Is Paddy Cosgrave right (TCD 2.1 = Other University 1st = IOT Masters)?

A burst of candour but what about evidence?

The other week, Paddy Cosgrave of "The Summit" fame and member of the board of the Higher Education Authority ruffled some feathers in his own back yard when he said that in employing graduates he would shortlist as equivalent graduates who have a 2.1 from TCD, a first from all the other Irish universities and a masters from an Institute of Technology. An interesting burst of candour from within the system but is he right? Does TCD maintain higher standards with the result that its 2.1 is the equivalent of a first from the other universities? Do the other 6 universities have similar lower standards warranting them all being lumped together and do the IOTs maintain lower standards again?

How are we to know?

There is no absolutely definitive way to decide such questions on the basis of evidence available but there are ways to, at least, make a good stab at assessing the relative academic standards maintained by the different universities and institutes of technology. One obvious way is to compare inputs and outcomes across the institutions involved, inputs in terms of the academic calibre of the students on entry and outcomes in terms of the proportion of graduates who emerge with a first or a 2.1.

The average student who applies to the CAO nowadays has close to 350 points. To be exact, 49.8% of the 2013 applicants had points of 340 or more. The very best applicants have 600 points (more if you count bonus points for honours maths). The vast majority of university students lie in between but the majority of IOT students have points below the 350 mark. No one would dispute that there is a very considerable gap in academic ability between an applicant with 600 points and one with 340 or 350 points, not to mention those with points below that. At the level of any one individual, a higher points' tally is not a guarantee of doing better in college but, in aggregate, it is a safe bet that students with more points will perform better than those with less. This hypothesis has been tested and the evidence has emerged as expected. For example, an unpublished study by the NUI looked at the Arts, Commerce, Science and Law graduates in NUIG, UCC and NUIM in 2003 and in UCD, NUIG, UCC and NUIM in 2004. Students entering with points over 505 were three times more likely to graduate with 1st class or 2.1 degrees when compared with students entering on points below 405.

If, then, some third level institutions attract a greater proportion of the higher points' candidates than others, it should follow that a similarly higher proportion of their graduates should emerge with a 1st or 2.1 in their primary degrees. If anything else were to be found, it would throw very real doubt on whether comparable academic standards were being maintained.

If Paddy Cosgrave is right, TCD will stand out from the other universities as having a low overall rate of firsts and upper seconds in comparison to the academic calibre of its student body as evidenced through their CAO points. In addition, the IOTs will collectively stand out in the opposite direction with more firsts and upper seconds than would reasonably be expected from the calibre of student

attracted into the sector. Is the data available to test such propositions? The answer is not entirely but sufficient to arrive at a close estimate.

Inputs and outcomes in the universities

On the output side, pretty much all the data required is available from the reports by O'Grady, Guilfoyle and Quinn on www.stopgradeinflation.ie. So far so good. On the input side, the available data doesn't quite fit the bill to the same extent. The source here for published data is the CAO website, http://www.cao.ie/. Ideally one would like to have a breakdown of the points for the undergraduate entry cohorts at each institution for a number of years. That data is not publicly available. What is to be found is the average or median points for the student group entering each undergraduate course at each institution. From those figures we can get, at least, a rough idea of whether different institutions attract more or less high points' students and, then, we have some other data up our sleeves.

Quality of students on entry

Tables 1 and 2 below list the percentages of courses at each of the 7 universities where the entry cohort of students in 2004 and 2005 had median points below 450 and at 450 and above.

2004	University	%<450	%450+
	TCD*	20.4	79.6
	UCD	39.2	60.8
	UCC	41.3	58.7
	NUIG	56.8	43.2
	UL	65.5	34.5
	DCU	69.6	30.4
	NUIM	71.4	28.6

*Does not include two subject moderatorships

Table 1: % of courses in 2004 where student intakes had median CAO points above and below 450 points

2005		%<450	%450+
	TCD*	23.9	76.1
	UCC	40.9	59.1
	UCD	43.1	56.9
	NUIG	59.5	40.5
	UL	64.4	35.6
	DCU	73.9	26.1
	NUIM	73.9	26.1

*Does not include two subject moderatorships

Table 2: % of courses in 2005 where student intakes had median CAO points above and below 450 points

TCD looking good but others vary

Looked at from this perspective, Trinity does seem to attract more than its share of high points' students. The other 6 universities can hardly be lumped together, however. There is a very big difference between having over 70% of your courses populated by students with median points

below 450, as in the case of NUIM and having only about 40% of your courses populated by students with similarly lower points, as in the case UCC and UCD.

Differences in course entry numbers

Of course, this information could all be very misleading. Surely, some courses attract large numbers of students and, therefore, account for far more graduates than others. A college might well admit relatively few students to each of a long list of high points' courses with the bulk of its graduates, nevertheless, coming from a small number of lower points' but very populous courses. It would appear high up on the above tables. Yet, it should not be expected to have such a large proportion of its total graduates capable of firsts and upper seconds. We need to be able to adjust for the number of students entering each course if we are to compare the calibre of students across the various third level institutions.

There is only one year, 2002, for which the numbers entering each third level undergraduate course was published on its website by the CAO. Since entry numbers and points do not fluctuate greatly in the short run and 2002 is not far away from 2004 and 2005, an analysis of the points' patterns at the different universities in that year, which takes account of student numbers entering courses, should be instructive.

Table 3 below lists the mean of the median points for students in each course with the medians weighted for entry numbers to each course. The figure is computed for each university by first multiplying each median by the number of students entering that course, then summing the resulting figures and dividing this total by the overall number of undergraduates entering the university. The effect is to approximate closely the mean of all individual points of undergraduate entrants.

University	Mean of Weighted Medians
TCD	464* (corrected estimate = 458)
UCC	451
UCD	447
NUIG	438
DCU	434
UL	430
NUIM	397

* Does not include two subject moderatorships (28% of all undergraduate entrants)

Table 3: Mean of median points for all 2002 courses weighted for course intake numbers

A scrutiny of table 3 reveals that weighting for the numbers on each course does little to alter the rank order of the Universities. TCD is still at the top, followed by UCD and UCC. Then comes NUIG, DCU and UL and, lastly, NUIM. Two consequences of weighting are notable. NUIM has dropped further behind DCU and UL in points' terms. This is because the Arts course at NUIM with relatively low points accounts for a very high proportion of its undergraduate entrants. The second notable effect is that the other universities don't seem as disparate as they did when points were not weighted for course numbers.

The gap between TCD and UCC should also be narrower in Table 3 above. If the two subject moderatorships, accounting for 28% of all undergraduate entrants at TCD in 2002, were factored in,

the mean of TCD's weighted median points would have dropped below the 460 mark, probably down to around 458. This can be estimated because, though the CAO did not publish the median points for those courses, it did publish the minimum points for each of the 22 individual options, together with the numbers admitted in each case. By computing the mean of the weighted minimum points, both with and without those 22 courses, and comparing the two, it was possible to estimate their likely effect had they been included for Table 3 above. The mean of the weighted minimum points at TCD in 2002 across all courses was 444 while the comparable figure was 450 when the two subject moderatorships were excluded. Mean and median points on courses tend to track each other very closely with correlations in excess of .9 found for all years tested. Thus, it is to be expected that the figure in table 3 above would also drop by about 6 points. The corrected estimate given in the table is, therefore, 458.

Grades of graduates

Based on the academic calibre of students attracted to each of the universities one might then expect a somewhat similar rank order of top grades among their graduates. The table should be headed by TCD followed closely by UCC and UCD, then NUIG, DCU and UL with NUIM some distance behind. That said, the points' differences in many cases are minimal, probably too small and unpredictable from year to year to have any discernible effect on differences in rates of firsts or upper seconds. While one might reasonably expect TCD to have a greater proportion of higher grades among its graduates than NUIM or even UL or DCU, there is nothing to suggest that, for example, DCU and UL should have differing proportions.

Differences between universities on points and grades

Let's now fast forward to 2008 and 2009 when most of the 2004 and 2005 entrants would have graduated and see what happened.

YEAR*	TCD	UCC	UCD	NUIG	DCU	UL	NUIM	ALL 7
2008	15.4	17.8	18.0	15.3	15.7	15.2	14.9	16.2
2009	16.2	17.8	17.2	16.6	17.0	14.0	13.9	16.4
Mean	15.8	17.8	17.6	15.95	16.35	14.6	14.4	16.3

Table 4: % First Class Honours Awarded in 2008 and 2009

YEAR*	TCD	UCC	UCD	NUIG	DCU	UL	NUIM	ALL 7
2008	49.2	52.7	46.2	49.2	54.1	35.9	44.5	48.4
2009	48.3	49.3	47.3	48.3	54.4	38.9	43.6	47.6
Mean	48.75	51	46.75	48.75	54.25	37.4	44.05	48

Table 5: % 2.1 Honours Awarded in 2008 and 2009

YEAR*	TCD	UCC	UCD	NUIG	DCU	UL	NUIM	ALL 7
2008/9	65	69	64	65	71	52	58	64

Table 6: % First Class + 2.1 Awards Averaged for 2008 and 2009

The differences between universities in their rates of firsts' awards are not great. They range from 14% to 18%. Such differences, as there are, do not much reflect points' differences among the universities. The rate of firsts at TCD, for example, is much the same as those at NUIG and DCU and very little different to those at UL and NUIM. The differences among the rates of 2.1 awards are also relatively small. Again there is nothing to suggest that differences in the calibre of undergraduate entrants are reflected in grades on graduation. Probably the clearest picture of the situation is available in Table 6 where first and 2.1 awards are combined. DCU has the highest overall rate of better grades despite being well down the field in points' terms. TCD, on the other hand, though attracting the highest proportion of high points' entrants, is just about the average in terms of higher grades at graduation. UL with a points' pattern very closely reflecting DCU, nevertheless, trails its rate of combined firsts and 2.1 awards by 19 percentage points and trails that of NUIM by 6.

Evidence of differing academic standards but….

All things considered, the evidence points towards differences in academic standards being applied across the universities, at least in some instances. Does the case stack up, however, that TCD stands out in a category of its own? Based on the above figures, there is evidence that TCD is maintaining higher than average standards. Paddy Cosgrave drew attention to the fact that all TCD degrees are of four years' duration, at least, while an appreciable number of graduates elsewhere emerge after three. This is true of UCC, UCD, NUIG and NUIM, but it is not true of UL or DCU. UL in particular might make a reasonable case that its standards are as high as those at TCD. Its degrees all take four years and, while it does not attract as academically talented a cohort of entrants as TCD, it does not award as many first or 2.1 grades either. If the extra value inherent in 4 year degrees over 3 were taken into account, which the figures here do not do, TCD would, to some further extent, draw ahead of UCC, UCD, NUIG and NUIM. This would be true for some degrees such as Arts but not for others such as Science and Engineering which take four years.

'TCD 2.1 = 1st in other universites' may be over-egging the pudding!

Overall then, while TCD probably is maintaining higher standards on average than most other universities in Ireland, it is arguable on the basis of the above figures that standards at UL may be equivalent and that in four year undergraduate courses in UCC and UCD standards may also be similar. It is easy to see where Mr Cosgrave is coming from but he may be over-egging the pudding a little in maintaining that a 2.1 from TCD is the equivalent of a first from the other 6 universities.

What then of the IOT sector?

What about his other proposition that standards in the IOT sector are so much lower that a job candidate would need a masters before one could feel confident that he or she is the equivalent of a university graduate with a 2.1 from TCD or a first from the other six?

Same rate of firsts as the universities

Taking the 13 IOTs together (DIT not included), the rate of firsts averaged over 2007 and 2008 was 16.3%, while the 2.1 rate was 36%. The rate of firsts is identical to that found for the 7 universities averaged over 2008 and 2009 but the rate of upper seconds falls somewhat short of the university average of 48%. Overall, the figures suggest a student ability level across the IOTs which is not far

behind what it is in the universities. Is this the case? Are IOT students entering on points not far behind their university equivalents?

The Entry Points for IOTs

There is an additional complexity in examining the entry points of IOT students. Unlike the universities, the IOTs admit a considerable proportion of their students into Level 6 and Level 7 courses from which it is typically possible for them to progress to higher level add-on courses and ultimately graduate at Level 8 (Honours Degree). Level 6 and 7 courses generally have lower points' requirements than level 8 and only the better level 7 students progress to level 8. To do so they need to obtain an average of 50% in their level 7 examinations. Since, however, a high and ever increasing proportion of IOT students are admitted directly onto Level 8 courses, it is possible to get a fair indication of the academic calibre of those who do graduate at that level by looking at the points' for direct entry level 8 courses.

In 2003 and 2004 combined, the years the 2007 and 2008 graduates entered their courses, there was a total of 173 level 8 entry groups across the 13 IOTs using standard CAO points for entry. A small number of courses used a variety of additional criteria to select students. Those courses are not included in this analysis. Of the 173 course entry groups, only 6 (3.5%) had entrants where the median points reached the level of 450 or above. Only 18 intakes (10.4%) had students with median points of 400 or over and 93 (53.8%) featured median points below 350. This is all in stark contrast to the universities where, as reported above, in 2004 the proportion of courses with median points of 450 and above ranged from a low of 28.6% at NUIM to a high of 79.6% at TCD.

Much weaker students at IOTs

As with the universities, the above figures take no account of variation in the numbers entering courses. Once again, the 2002 figures can be drawn on to adjust for that variable. In 2002 there were 75 direct entry level 8 courses across the 13 IOTs which used standard CAO points for entry. By using the same formula as for the universities the mean of the course median points weighted for number of places on each course was computed for the combined IOTs. The figure was 363.6 or 364 when rounded up. In the universities the lowest weighted mean was at NUIM (397) and the highest at TCD (corrected to 458). In so far as direct level 8 entrants are concerned, the IOTs are clearly admitting a much weaker academic calibre of student than the universities.

As explained above, the IOTs also draw their Honours Degree graduates from groups who have entered at level 6 or 7. It is worth then having a look at the points held by students entering by those routes. In the combination of 2003 and 2004 there was a total of 495 level 6 and 7 entry groups where standard points were used. Of that total only 10 (2%) represented students with median points at or above 450 and only 36 (7.3%) had median points between 400 and 449. A large majority (73.7%) of the entrance groups had median points below 350. In 2002, out of 2445 places on level 6 and 7 courses awarded through standard CAO points, only 138 places were on courses with median points at or above 450. That is only 5.6% of the total. Level 6 and 7 courses are certainly not an obvious source of high calibre candidates for level 8 degrees.

Low points, high grades; are IOTstudents coming from elsewhere?

Despite the obviously much weaker typical student who enters the IOT sector, its level 8 graduates receive a similar percentage of first class awards as in the university sector and some 75% as many upper seconds. Admittedly, all IOT level 8 degrees require four years of study but that is true at TCD, UL and DCU and for quite a proportion of the degrees from the other universities also. Could the IOTs be drawing on a pool of very talented students who are not reflected in the CAO figures? There are two obvious sources – mature students and overseas students. Do the IOTs draw in much more of these than the universities and, if so, do they account for a seriously disproportionate number of firsts and upper seconds?

Overseas students: not the answer

Data on overseas students studying in Ireland is available from Enterprise Ireland trading as Education In Ireland for the purposes of marketing Irish higher education institutions abroad. Its most recent statistical report on students from abroad is International Students in Irish Higher Education 2011-2012 (http://www.educationinireland.com/en/publications/international-students-in-higher-education-in-ireland-2011-to-2012.pdf). The bulk (75%) of overseas students are reported as studying at level 8 which puts them in the frame for present purposes. However, only 16% of students from abroad are hosted by IOTs, as compared with 70% by the universities. The rest are mainly in private colleges. The 2007 International Students in Irish Higher Education report (http://www.educationinireland.com/en/publications/international-students-in-higher-education-in-ireland-2007.pdf) listed the proportion of overseas students in the IOTs as 15%, up from less than 5% in 2003. The fact that such a small proportion of overseas students are studying within the IOT system more or less puts paid to the possibility that overseas students could account for the sector's high rate of firsts and upper seconds. Even if overseas students were a peculiarly talented group, the advantage would accrue more to the universities than the IOTs.

Mature students: more of them in the IOTs

What then of mature students? Officially, they are defined as applicants over the age of 23. The IOTs do attract proportionately more mature students than the universities. A HEA paper by Carroll and Patterson reported that in 2010-2011 11% of full-time new entrants to the universities were mature as compared with 20% at the IOTs. The proportions of mature student new entrants who were part-timers were not very different at 94% in the universities and 89% in the IOTs. If mature entrants were a particularly talented and motivated group, the IOTs would be at an advantage. This might have an impact on rates of firsts and upper seconds. The question is whether mature students do indeed perform exceptionally well in Irish third level education. There are reasons, however, to doubt that.

Mature students: similar or greater drop-out rate

One index of suitability to third level education is rate of progress from first year into second year. A substantial proportion of entrants to all third level institutions drop out before advancing to year two. For some, their social or financial circumstances may have changed preventing their continuation. For others they judge themselves to be unsuited, perhaps after failing in continuous assessment or they are unable to continue due to failing their examinations and opt to cut their

losses by not seeking to repeat. Data from the HEA (Carroll and Patterson) indicate that at level 8 in the IOTs the drop-out rate is identical for mature and younger students at 16%. If mature students were, as a group, more suited to third level education, then it would be expected that a greater proportion of them would make it into second year. It is of interest that the drop-out rate in the universities at level 8 is slightly higher for mature students at 12% compared with 9% for younger students while in the IOTs in level 6 and 7 courses the mature non-progression rate of 18% for both levels is lower than that for younger students which is 26% and 27% respectively for the two levels. This may suggest that mature students gain from their maturity in terms of resilience on lower level courses but that this advantage is counterbalanced or outweighed by other disadvantages at the higher academic levels. It is tempting to speculate that mature students have an advantage in terms of motivation and focus but are disadvantaged in terms of prior education and academic ability. The latter might be expected to present more acute disadvantages as the quality of the academic challenge rises as would be expected at level 8.

Mature students in UK getting lower grades

While the rate of firsts and upper seconds obtained by mature students or for all students broken down by age do not appear to be readily available for Irish third level providers, figures are available for the UK. In 2003 Richardson and Woodley published the rate of each grade awarded for 228,790 students who graduated in 1996 broken down by age for both males and females separately. No five or ten year age category exceeded the rate of combined firsts and upper seconds obtained by students under the age of 21. Mature students of all ages, both male and female, underperformed in comparison to school leaver entrants. The scale of this study involving a nationwide sample representative of so many different disciplines and institutions very strongly indicates that, in aggregate, mature students do not possess advantages which would lead to an increase in firsts and upper seconds as they come to constitute a greater proportion of graduates overall. The opposite in fact might be expected to be the case. There is no reason to believe that among level 8 students in Ireland things should be any different.

Lower standards in IOT degrees

Neither the proportion of mature nor overseas students in the IOT sector in Ireland would seem to stand scrutiny as the basis for the high rate of firsts and upper seconds across the sector by comparison with the academic ability of entrants to the IOTs. It is difficult to escape the conclusion that the standard of a degree from the IOTs is well below that from the universities. This may not be true of DIT. We do not have the data to hand to test that proposition. It is hard, however, to dispute that Paddy Cosgrave has a point in demanding that IOT graduates, in general, have at least a Master's degree if they are to be considered the equivalent of your typical university graduate with a first or a 2.1 honour's degree. Figuring out the present standard of Master's degrees in Ireland is, however, another day's work and one we will be returning to in this blog.