



## Journal of Education Policy

Publication details, including instructions for authors and  
subscription information:

<http://www.tandfonline.com/loi/tedp20>

### Monopolising the examining board system in England: a theoretical perspective in support of reform

Anthony Kelly<sup>a</sup>

<sup>a</sup> School of Education, University of Southampton, Southampton,  
UK.

Published online: 07 May 2013.

To cite this article: Anthony Kelly (2013): Monopolising the examining board system in  
England: a theoretical perspective in support of reform, Journal of Education Policy,  
DOI:10.1080/02680939.2013.790078

To link to this article: <http://dx.doi.org/10.1080/02680939.2013.790078>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any  
substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing,  
systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation  
that the contents will be complete or accurate or up to date. The accuracy of any  
instructions, formulae, and drug doses should be independently verified with primary  
sources. The publisher shall not be liable for any loss, actions, claims, proceedings,  
demand, or costs or damages whatsoever or howsoever caused arising directly or  
indirectly in connection with or arising out of the use of this material.

## Monopolising the examining board system in England: a theoretical perspective in support of reform

Anthony Kelly\*

*School of Education, University of Southampton, Southampton, UK*

*(Received 17 October 2012; final version received 20 March 2013)*

The fiascos that seem to accompany the annual publication of examination results in England, the subsequent inquiries instituted to ensure they ‘never happen again’ and the Secretary of State’s decision, reversed six months later because of fears about possible EU legal challenges, to ‘end competition between exam boards’ raise some interesting issues about the way Examination Boards (or ‘Awarding Bodies’) operate in what is partly a competitive and partly a cooperative market. At the operational level, they need to make sufficient profit from the fees they charge schools to operate the assessment and awards system effectively; at the strategic level, they need to police the proliferation of awards so that some reasonable level of efficiency is obtained in the system. This paper models the education awards market such that the implications of the various alternative strategies for achieving the twin objectives of effectiveness and efficiency can be understood. It describes how Awarding Bodies cooperate and compete to maximise profit, and justifies the original decision in September 2012 by minister Gove to create a monopoly in the awards and assessment market.

**Keywords:** theory; quantitative

### Introduction

On 17 September 2012, the Education Secretary announced that GCSEs were to be replaced in core subjects by the English Baccalaureate with immediate effect in order to ‘make the UK competitive’ and ‘make opportunity more equal for every child’ (BBC 2012). A public consultation was initiated, until 10 December 2012, but the intention was clear from the outset: to increase rigour in a qualification and examination system that had ‘corrupted the fair testing of students’ and ‘condemned thousands of students to courses which explicitly placed a cap on aspiration’ (Gove 2012). Key to this reform was the need to have instead:

... a single suite of qualifications provided by a single awarding body. (Conservative Party 2012)

And, according to the minister:

Critically [to] end the competition between exam boards which has led to a race to the bottom with different boards offering easier courses or assistance to teachers in a corrupt effort to massage up pass rates. (Gove 2012)

---

\*Email: a.kelly@soton.ac.uk

Gove's view was supported by organisations such as the Wellcome Trust who had long argued that a single Exam Board/Awarding Body would simplify (and perhaps even make redundant) the current unwieldy regulatory system and 'concentrate expertise and investment in a single institution, be more conducive to sharing best practice, avoid the unnecessary replication of functions across multiple boards, and allow for greater economies of scale' (Croft and Spread 2012).

Not everyone agreed, of course. The right-of-centre 'think-tank', the Institute of Economic Affairs (IEA), warned that despite:

the Secretary of State's publicly stated concerns that competition between Awarding Bodies [was] contributing to declining standards, ... his proposal that the system should be consolidated into a single exam board, as in Singapore or Finland [had] a number of theoretical flaws. (Croft and Spread 2012)

While acknowledging that Gove's view was 'appealing because it provided a tidy bureaucratic solution to ... a messy and profligate problem', IEA suggested that this did 'not justify a system overhaul' and that fears about the adverse effect of competition on standards were not well grounded because:

... they suggest a degree of insider knowledge on the part of examiners about what will come up in a given exam, how criterion [*sic*] will be applied, and where grade boundaries will fall, that they simply do not have. (Croft and Spread 2012)

The reality, IEA suggests, is that:

It is neither in the individual nor collective interest of exam boards to compete for custom on the basis of the accessibility of passes, as to do so would undermine the currency of their qualifications. (*ibid.*)

It is a less-than-convincing argument; perhaps, the reason it was made at all stems from the extraordinary sight of a Conservative Secretary of State blaming *competition* for dysfunction in the education system when it was such a major ideological plank of right-wing policy for decades. In any case and for reasons unrelated to competition, on 7 February 2013, six months after making his original decision, minister Gove did a U-turn, having reportedly<sup>1</sup> been warned by civil servants that having just one Exam Board could breach EU rules on public service contracts and be open to judicial review. However, there was no indication that the minister considered his original proposal wrong *per se*, but rather that it was:

... a bridge too far. My idea that we end the competition between exam boards ... was one reform too many at this time. The exam regulator Ofqual ... was clear that there were significant risks in trying to both strengthen qualifications and end competition in ... the exams market [and] I will not proceed with plans to have a single exam board. (Gove 2013)

Although the subtleties of the original policy and its subsequent reversal have gone unnoticed, they should at least prompt us to examine anew the theory of Awarding Bodies as they function in an education market.

## Background

Much has been made over the last few decades of the education *market*, and education journals and newspapers have increasingly carried papers with an economics bent: market place regulation, the dynamics of competition, performance-related pay, contracting academic labour and so on. The conceptualisation of schooling as a market is one that forces a certain discourse and imposes a particular vocabulary – terms like ‘consumer’, ‘customer’, ‘performance appraisal’, ‘competition’, ‘marketisation’ and ‘retail power’ have crept almost unnoticed into our discourse on school improvement – but it is not clear how far the underpinning conceptualisation can be pursued or how consistent policy-makers intend to be when it comes to regulation.

For a market to exist, there must be competition – that was the legislative intent of most education reforms since the 1988 Education Reform Act – but although competition was intended to generate diversity and efficiency by empowering parents (and schools) as consumers and localising management, suspicion lingered among policy-makers that aspects of cooperation in the education marketplace amount to collusion, and although certain cooperative arrangements (like academy chains) have gained approval, it is still the view among the main political parties that a successful market must be at least partly competitive.

There are many markets within education, one of which is the awards and assessment market, where transactions are carried out between Awarding Bodies (on behalf of the state) and schools (on behalf of the customer). There are eight<sup>2</sup> Awarding Bodies in the UK, although three large unitary bodies dominate the market; the Edexcel Foundation, the Assessment and Qualifications Alliance (AQA) and the Oxford, Cambridge & RSA examinations body (OCR). The market is vast – each year A-level qualifications alone generate some 24 million scripts – and in addition, a wide range of awards exists outside traditional areas, including vocational, occupational and training qualifications, and entry-level certificates. Schools are charged between £70 and £80 (approx.) per pupil per subject award at A-level, although it varies from subject to subject, and the entire system is overseen by the Office of Qualifications and Examinations Regulation (Ofqual).<sup>3</sup> The three unitary Awarding Bodies have similar histories and remits. OCR was formed in 1998 from an amalgamation of the University of Cambridge Local Examination Syndicate and the Royal Society of Arts. Its qualifications are taken at more than 13,000 centres nationwide. AQA came into existence in April 2000 following the merger of the Associated Examining Board and the Northern Examinations and Assessment Board and is the largest of the three Awarding Bodies. Edexcel was formed in 1996 by the merger of the Business and Technology Education Council (itself a merger in 1983 between the Technician Education Council and the Business Education Council) and the University of London Examinations and Assessment Council (established in 1991). It is part of the Pearson Group and grades some five million exam scripts each year.

Those charged with overseeing this market have for a decade spoken of the urgent need for reform. In Autumn 2002, Ken Boston, then head of the QCA, the regulatory body at the time, giving evidence to the House of Commons Select Committee, described the UK awards and assessment system as an excessive cottage industry run by underpaid and inexperienced assessors (Boston 2002). Others have described it as a Victorian system with inherent and long-term recruitment problems (Kerr 2002; O’Kane 2002), though opinion has been more divided

over the desirability and effect of greater choice. For example, the 2011 review of vocational education carried out by Alison Wolf (2011), which set out to examine why England fails to provide young people with a ‘proper technical and practical education’ compared to other countries, found in relation to the Awarding Bodies that in spite of attempts to rationalise the system in the 1980s, there were more qualifications now than ever before, and the number was rising.<sup>4</sup> The report recommended that Awarding Bodies be given greater freedom to develop, and that schools be given the freedom to choose their preferred qualifications, though it is not clear how or why such proliferation would result *ipso facto* in ‘better’ educational outcomes. One can see why it *might* result in greater market efficiency through competition, but not why it should result in a more *effective* market, which was and remains the primary concern.

There has been very little research in the area of Award Body marketization – most commentators have focused on the curriculum they deliver (e.g. Dhillon 2005) and the process by which it is assessed and standardised (e.g. Black and Bramley 2008) – though an investigation by Malacova and Bell (2006) into whether schools that had changed Awarding Body/Syllabus showed an improvement in GCSE examination results compared to those that had not changed. However, the Malacova and Bell research was more about changes in *demand* than changes in *supply*, which is where the main policy concerns are situated,<sup>5</sup> at least as far as minister Gove is concerned, so that finding out that schools that change syllabus do not necessarily move to an ‘easier’ one<sup>6</sup> is not addressing the most pressing issue.

### Oligopolies and interdependency

Oligopoly is a term used to describe a situation where a number of organisations dominate a particular market and where, as result of interdependency, the behaviour of one organisation affects the profit made by the others. Oligopoly comes somewhere between the extremes of monopoly and pure market, but is distinguished from both by this condition of interdependency. In a pure market, the fee for a service or the price of a commodity is set solely by competition and organisations are, therefore, independent. In a monopoly, by definition, there is no interdependency.

It is difficult to predict responses to competition in education; the heterogeneity of schools and their catchments usually prevents it. However, the awards and assessment market *is* homogeneous and non-localised, and the benefits of competition and cooperation are relatively easy to predict if the market is modelled as a simple three-way oligopoly dominated by the three unitary Awarding Bodies and based on the following assumptions:

- That Awarding Bodies select courses of action as if they are acting simultaneously and pay-off structures are common knowledge to all, like a ‘sealed-bid’ auction. Each Awarding Body supplies the market without observing the output from competitors. The market is a static game of complete information, rather than a dynamic one where Awarding Bodies observe the actions of competitors before deciding on their own courses of action.
- That greater fee income results in more and better examiners being employed to operate the assessment and awards system, so that profit and effectiveness are somehow directly related.
- That there is no cartel-type fee fixing and each Awarding Body can in theory supply any number of awards to the market.

- That the fee per award charged to schools is a function of output; the greater the range of awards the lower the fee that can be charged.
- That Awarding Bodies compete with each other either in terms of the range of their awards (output) or in terms of the fees they charge schools (income). These scenarios will now be considered in turn.

### Model 1. The awards market modelled as an *three-way oligopoly* where the strategic variable is output

This model describes how the three Awarding Bodies, selling more or less the same examination products, can settle on the range of their respective outputs so as to maximise profit and effectiveness.

OCR, AQA and Edexcel dominate the market to differing degrees. Say OCR supplies  $R_1$  awards every year, AQA supplies  $R_2$  and Edexcel supplies  $R_3$ . If the fee per award charged to schools ( $P$ ) is a function of output ( $R$ ), and the greater the total output of awards the lower the fee, then the relationship between fee and output can be represented linearly and negatively as:

$$P = k(A - R)$$

where  $k$  and  $A$  are some fixed constants, and  $R = R_1 + R_2 + R_3$ .

OCR, AQA and Edexcel are not strictly in competition with each other, but partly competing and partly cooperating in the marketplace. The situation is essentially a mixed-motive game with each Awarding Body seeking to maximise profit subject to what the market will take.

If  $c_1$  is the marginal cost of processing each award for OCR,  $c_2$  is the cost of processing each award for AQA and  $c_3$  is the corresponding cost for Edexcel – all constants in any given year, say – then the cost to OCR of outputting  $R_1$  awards is  $c_1R_1$ , the corresponding cost to AQA is  $c_2R_2$  and the corresponding cost to Edexcel is  $c_3R_3$ . Therefore, the profit ( $\Psi$ ) functions are:

$$\Psi_1 = k(A - R)R_1 - c_1R_1$$

$$\Psi_2 = k(A - R)R_2 - c_2R_2$$

$$\Psi_3 = k(A - R)R_3 - c_3R_3$$

where  $\Psi_1$  represents OCR's profit,  $\Psi_2$  represents AQA's profit and  $\Psi_3$  represents that of Edexcel. Substituting for  $R$  gives:

$$\Psi_1 = kAR_1 - kR_1^2 - kR_1R_2 - kR_1R_3 - c_1R_1$$

$$\Psi_2 = kAR_2 - kR_2^2 - kR_1R_2 - kR_2R_3 - c_2R_2$$

$$\Psi_3 = kAR_3 - kR_3^2 - kR_1R_3 - kR_2R_3 - c_3R_3$$

Since Awarding Bodies choose their strategies independently and simultaneously, the concept of a Nash equilibrium offers a solution. Such an equilibrium can be found by drawing each Awarding Body's reaction function – the function that shows

every optimal output level for every possible output level of the other Awarding Bodies – and this in turn can be found by differentiating the profit equations with respect to output ( $A, k, c_1, c_2$  and  $c_3$  are assumed to be non-negative constants):

$$\frac{\delta\Psi_1}{\delta R_1} = kA - 2kR_1 - kR_2 - kR_3 - c_1$$

$$\frac{\delta\Psi_2}{\delta R_2} = kA - kR_1 - 2kR_2 - kR_3 - c_2$$

$$\frac{\delta\Psi_3}{\delta R_3} = kA - kR_1 - kR_2 - 2kR_3 - c_3$$

If the first derivatives are put equal to zero, then the three Awarding Bodies' reaction functions are:

$$2kR_1 + kR_2 + kR_3 = kA - c_1$$

$$kR_1 + 2kR_2 + kR_3 = kA - c_2$$

$$kR_1 + kR_2 + 2kR_3 = kA - c_3$$

The optimal levels of output for each can be seen to be negatively related to the level of supply from the others, and since the second derivatives are negative ( $=-2k$ ), local maxima are indicated.

Simultaneous equations produce the Nash equilibrium solutions:

$$R_{N1} = \frac{kA - 3c_1 + c_2 + c_3}{4k}$$

$$R_{N2} = \frac{kA - c_1 + 3c_2 + c_3}{4k}$$

$$R_{N3} = \frac{kA - c_1 + c_2 + 3c_3}{4k}$$

Total output at the Nash equilibrium is:

$$R_N = R_{N1} + R_{N2} + R_{N3} = \frac{3kA - c_1 - c_2 - c_3}{4k}$$

and the maximum fee that can be sustained by the market is:

$$P(R) = k(A - R_N) = \frac{kA + c_1 + c_2 + c_3}{4k}$$

Figure 1 represents the model diagrammatically. It can be seen that levels of profit are greatest when one Awarding Body is the sole supplier, in which case it

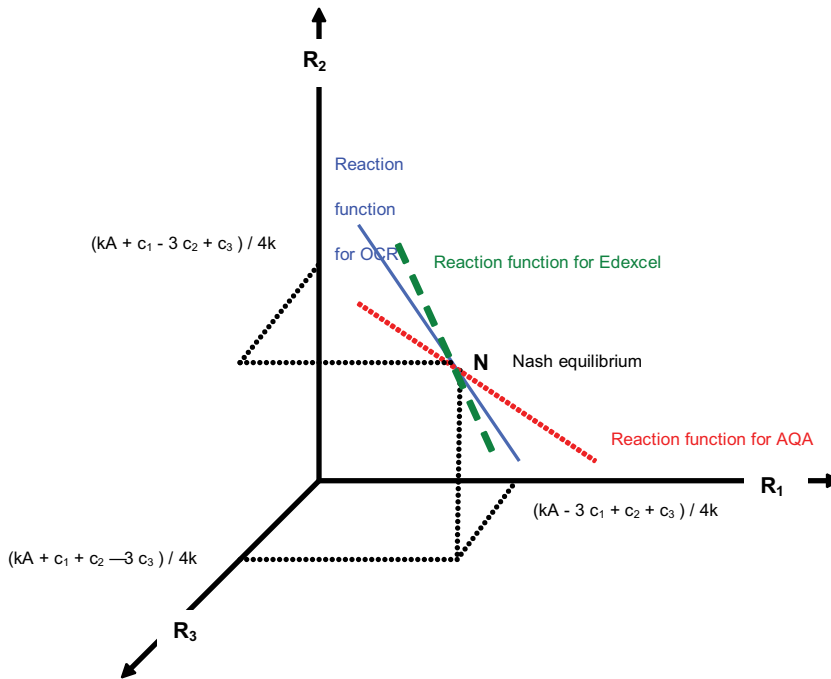


Figure 1. The Nash equilibrium for the three Awarding Bodies competing in terms of output.

supplies  $(kA - c_i)/2k$  awards to the market, the intercept value of each of the reaction functions and the fact that total output in the triopolistic situation is one-and-a-half times greater at  $3(kA - c)/4k$  is support for minister Gove's original (2012) decision to monopolise the awards market if funding the system is the strategic priority, albeit with a better-defined and more stringent watchdog role on the part of Ofqual or its replacement.

This model is realistic insofar as each Awarding Body supplies the market without simultaneously observing the output from the other Awarding Bodies and there is no reason to suppose that the fees charged to schools are anything other than a function of output, just as the model assumes.<sup>7</sup>

### Model 2. The awards market modelled as an *duopoly* where the strategic variable is output

Consider a reduction in the number of Awarding Bodies from three to two, such that OCR and AQA (say) are the two remaining players in the sector. Using the same notation and procedure as in the previous model and putting  $k=1$  for simplicity, the reaction functions become:

$$2R_1 + R_2 = A - c_1$$

$$R_1 + 2R_2 = A - c_2$$



and they produce the Nash solutions illustrated on Figure 2.

$$R_{N1} = \frac{A + c_2 - 2c_1}{3}$$

$$R_{N2} = \frac{A + c_1 - 2c_2}{3}$$

Figure 3 shows a pair of iso-profit curves, which plot the different combinations of output levels that yield the same level of profit for each awarding body in turn. They are centred at the Nash equilibrium coordinates. The further away each is from its axis – from its monopolistic situation – the lower the awarding body's profit. Only at the Nash equilibrium (marked N on Figures 2–4) are both organisations maximising profit simultaneously. The Nash equilibrium is, therefore, unique and stable, but again if increased funding for the system is the overriding priority, there is a case to be made for a monopoly.

A contract line,  $C$ , which represents all the points where outcomes are pareto-efficient, is also shown on Figure 3. It represents a constant-sum sub-game of the model. If both Awarding Bodies could coordinate their output levels, they would maximise levels of profit by choosing strategic combinations on this line. And, given that they should also choose strategies inside area  $T$  – the combinations for which the iso-profit curves are tangential constitute this area, bounded by the two iso-profit curves that intersect at the Nash equilibrium – the optimal combination should be both on  $C$  and inside  $T$ . However, not being a Nash equilibrium and being off the reaction function lines, this optimal point of  $C$  in  $T$  is inherently unstable because each Awarding Body has an incentive to deviate from it. The

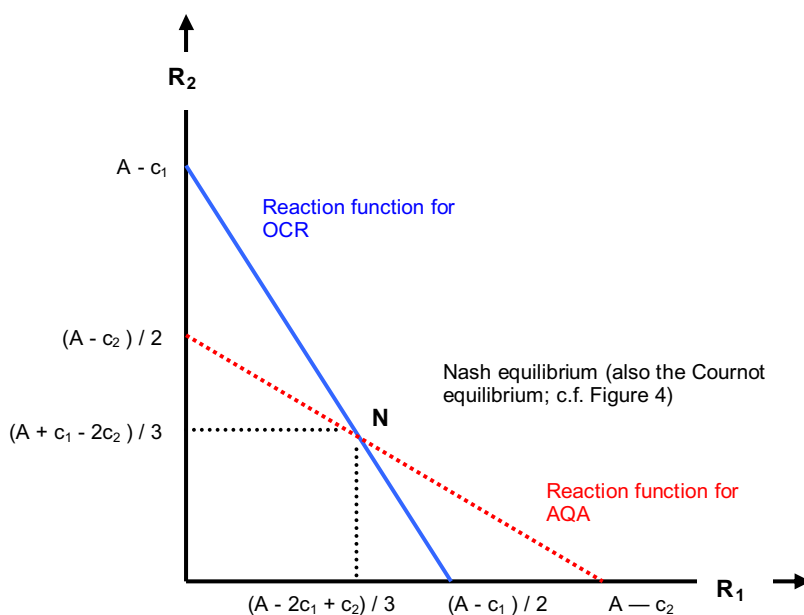


Figure 2. The Nash equilibrium for *two* Awarding Bodies competing in terms of output.

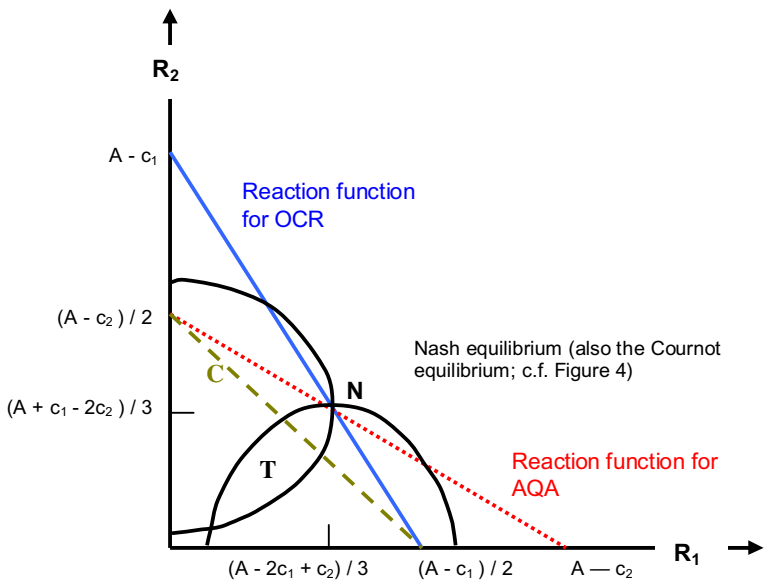


Figure 3. The duopoly's Nash equilibrium with iso-profit curves and the contract line.

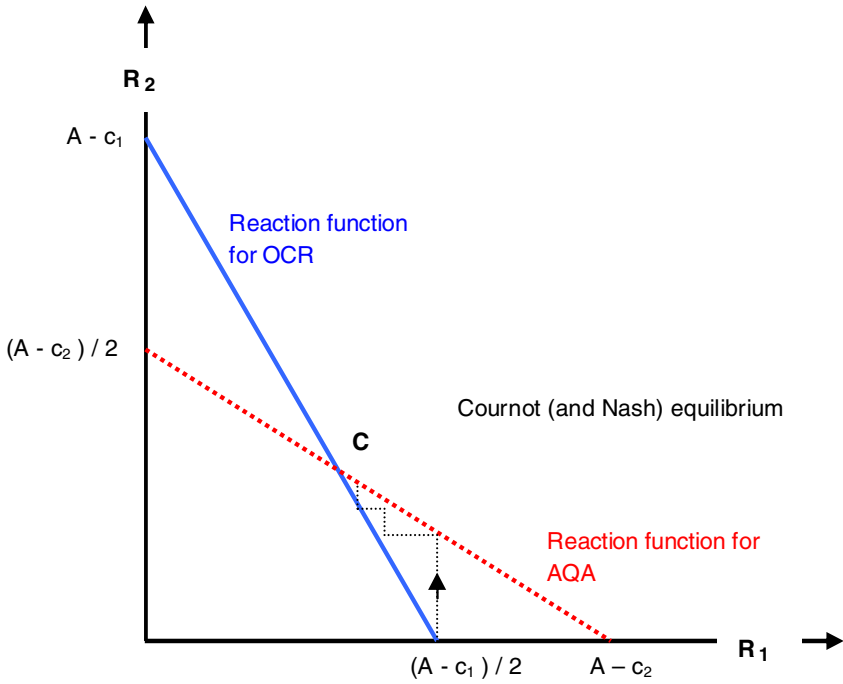


Figure 4. Arriving at the duopoly's (Nash-Cournot) equilibrium in practice.

situation is analogous to games like the Prisoner's Dilemma and explains why cartels, both legal and illegal, tend to be unstable; each party to the collusion has an incentive to deviate unilaterally.

Figure 4 illustrates how a Cournot-type equilibrium is reached in practice when the reaction functions for OCR and AQA are out of equilibrium initially. Say that OCR is initially operating a monopoly. It outputs  $(A - c_1)/2$  awards. If AQA now enters the market and assumes that OCR will maintain its initial output, it will output at a level vertically above that point but on its own reaction line. However, this point is off OCR's reaction line; so in response, OCR will move its output level horizontally onto its own one. This incremental process continues in a zigzag fashion until an equilibrium is reached, coincident with the Nash equilibrium point, at the intersection of the two reaction lines.

The Nash–Cournot equilibrium is not pareto-efficient; if the two Awarding Bodies could cooperate, they would both increase their profit levels. Inside  $T$ , both Awarding Bodies are better off (strict dominance); and on the boundary, one Awarding Body is better off and the other no worse off (weak dominance).

### Model 3. The awards market modelled as a duopoly where the strategic variable is *price*

The strategic variable for Awarding Bodies in the two models described already is level of production ( $R$ ); but in this third and final model (after Bertrand 1883), the strategic variable is *fee charged* ( $P$ ). The two Awarding Bodies simultaneously decide on their pricing structures and market forces determine how many awards are taken up from each. Stability is eventually reached, but this depends on whether or not the awards sold by the competing Awarding Bodies are identical. Consider firstly the case where the product lines are *in* distinguishable. If the products are identical, schools will only buy from the Awarding Body that sells at the lower price. Say for the purposes of this example that AQA initially offers lower prices and makes higher-than-normal profits. It gains a monopoly initially, although OCR is eventually forced to challenge it by undercutting prices in an attempt to win market share. If AQA offers lower prices and makes *lower* than normal profits (or none at all), then it must raise its prices to normal profit levels or go out of business. In either case, it is clear that charging different fees never results in a Nash equilibrium.

On the other hand, if Awarding Bodies charge the *same* fees and make higher- or lower-than-normal profits, then each has an incentive to deviate – one will undercut the other to increase market share or will overcharge in an attempt to increase profits – so the only possible Nash equilibrium when Awarding Bodies are selling indistinguishable awards occurs when both charge the same fee and make ‘normal’ profits. This situation – two organisations in competition and making only normal profits – is a paradox, which can be overcome by having the two Awarding Bodies sell distinguishable products so that their interdependency is reduced. If OCR decides to sell at a price  $P_1$  and AQA decides to sell at a price  $P_2$ , schools will demand quantities:

$$R_1 = A - P_1 + BP_2$$

and

$$R_2 = A - P_2 + BP_1$$

from each of the two Awarding Bodies, respectively, where  $B$  is a new constant that reflects the extent to which OCR products are substitutes for AQA's and vice versa.

These two equations – the demand functions for the two Awarding Bodies – reveal that demand ( $R_i$ ) for one Awarding Body's product is positive even when it charges an arbitrarily high price ( $P_i$ ), provided the other Awarding Body also charges a high price ( $P_j$ ). This is a consequence of schools and colleges having to buy awards from one or other Awarding Body every year. The market is a captive one; schools are held to ransom despite the illusion of competition and this was a concern for the UK Government at the time of the proposed 2012 reform (Gove 2012).

Using the same notation as in the previous models, the profit functions are:

$$\Psi_1 = P_1 R_1 - c_1 R_1$$

$$\Psi_2 = P_2 R_2 - c_1 R_1$$

and substituting for  $R_1$  and  $R_2$  gives:

$$\Psi_1 = AP_1 - P_1^2 + BP_1 P_2 - c_1 A + c_1 P_1 - c_1 B P_2$$

$$\Psi_2 = AP_2 - P_2^2 + BP_1 P_2 - c_2 A + c_2 P_2 - c_2 B P_1$$

Each awarding body's reaction function can be found by differentiating with respect to price:

$$\frac{\delta \Psi_1}{\delta P_1} = A - 2P_1 + BP_2 + c_1$$

and

$$\frac{\delta \Psi_2}{\delta P_2} = A - 2P_2 + BP_1 + c_2$$

Equating to zero gives:

$$P_1 = [A + BP_2 + c_1]/2$$

$$P_2 = [A + BP_1 + c_2]/2$$

and since the second derivatives are negative ( $-2$ ), local maxima are indicated.

The method of simultaneous equations produces a Bertrand–Nash equilibrium with solutions:

$$P_1 = \frac{A(B + 2) + 2c_1 + Bc_1}{4 - B^2}$$

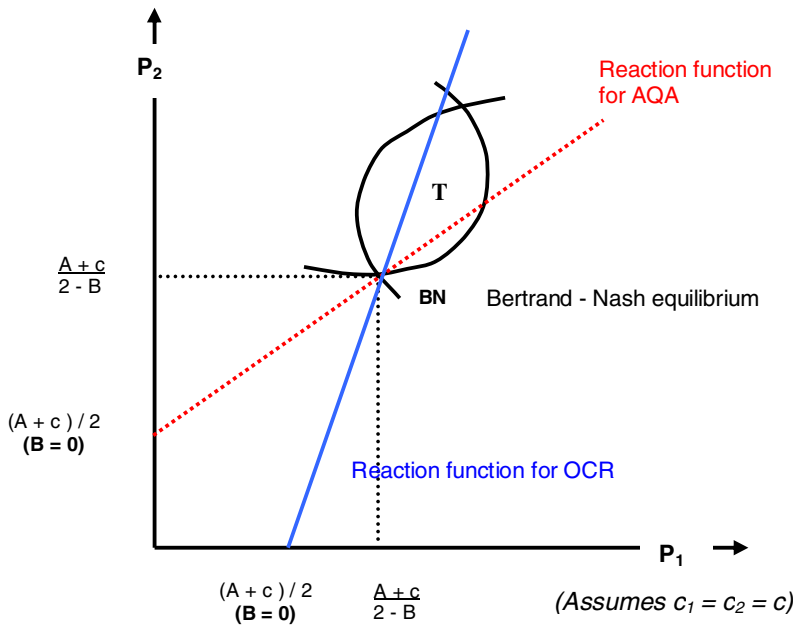


Figure 5. The (Bertrand–Nash) equilibrium for two Awarding Bodies competing in terms of price.

$$P_2 = \frac{A(B+2) + Bc_1 + 2c_2}{4 - B^2}$$

And, if  $c_1 = c_2 (= c \text{ say})$ , these reduce to:

$$P_1 = P_2 = (A + c)/(2 - B)$$

Since the price charged to customers cannot be negative,  $B < 2$ .

The situation is represented diagrammatically in Figure 5. The reaction curves have positive gradients and strategically complement each other, unlike those for the first two models. To maximise their profits and to arrive at the model's Bertrand–Nash equilibrium (marked BN on Figure 5), both Awarding Bodies must be on their reaction function lines. As with the previous models, the equilibrium point is not pareto-efficient since both OCR and AQA could make higher profits if they set higher fees. This set of possibilities is shown marked *T* on Figure 5, but since each Awarding Body has an incentive to deviate, it does not offer a more likely or a more lasting solution than the Bertrand–Nash equilibrium.

## Conclusion

This paper has presented three theoretical models to illustrate the essence of current competition in the UK awards market and offers theoretical support for minister Gove's original (September 2012) proposed reform to establish a monopoly. The first describes how competition on the basis of output between three Awarding Bodies (as now) can be represented. The second deals with the situation where the market is reduced to two Awarding Bodies, a possibility not considered by the minister, as far as we know, but an option nonetheless. The third describes how Awarding Bodies com-

pete in terms of price and shows that one consequence of schools having to buy awards at any price is that demand remains positive even when an arbitrarily high price is charged.

Pareto-inefficiency is a feature of all three models: it is *not* the case that one Awarding Body is necessarily made better off at the expense of the other(s). The modelling also reveals that if Awarding Bodies could collude, they would increase their profits, but since this would require (at best) an agreement that would be difficult to enforce, or (at worst) an illegal cartel, it is not a practical solution to increasing the funding that everyone agrees is sorely needed. Additionally, although the allegation is occasionally made by schools and (anecdotally) by parents, the modelling suggests that it is actually *unlikely* that collusion currently obtains in the market since such arrangements are inherently so unstable. Only a Nash equilibrium offers stability, and if Awarding Bodies are to compete on price rather than output, this only occurs when the Awarding Bodies sell *distinguishable* products.

As currently constituted, the awards market is a false one and the annual recurring shortcomings are a consequence of its inherent faults: the Awarding Bodies do not operate at an equilibrium; they do not sell distinguishable awards; customers are potentially held to ransom every year; there are too few competitors to ensure meaningful competition<sup>8</sup>; and the organisations involved make insufficient profit to run the system effectively. If funding the awards and assessment system adequately is the strategic priority, and it should be because Awarding Bodies must employ properly qualified examiners to deal with the millions of examination scripts produced every year, then there is strong theoretical support for the minister's original decision to monopolise the market. Without reform, the market will continue to have all the disadvantages of collusion without any of the benefits of competition.

## Notes

1. C.f. reports in the press; e.g. *The Independent*, February 7, 2013.
2. Apart from the three main ones (AQA, Edexcel and OCR), the other five are: CIE (University of Cambridge International Examinations), which is traditionally an international examination board, but now offers the Cambridge Pre-U as an alternative to A-levels for state schools and is owned by Cambridge Assessment which also controls OCR; CCEA (Council for the Curriculum, Examinations and Assessment), which is mostly active in Northern Ireland; ICAAE (International Curriculum and Assessment Agency Examinations), which is a very small specialised awarding body; the WJEC (Welsh Joint Education Committee), which is owned by the Welsh local authorities; and the one examination board in Scotland, the SQA (Scottish Qualifications Authority). The JCQ (Joint Council for Qualifications), established in January 2004, is their representative body.
3. The previous regulator was the Qualifications and Curriculum Authority (QCA), formed on 1 October 1997 through a merger of the National Council for Vocational Qualifications (NCVQ) and the School Curriculum and Assessment Authority (SCAA). In September 2007, the government announced that the regulatory functions of the QCA would move to the new body, Ofqual. In April 2008, Ofqual began work as the independent regulator of qualifications, examinations and assessments in England (and vocational qualifications in Northern Ireland), accountable to Parliament rather than to government ministers. The remaining work of the QCA was transferred to the Qualifications and Curriculum Development Agency (QCDA) with effect from 1 April 2010. The QCDA in turn ceased functioning in March 2012 when its examination administration work was taken over by the Standards and Testing Agency (STA), the executive agency of the Department for Education, and the Teaching Agency, which looks after National Curriculum assessment.
4. In 2002, there were 98 awarding bodies offering approved qualifications; the number had risen to 144 by 2009.

5. The main concern is that Awarding Bodies lower standards across their syllabuses (specifications) in order to *attract* more schools (centres).
6. In other words, to one with a higher percentage of candidates achieving grade C and above.
7. It also assumes that a fixed output is required collectively from the Awarding Bodies every year.
8. This is in support of Wolf's 2011 recommendation.

### Notes on contributor

Anthony Kelly is a professor of Education at the University of Southampton. He is a theorist researching and modelling in the areas of improvement and effectiveness, governance, and developing innovative quantitative approaches in educational research. His most recent books are on *The Use of Game Theory in Decision-Making* (Cambridge University Press), *Conceptualising a Theory of Intellectual Capital for Use in Schools* (Kluwer Academic Press), *Adapting Sen's Capability Theory to School Choice* (Palgrave Macmillan) and (with Christopher Downey) *The Use of Effectiveness Data for School Improvement* (Routledge). He is a fellow of the Institute of Physics and the Institute of Mathematics, and is an academician of the Academy of Social Sciences.

### References

- BBC. 2012. "GCSEs Replaced by 'English Bac' in Key Subjects." September 17. Accessed September 22. <http://www.bbc.co.uk/news/education-19626663>.
- Bertrand, J. 1883. "Review of *Theorie Mathematique de la Richesse Sociale*, par Leon Walras; *Recherches sur les Principes Mathematique de la Theorie des Richesses*, par Augustin Cournot." *Journal des Savants* (September): 499–508 [Translated by Margaret Chevallier as 'Review by Joseph Bertrand of two Books', *History of Political Economy*, 24 (1992), 646–653].
- Black, B., and T. Bramley. 2008. "Investigating a Judgemental Rank-Ordering Method for Maintaining Standards in UK Examinations." *Research Papers in Education* 23 (3): 357–373.
- Boston, K. 2002. quoted in *The Guardian*, October 29. Also a BBC Radio 4 report, 6.30 p.m., 29/11/02.
- Conservative Party. 2012. "Michael Gove sets out Key Stage 4 Exam Reforms." September 18. Accessed October 4. [http://www.conservatives.com/News/News\\_stories/2012/09/Michael\\_Gove\\_sets\\_out\\_Key\\_Stage\\_4\\_exam\\_reforms.aspx](http://www.conservatives.com/News/News_stories/2012/09/Michael_Gove_sets_out_Key_Stage_4_exam_reforms.aspx).
- Croft, J., and R. Spread. 2012. "A Single Exam Board Might Seem a Tidy Solution, But Further Rationalisation of Exams Provision Should be Avoided." February 28. Accessed October 4. <http://www.iea.org.uk/blog/a-single-exam-board-might-seem-a-tidy-solution-further-rationalisation-of-exams-provision-shoul>.
- Dhillon, D. 2005. "Teachers' Estimates of Candidates' Grades: Curriculum 2000 Advanced Level Qualifications." *British Educational Research Journal* 31 (1): 69–88.
- Gove, M. 2012. "Michael Gove Sets Out Key Stage 4 Exam Reforms." September 18. Accessed October 4. [http://www.conservatives.com/News/News\\_stories/2012/09/Michael\\_Gove\\_sets\\_out\\_Key\\_Stage\\_4\\_exam\\_reforms.aspx](http://www.conservatives.com/News/News_stories/2012/09/Michael_Gove_sets_out_Key_Stage_4_exam_reforms.aspx).
- Gove, M. 2013. "House of Commons Debates: Curriculum and Exam Reform." February 7. Hansard, Vol. 558, Part No. 113.
- Kerr, J. (2002). "John Kerr, a Spokesperson for OCR." 1st ed. quoted in *The Guardian*, October 29.
- Malacova, E., and J. F. Bell. 2006. "Changing Boards: Investigating the Effects of Centres Changing their Specifications for English GCSE." *Curriculum Journal* 17 (1): 27–35.
- O'Kane, E. 2002. "Eamon O'Kane, General Secretary of the NASUWT." 1st ed. quoted in *The Guardian*, October 29.
- The Independent. 2013. "Michael Gove Forced into Humiliating U-turn Over Ebacc." February 7. Accessed February 8 and 28. <http://www.independent.co.uk/news/education/education-news/michael-gove-forced-into-humiliating-uturn-over-ebacc-8484074.html>.
- Wolf, A. 2011. *Review of Vocational Education – The Wolf Report*. Staffordshire: Staffordshire University.