activity 3: The difference a Degree makes to how much you earn after you take account of fees and lost earnings

Summary: This activity is designed to draw students' attention to some of the factors which cause graduate earnings from the same subject to differ between individuals. The true/false/uncertain questions are intended to focus students' attentions on salient comparisons. The last couple of questions are intended to encourage them to think carefully about what the data do and do not suggest.

Student Copy

Degrees are classified differently from A levels and other qualifications gained at school or college.

		% of graduates in 2010
Top Classification	1 st ('First')	14%
	2i ('Two-one')	49%
	2ii ('Two-two')	27%
	3 rd ('Third')	6%
Bottom Classification	Unclassified	4%

Researchers have calculated the financial benefits of different degrees after taking off the cost of:

- The Tuition Fee paid to the university.
- The money you would have earned if you had got a job instead of going to university.

The bar charts for this activity show how much a difference a degree makes *after* taking account of fees and lost earnings.

For each of the statements look at the bar charts and decide whether the statement is true, false or uncertain according to these bar charts.	
	True/False or Uncertain?
1. Doing a science degree (rather than getting a job at 16) makes more difference to the earnings of a woman than a man.	
2. Doing a Law, Economics or Management Degree makes more difference than other subjects to a man's earnings.	
3. An increase in university fees from £3200 per year to £7000 a year halves the difference a degree makes to earnings.	
4. Graduates who get a 2i degree earn about 10% more than graduates who get a 2ii degree.	
5. Choice of degree subject makes much more difference to a man's future earnings than to a woman's future earnings.	
6. Every woman who studies for an engineering degree earns between 10 and 15% more than a woman with A levels who does not go to university.	
7. Women who get a Mathematics degree earn about twice as much as men who get a Mathematics degree.	

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Science, Technology, Engineering and Mathematics Degrees

Extra income compared to just A levels



Law, Economics and Management Degrees

Extra income compared to just A levels



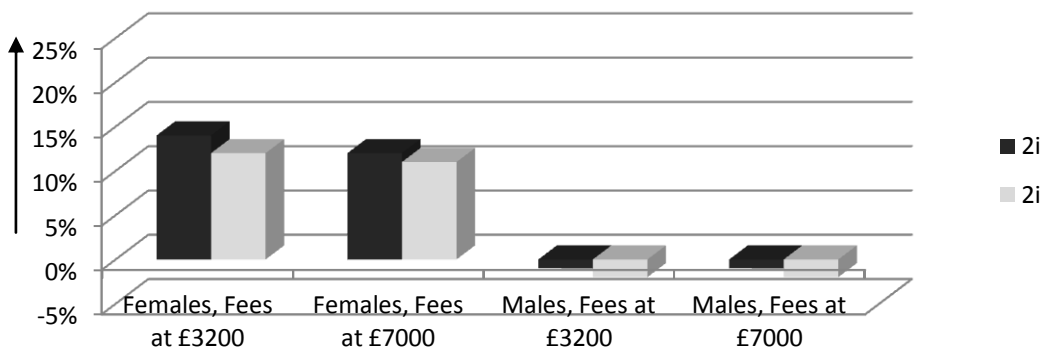
Joint Degrees (Combinations of two or more subjects)

Extra income compared to just A levels



Other Social Science subjects (i.e. not economics) and Arts degrees

Extra income compared to just A levels



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You may find it helpful to work through an explanation of one of the bars before asking students to start the task.

For example, the first two bars (one black, one grey) in the 'STEM' chart show females graduates' earnings compared to leaving schools with just A levels, after taking off fees of £3200 and lost earnings when studying. They show that on average a female with a 2i in a STEM subject was 15% a year better off with a STEM degree than with just A levels and a female with a 2ii in a STEM subject as almost exactly the same – very slightly less than 15% a year better off.

The bar charts suggest that there is a considerable difference for males, but little difference for females between these subject classifications. It is important to note that the earlier data (Activities 1 and 2) show that there is considerable difference between subjects within each of these classifications. The class of degree makes a small difference (mostly around one percentage point) in the earnings of graduates in three of the classifications (STEM, Combined and Other Social Science and Arts) but quite a big difference for graduates in Law, Economics and Management. This may reflect a higher proportion of recruitment from these subjects by large companies particularly in the City of London. A change in fees as shown in the table also makes a rather modest difference – often only around one percentage point.

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Note on the data

Activities 1 and 2

The figures used in these activities are based on calculations of the difference that a degree subject makes. These calculations are taken from a study by O'Leary, N. & Sloane, P. (2005) *The return to a university education in Great Britain, National Institute Economics Review*, 193(75), 75-89. This study uses data from 1994-2002 so it is relatively old. These researchers have published another paper more recently O'Leary, N. & Sloane, P. (2011). *The Wage Premium for University Education in Great Britain during a Decade of Change, The Manchester School*, 79, 4, pp. 740-764. This more recent paper compares the periods 1997-1990 with 2004-06 during which there was a substantial rise in the number of graduates. It reports little change in the additional earnings of graduates or the relative position of graduates in different subjects. This analysis is slightly less fine grained than the earlier analysis published in 2005 and that is why relative figures have been taken from the earlier study. The study presents 'mark-ups' (in percentages) for different degrees. More recent average absolute earnings figures have been used to give baseline earnings and the differences calculated using the percentages from the O'Leary and Sloane study of 2005.

There is broad agreement between these and other studies of differences in earnings of graduates from different subjects. But as with all data, these figures give us indications rather than hard and fast certainties and the figures are averages calculated from the earnings of different students at different universities. There should be opportunities in class discussion to remind students about this.

Activity 3

The figures for the proportion of students gaining each class of degree in 2010 are from the Higher Education Statistical Agency. The calculations of the benefits of a degree after taking account of tuition fees and lost earnings are taken from Walker, I. and Zhu, Y. (2010) *Differences by degree: Evidence of net financial rates of return to undergraduate study in England and Wales. Discussion Paper 5254 IZA. Bonn.*

The figures are calculated on the basis of graduate earnings in the period 1994-2009. The studies by O'Leary and Sloane (and others) have found little change in the financial benefits of one degree compared to another over this period.

Ian Walker and Yu Zhu have published several analyses of the economic benefits of degrees. The IZA is a leading European organisation publishing peer reviewed research. As usual with research on this topic the data are from the Labour Force Survey which is a national randomised survey. As with all such sources it is important to note that this source only allows a rough estimate. Many of the respondents to this survey do not provide information on their earnings. So whilst the sample sizes are sufficient for statistical comparison we

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cannot be sure that differences between the people who provided information are the same as the people who did not provide information about their earnings. That said, there are no strong reasons for believing that this is likely to be the case.