Are sandwiches better?
The impact of work placement upon degree performance

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Introduction
A significant decline in the number of students intermitting their studies to undertake a work placement is apparent upon examining available data for the main degree pathways in the Ulster Business School (with a placement option) over the period 2005-2010 (see Table 1). In particular the two generalist BSc Business Studies programs at Jordanstown (J) and Magee (M) have seen a much more marked decrease in numbers in comparison with the specialist programs in marketing and human resource management.

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<td>35</td>
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Table 1: Placement statistics 2005-2010

Whilst the more limited availability of placement opportunities as a consequence of the economic downturn has undoubtedly been a contributory factor, a further question is whether placement is perceived by students as adding value in the quest for employment. There is a financial cost (currently 50% of normal fees) inherent in undertaking a placement together with extending the period of study by an additional year when student levels of debt are inexorably increasing.

The rationale for including a work placement within a degree program is that of work experience improving employability. Educationalists often view the benefits of work experience in terms of soft/transferable skills including attributes such as communication, team work, problem solving and time management (Department for
Education & Skills (2005) in addition to developing an understanding of world and work organisations.

**Background**

The decline in the relative number of students undertaking a work placement is also evident on a national scale with Higher Education Funding Council for England (HEFCE(2009)) reporting a decline of 7.1% in those graduating with placement despite a 9.1% increase in the number of graduates (over the period 1999-2003). An international comparison is more problematic due to differing durations and payment status although a recent report by Arthur & Little (2010) is noteworthy in revealing a higher incidence of placement in European countries (on average 55%) in contrast to the UK where the observed figure is 29%.

The correlation between industrial placements and students’ employability has been comprehensively explored by practitioners such as Bowes & Harvey (1999) and Little & Harvey (2006) amongst others. However there remains a relative dearth of current literature and research exploring the correlation between placements and final degree attainment. The works of Mandilaras (2004) and Gomez et al (2004) explore this area in greater depth. The former study rigorously explores whether the industrial placement augments academic performance for Economics students whilst the latter investigates the impact of an industrial placement on Bioscience undergraduate performance at the University of the West of England in Bristol. Both studies suggest a correlation between placements and final degree results. Similarly, Rawlings, White and Stephens (2006) conclude that internship or placement has a significant positive impact upon academic performance (see also Wallace 2002 and Mendez 2008). None of the aforementioned studies specifically investigate the impact of a work placement year on business related degrees.

Duignan (2002) compared the academic performance of business undergraduates and reported no difference between the performance of students undertaking a placement year and those not. The absence of a beneficial effect is attributed to a failure to fully exploit the learning potential of placement. Gracia and Jenkins (2003) however, provide some evidence that students on
an undergraduate degree programme in accounting and finance at
the University of Glamorgan who opt to take a year of supervised
work experience before their final year, perform better than those
who do not. Surridge (2008) provides evidence from a study of
accounting and finance degree students at the University of the
West of England, employing the data from three graduating cohorts
and concludes that placement students perform significantly better.
Within the specific context of the University of Ulster, Green (2011)
finds that the average classification of students on the BSc Business
Studies degree at the Jordanstown campus, on average increases
from a 2.2 to 2.1 for those students completing placement.

A recent HEFCE (2009) report also provides some interesting
descriptive statistics (p.4) which are informative to this study, namely
that 71% of students graduating with a placement year in 2003
achieved a 2.1 or above, compared with 60% of other students
(based upon classified degrees).

Having determined statistically the significance of completing
an industrial placement on academic performance, there is
justification in exploring the possible causes of this result. Wallace
(2002) deliberates over possible causes listing several possible
reasons, including those undertaking a placement already having
a different temperament and higher aspirations to begin with. He
also postulates whether the year in industry alleviates the financial
burdens, thus enabling the returning student to focus purely on
one’s studies in their final year. Mandilaras identifies some potential
explanations for the improved academic attainment of returning
placement students asserting that:

‘it is possible that the placement experience enables the students
to mature more quickly than they otherwise would. Spending a year
working in often competitive environments makes them realise that
their future professional development is to an extent, related to their
academic performance. Hence their ambition is stimulated, they
come back to university more focused and determined to do well’
(Mandilaras, 2004, p.48).

Methodology
This study investigates the impact of a work placement year on the
final degree classification achieved by the 2009 cohorts of undergraduate degrees, crossing three campuses and three faculties\schools, of the University of Ulster, a total of 530 students (see Table 2).

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Table 1: Placement statistics 2005-2010

<table>
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<tr>
<th>Descriptives</th>
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<th>BSC</th>
<th>BSM</th>
<th>ACC</th>
<th>HRM</th>
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<td>340</td>
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<td>55</td>
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<td>63</td>
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<td>25</td>
<td>30</td>
<td>54</td>
<td>14</td>
<td>52</td>
<td>530</td>
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</table>

Table 2: Summary Academic Performance

BSJ  Business Studies, Jordanstown, Ulster Business School
BSC  Business Studies, Coleraine, Ulster Business School
BSM  Business Studies, Magee, Ulster Business School
ACC  Accounting, Jordanstown, Ulster Business School
HRM  Human Resource Management, Jordanstown, Ulster Business School
CS   Consumer Studies, Coleraine, Ulster Business School
CAM  Communications, Advertising and Marketing, Jordanstown, School of Communications.
ECON Economics, Jordanstown, Faculty of Social Sciences
MKT  Marketing, Jordanstown, Ulster Business School
A number of control variables are incorporated including total tariff points on entry (a measure of prior school level achievement), second year level degree performance, and gender. A combination of both parametric and non-parametric statistical tests are employed to investigate the issues of interest. In addition, a multivariate model to explain final year degree mark is developed and estimated using OLS regression as follows:

\[ Y = \alpha_0 + \alpha_1X + \alpha_2M + \alpha_3\text{DIS} + \alpha_4\text{GEN} + \epsilon \]

Where,
- \( Y \) is the final year degree mark achieved,
- \( \alpha_0 \) is a constant terms introduced as a rather ad hoc way of capturing the impact of omitted variables,
- \( X \) is the total tariff points on entry to the degree,
- \( M \) is the second year degree mark achieved,
- \( \text{DIS} \) is a dummy variable which takes the value of 1 if a work placement is completed and 0 otherwise,
- \( \text{GEN} \) is a dummy variable which takes the value of 1 if the student is male, and 0 if female,
- \( \epsilon \) is a stochastic error term.

**Results**

The findings suggest that a work placement year, gender, and second year degree performance are all statistically significant in explaining the final degree mark achieved by students (see Table 3 below). The overall explanatory power of the model is quite high at 44.6%, but the constant term is highly significant and as it is incorporated in the model as a surrogate for omitted variables it is likely that these exist.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Tariff points</th>
<th>Second year mark</th>
<th>Placement</th>
<th>Gender</th>
<th>( R^2 )</th>
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</thead>
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<tr>
<td>22.264</td>
<td>0.008</td>
<td>0.593</td>
<td>4.492</td>
<td>-1.986</td>
<td>0.446</td>
</tr>
<tr>
<td>(0.000)**</td>
<td>(0.120)</td>
<td>(0.000)**</td>
<td>(0.000)**</td>
<td>(0.001)**</td>
<td></td>
</tr>
</tbody>
</table>

Number of observations is 530.

* Significant at the 5% level.  ** Significant at the 1% level.

Table 3: Ordinary Least Squares estimation of multivariate model (Full sample)
Control Variables
To allow for the possibility that the results obtained could be influenced simply by academic ability, we include two control variables namely tariff points on entry (although recent research questions whether tariff points on entry is an appropriate measure of academic ability (see Fee, Greenan and Wall, 2010)), and second year performance. Table 4 indicates that, on average, the total tariff points on entry for students proceeding to a work placement year is slightly higher than that for students proceeding directly to final year, but the difference is not statistically significant.

<table>
<thead>
<tr>
<th>DIS</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>293</td>
<td>296.59</td>
<td>57.588</td>
<td>3.364</td>
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<tr>
<td>0</td>
<td>237</td>
<td>295.78</td>
<td>59.622</td>
<td>3.873</td>
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</table>

\[ \text{t-test on equality of means} = 0.157 \quad \text{(0.875)} \]

Mean difference in second year average mark

<table>
<thead>
<tr>
<th>DIS</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>293</td>
<td>58.14</td>
<td>6.947</td>
<td>0.406</td>
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<tr>
<td>0</td>
<td>237</td>
<td>55.95</td>
<td>7.152</td>
<td>0.465</td>
</tr>
</tbody>
</table>

\[ \text{t-test on equality of means} = 3.563 \quad (0.000)** \]

Figures in brackets represent two-tailed significance levels.

* Significant at the 5% level. ** Significant at the 1% level.

Table 4: Control Variables Academic Performance

There is therefore no evidence to support the contention that “better” final year performance for those students taking placement derives from such students having better general academic ability as measured by total tariff points on degree entry. From the same table it is also apparent that students taking a work placement year have a
statistically significant higher average mark in second year than those opting to progress directly to final year. However on a more detailed review it emerges that, whilst the difference is statistically significant, the difference does not cross a classification boundary.

Gender is also addressed as a control variable since a number of studies have investigated its impact (Richardson and Woodley, 2003; Naylor and Smith, 2004; Smith 2004; Woodfield, Earl-Novell and Solomon 2005, and the Higher Education Academy and Equality Challenge Unit, 2008). Table 5 suggests that gender does have a statistically significant impact upon the final year degree mark (females performing better than males) with the difference in average mark also crossing a degree classification boundary.

**Final Degree Mark**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>164</td>
<td>57.22</td>
<td>9.264</td>
<td>0.723</td>
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<tr>
<td>0</td>
<td>366</td>
<td>61.65</td>
<td>7.254</td>
<td>0.379</td>
</tr>
</tbody>
</table>

$t$-test on equality of means \(-5.424 \ (0.000)^{**}\)

Figures in brackets represent two-tailed significance levels.

* Significant at the 5% level. ** Significant at the 1% level.

Table 5: Control Variable Gender (Male 1, Female 0)

This result raises a further question as to whether the finding that a placement year improves final year degree mark on average by a degree classification is merely acting as a substitute for gender? To further investigate the impact of gender the sample is split between male and female students and a comparison is made between the final year degree mark for male students who have and have not completed a placement year and female students who have and have not completed a placement year. From table 6, albeit that gender does have an impact upon final year performance, the
impact of a placement year is positive and statistically significant for both male and female students and is associated with an increase in classification from 2.2 to 2.1.

### Male students average mark in final year

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>75</td>
<td>60.40</td>
<td>7.05</td>
<td>0.810</td>
</tr>
<tr>
<td>0</td>
<td>89</td>
<td>54.54</td>
<td>10.07</td>
<td>1.070</td>
</tr>
</tbody>
</table>

$t$-test on equality of means \( 4.360 \) (0.000)**

### Female students average mark in final year

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>218</td>
<td>63.86</td>
<td>5.350</td>
<td>0.362</td>
</tr>
<tr>
<td>0</td>
<td>148</td>
<td>58.39</td>
<td>8.389</td>
<td>0.690</td>
</tr>
</tbody>
</table>

$t$-test on equality of means \( 7.032 \) (0.000)**

Figures in brackets represent two-tailed significance levels.

* Significant at the 5% level. ** Significant at the 1% level.

**Table 6: Mean difference in final year degree mark between students taking a work placement year (DIS=1) and those proceeding directly to final year (DIS=0) by gender**

### Conclusions

The analysis reveals that those students undertaking a placement year graduate with a higher degree classification than those proceeding directly to the final year of their studies. Moreover this outcome remains statistically significant after controlling for academic ability (entry tariff point and second year performance) along with gender. Admittedly the fact that currently second year performance (or the placement mark) does not contribute towards the degree classification may also be pertinent in explaining the outcome.
The downward spiral in the uptake of placements has undoubtedly been heavily influenced by ongoing economic problems and informal evidence suggests that a significant number of current final year students were unable to obtain placements due to a shortage of available positions. Whilst this may be a relatively short term phenomenon there may be a need to review the current structure of placements. Alternative options could take the form of a number of shorter placements within the degree program, perhaps during the summer vacation, or perhaps unpaid placements similar to the internship system operated in the US. The former is unlikely to be attractive to employers given the requirement to train placement students and the latter is unlikely to be favourably received by students who themselves face difficult financial circumstances. Indeed the current system may allow them to save money during placement to alleviate financial constraints in final year which may itself indirectly improve performance.

It may also be an opportune time for the university to review the fees charged for placement (currently 50% of normal annual fees), particularly in light of the expected increase in tuition fees. An insistence on retaining the current arrangement would result in a fee of £3,000 which is likely to be viewed as prohibitively expensive by the majority of students.

Despite this rather pessimistic future outlook for placements it is evident that the experience does provide benefits, both tangible and intangible, which may enhance employment prospects. The enhancement of soft skills (communication, IT, time management and confidence) is well documented and highly valued by employers. Moreover the accumulating evidence that placement is also likely to result in a higher degree classification may also contribute towards reversing the current trend (economic conditions permitting).

References


Helen Foster is a lecturer in accounting at Ulster Business School in Jordanstown, where she is Placement Tutor for BSc (Hons) Accounting.

Peter Green is a senior lecturer in accounting and finance at the University of Ulster, and is currently the Course Director of the undergraduate degree in Business Studies, within the Ulster Business School. He graduated and completed his doctorate in accounting and finance, at the University of Ulster.

Philip Houston is a Work Experience Consultant at Ulster, specialising in the accreditation of flexible work experiences such as short-term and part-time placement.

David McAree has experience of working in industry and within the education sector at an international level and has authored a number of business studies texts which are currently selling on an international basis.

Claire McCann has been a lecturer in finance in the Ulster Business School (Coleraine) for ten years and has a research interest in teaching and learning practice.

Douglas McCulloch has been a lecturer in economics on the Jordanstown campus since 1975. His research interests have included computer-assisted learning, the measurement of health outcomes, and the value of university placements.

Mike Pogue is a lecturer within the Ulster Business School with research interests in corporate pensions, investment appraisal and teaching and learning practice.