Degree Classification: Does the Calculation Model Affect the Award?

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INTRODUCTION

Universities have freedom to define their own calculation model to define the degree classification awarded. BSc (Hons) degree classifications are calculated with reference to a variety of factors including weighting of modules or years, mark rounding and option to include or discount modules[1]. HEFCE reported an increase in first and upper second class degrees over the past decade[2]. HESA quantifying this as increasing from 66% in 2011 to 73% in 2015/16[3]. 47% of HEIs have been noted to have adjusted their degree classification algorithms over the past five years[4]. The output profile features as a key metric in ranking tables.

Is the degree award classification algorithm a key factor in this performance change?

METHODOLOGY

Typically in the UK, the first year of a 3 year honours degree does not contribute to the classification and for this research, simulated module score data from the second (L5) and / or final (L6) year of a group of students (n=50) were used. Individual module scores were rounded to the nearest whole number before being computed in a series of classification algorithms.

Four different algorithms (A,B,C,D) were applied to the same data to calculate the final degree score and subsequent award classification were analysed based on raw scores (to one decimal place) and rounded values. Classification models

A - L6 mean weighted at 80% plus L5 mean weighted at 20% - 240 credits

B - L6 mean of highest 80 Credits plus mean of lowest 40 L6 Credits and ALL L5 - 240 credits

C - Discount the lowest 20 credits from each of L5 and L6, then of the remainder - L5 weighted at 25% plus L6 weighted at 75% - 200 credits

D - Mean of ALL L6 - 120 credits

RESULTS

For each student, all four models deliver overall degree scores within a narrow range (Mean: A=62.9%: B=65.7%: C=64.8%: D=62.7%) and while the profiles appear similar, the classification outcome is different (Fig 1.)

Fig 1. Overall Degree Score by Classification Algorithm
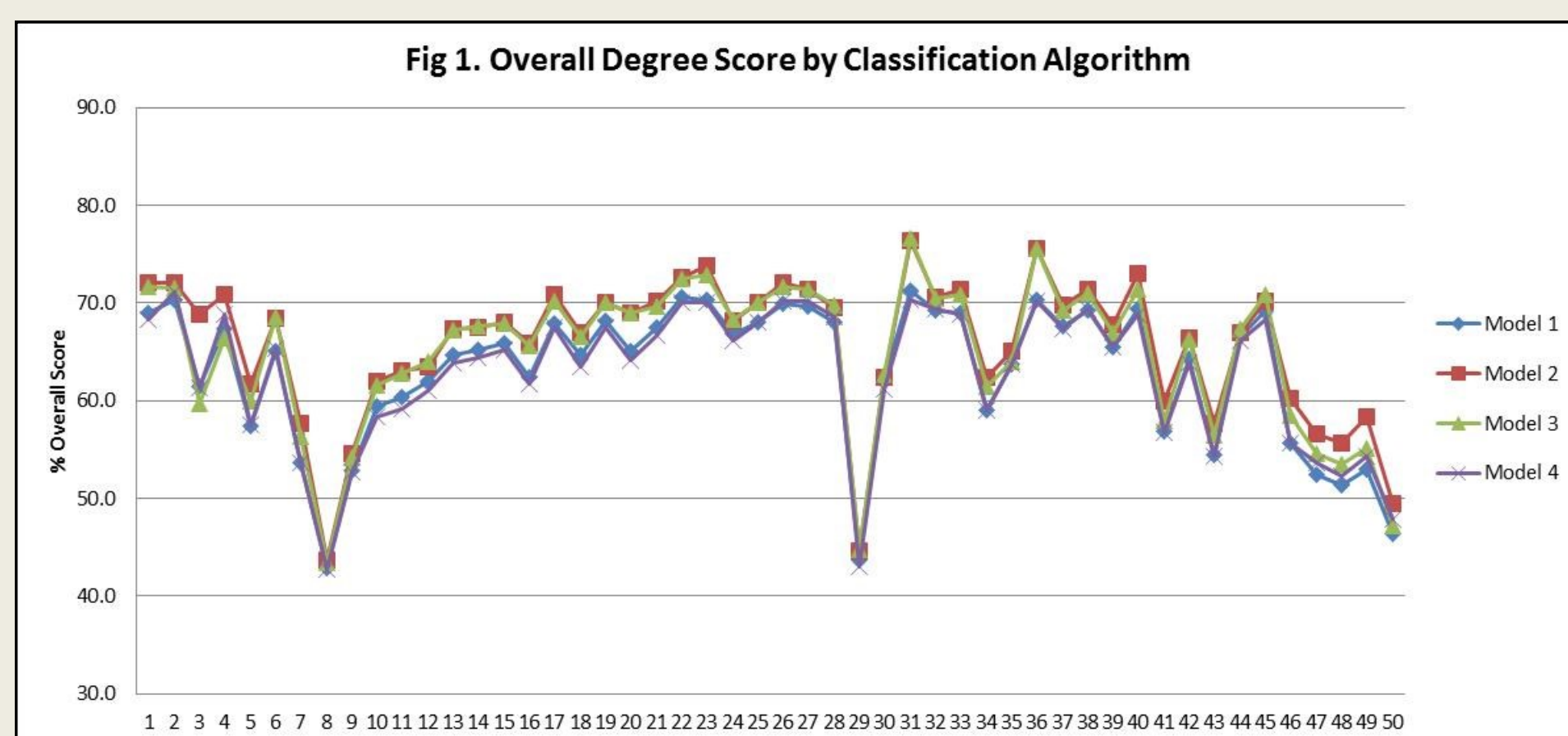
The proportion of students achieving First or Upper Second class awards for models A to D are 72%, 80%, 74%, 70% respectively (Fig 2.)

Fig 2. Degree Classification by Model (RAW)
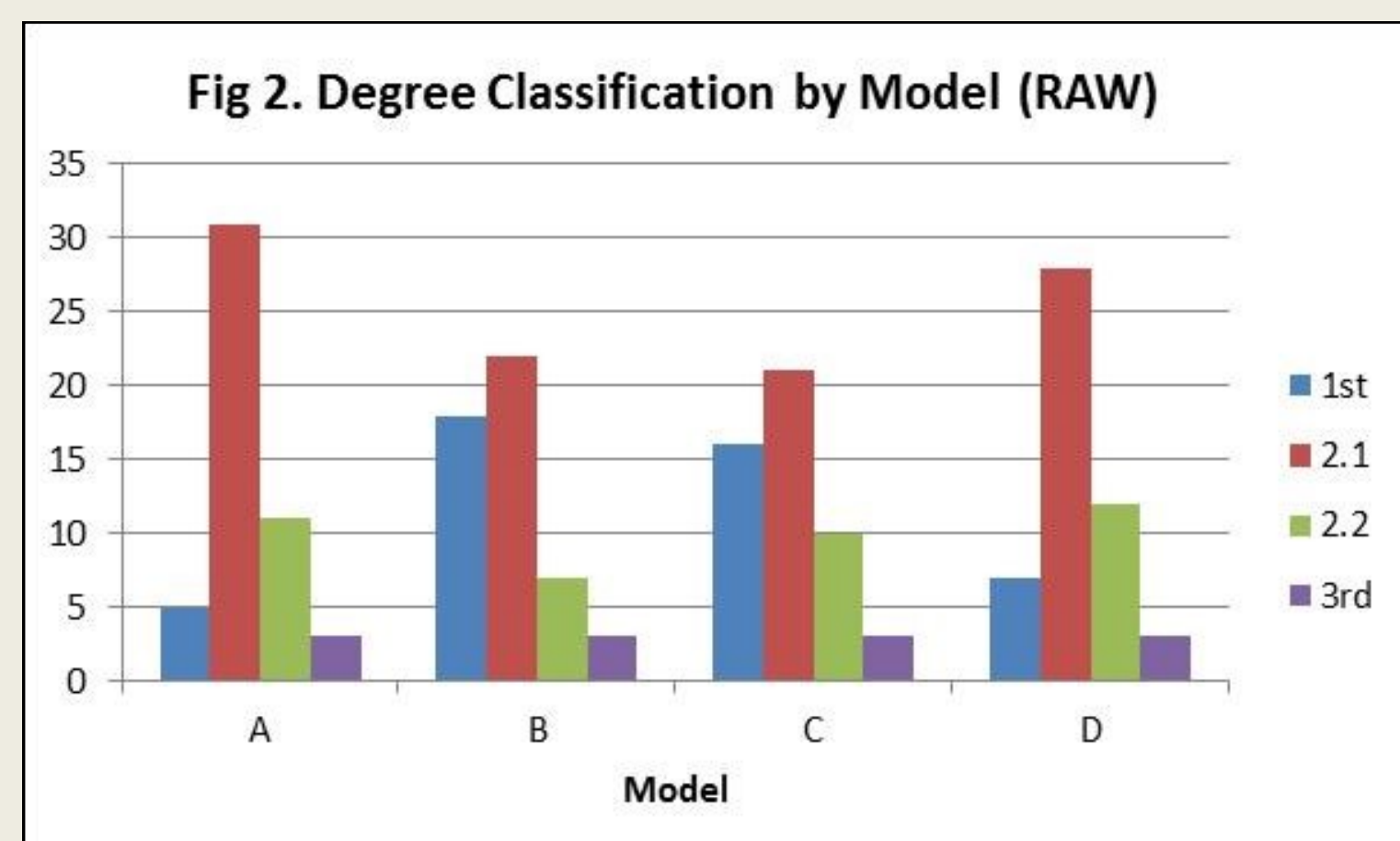
Marks may be recorded to different numbers of decimal places. Application of rounding of final calculated marks to the nearest whole number may impact degree classification. In this study, rounding had been applied to individual modules and the final calculated mark. This results in a positive change to the first and upper second class degrees awarded across all models; A = +2%, B = +2%, C= +4%, D = +4% (Fig 3.)
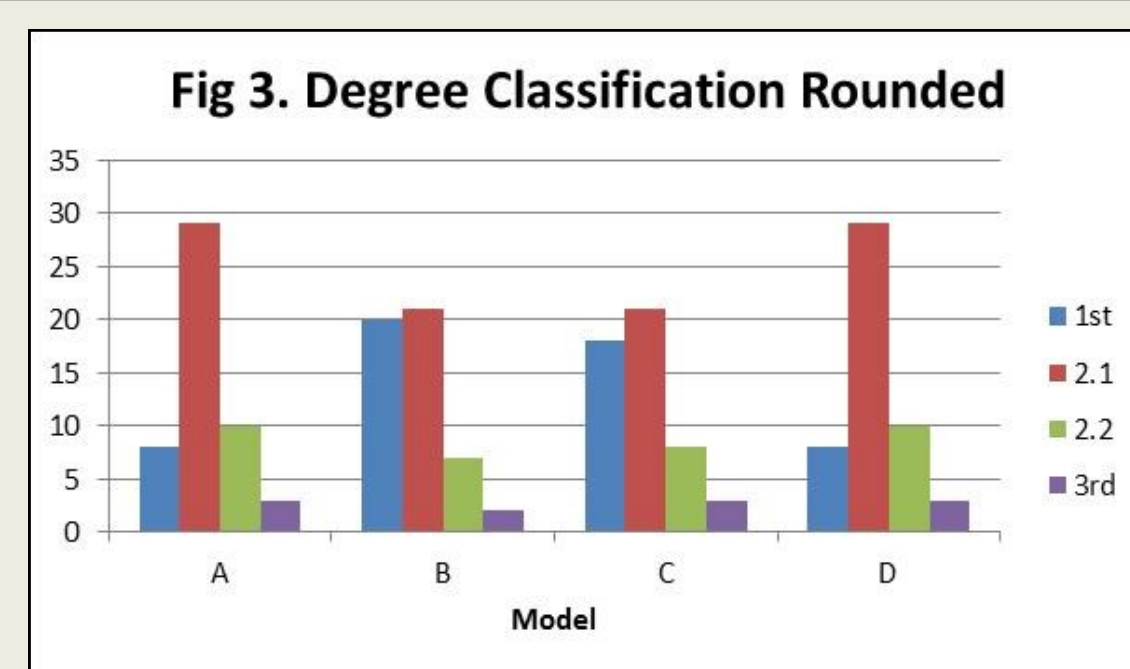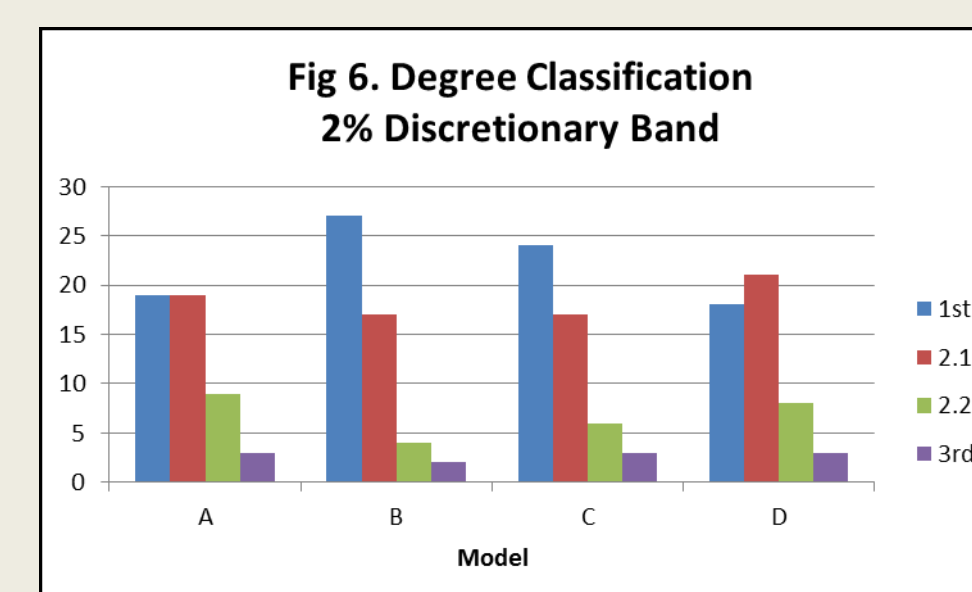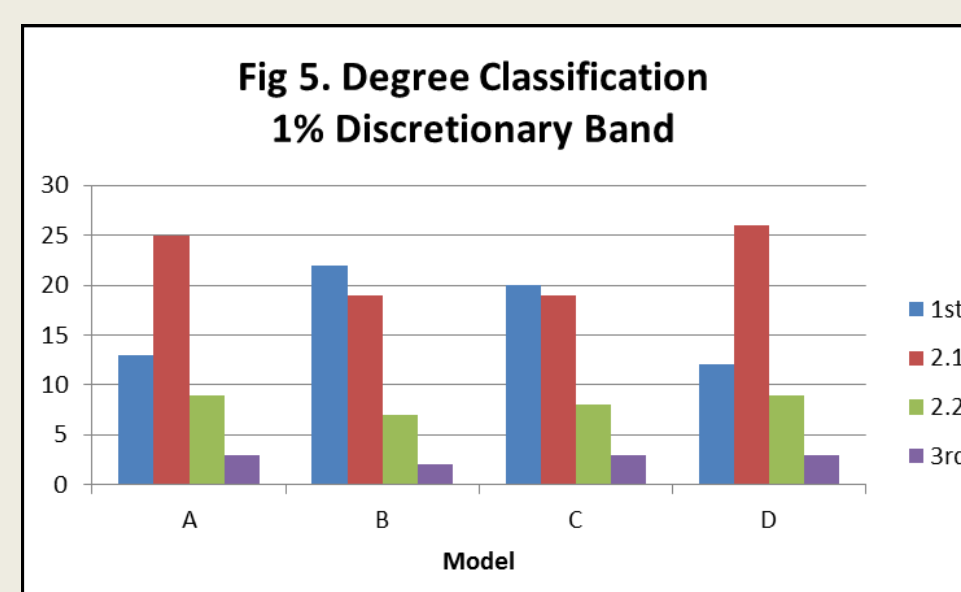

Fig 3. Degree Classification Rounded

A discretionary uplifting of award results in an additional increase (Table 1, Figs. 5 and 6).

Table 1.	Model A	Model B	Model C	Model D
Raw				
1% uplift	+4%	+2%	+4%	+6%
2% uplift	+4%	+8%	+8%	+8%
Rounded				
1% uplift	+2%	0%	0%	+2%
2% uplift	+2%	+6%	+4%	+4%

Fig 5. Degree Classification 1% Discretionary Band

Fig 6. Degree Classification 2% Discretionary Band

DISCUSSION

The case for change to the method of Honours degree classification was advocated by Burgess in 2007[4] when complexity of classification algorithms across the HE sector was acknowledged. In this study the raw score is similar regardless of calculation method (Fig.1) however this masks the impact of further intervention. The impact of rounding of data contributing to the final algorithm varies relative to if, and where, rounding of marks occurs, module, end of level or end of course. (Fig 3).

The application of four algorithms to a set of simulated data indicates that calculation models may have a positive influence on the number of students who attain a 2.1 or first class award. This effect is not as evident on lower second and third class awards (Fig. 2).

Additional application of discretion at classification boundaries may further positively impact the results and there is some evidence across the sector that students within 1% or 2% of the next band may have their classification uplifted on the basis of specific criteria such as requiring in excess of 50% of the final year marks to be in the upper band, or specific modules to be included in the final calculation (Table 1, Figs 5 & 6).

Universities are ranked on the basis of a range of criteria, including degree classification and ranking has clear financial implications. Prospective students, home and international, use information from a variety of sources including league tables to inform their selection of university courses and the variation in classification algorithms leads to a situation where a 2.1 from different universities does not necessarily mean the graduates have the same academic profile.

In 2012 the HEAR report[5] recommended introduction of a more sophisticated method of recording students achievement across their course of studies, that would not be reliant on a particular algorithm used to determine the final mark and classification. This recommendation has not yet been implemented and in September 2016, Universities UK was commissioned to undertake research and produce guidance for the sector to increase confidence.

CONCLUSION

The classification algorithm is a key factor in the calculation of degree award. In particular, models B and C produce more favourable outcomes. Students with the same final score will get a different award classification dependent on the algorithm used and Universities using these models may benefit from an improved contribution to ranking performance. The outcome of the 2016 Universities UK research is awaited.

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