**Student choices under uncertainty: bounded rationality and behavioural economics**

Encouraging prospective students to make ‘better’ decisions about higher education has been a concern of the government in England since at least the early 2000s, but it has gathered pace with the increasing marketisation of the sector. There is a barely-voiced assumption that students are poor consumers within the marketplace and that this needs policy intervention. In particular, there is often considered to be a problem with high-achievers not selecting elite universities (Sutton Trust 2004). Meanwhile, political, academic and journalistic assessments have been repeatedly confounded in their attempts to predict student behaviour. This is, in part, due to the simplistic application of economics to a complex social field, where, for example, financial (dis)incentives have proved largely ineffective at influencing demand, despite students’ assumed sensitivity around the cost of higher education.

This chapter explores theoretical perspectives drawn from the work of Herbert Simon and Daniel Kahneman. Both won the Nobel Prize (1978 and 2002, respectively), despite not ostensibly being economists, for their work on human decision-making under uncertainty. Their insights, drawn from an interdisciplinary space between economics, psychology and sociology, have subsequently been applied to dozens of real-world and experimental scenarios, with a consistency of empirical support for the basic tenets. However, these insights have not generally been extended to educational decision-making contexts.

This chapter therefore aims to open up this space in the context of the decisions that prospective students make about higher education. It begins with an overview of key theoretical concepts before tentatively applying these to real-life decisions facing prospective students when making the decision to enter higher education.

**From bounded rationality to behavioural economics**

Simon’s formative work focused on decision-making within organisations. He argued that neoclassical economic theory was critically flawed in assuming that human actors were mechanically rational in their decisions, seeking to maximise the ‘expected utility’ (generally financial) that could to be derived from the various possible outcomes. This became the basis for his theory of ‘bounded rationality’, developed and applied over the next fifty years across business and organisational psychology, but with later attempts to integrate it into general social science (Simon 2000).

Bounded rationality as an idea is deceptively simple and intuitively compelling, in comparison to the ‘psychological unrealistic’ (Kahneman, 2003, p. 1449) expected utility model that had previously dominated:

‘Global rationality, the rationality of neoclassical theory, assumes that the decision maker has a comprehensive, consistent utility function, knows all the alternatives that are available for choice, can compute the expected value of utility associated with each alternative, and chooses the alternative that maximizes expected utility’ (Simon, 1997, p. 17).

Instead, bounded rationality asserts that

‘…the choices people make are determined not only by some consistent overall goal and the properties of the external world, but also by the knowledge that decision makers do and don't have of the world, their ability or inability to evoke that knowledge when it is relevant, to work out the consequences of their actions, to conjure up possible courses of action, to cope with uncertainty […] and to adjudicate among their many competing wants’ (Simon, 2000, p. 25).

Simon argued that humans are not generally able to exercise full rationality and that there are constraints impacting on all decisions:

‘Rationality is bounded when it falls short of omniscience. And the failures of omniscience are largely failures of knowing all the alternatives, uncertainty about relevant exogenous events, and inability to calculate consequences’ (Simon, 1979, p. 502).

Bounded rationality does not, therefore, argue that decisions and the people taking them are inherently *irrational*, but that there are realistic limits on the ability of people to weigh complex options in a fully logical and objective way; it is often placed in opposition to ‘rational choice’ theory. In describing bounded rationality, Simon (1986) railed against the ‘armchair economics’ of neoclassical thinkers, which he felt sought to reduce decision-making to a simplistic model of human behaviour without engagement with empirical data. Bounded rationality therefore concerns itself with the interaction between the human mind (with its prior knowledge, competing value systems and finite cognitive resources) and the social environment. It does not primarily concern itself with the outcome of decisions, but the processes by which they are made and how these processes are shaped by the individual and their wider circumstances (Simon, 1955).

Some bounds derive from the prevailing environment, particularly with respect to the availability of information and the ‘cost’ of that information in terms of time seeking it. Individuals are unlikely to be ‘able to foresee what additional information further search would bring, what it would cost, and what opportunities one would forgo during that search’ (Todd and Gigerenzer, 2003, p. 146), leaving them uncertain whether they have enough; this challenge has only increased with the arrival of the internet, with the information available spiralling into overload and making its collection and evaluation more problematic rather than less (Agosto, 2002; Benselin and Ragsdell, in press).

Other environmental bounds include the number of possible options for action and the number of potential criteria (or ‘cues’) for distinguishing between them. The complexity of decisions increases exponentially with increases in either feature, leading to problems with evaluating the expected utility of each; a decision with two options and one cue is simple to resolve, but one with twenty options and five cues is considerably more problematic. Furthermore, decisions taken under risk (i.e. with various possible outcomes for each option) add further to this complexity, especially where the probabilities of these outcomes occurring are unknown (requiring estimation) or unknowable due to the novelty of the situation; fundamentally, the decision-maker ‘has egregiously incomplete and inaccurate knowledge about the consequences of actions’ (Simon, 1997, p. 17).

The individual decision-maker is the source of other bounds. Estimates of probability and utility of outcomes are shaped by different levels of pre-existing knowledge and experience. This defines a starting point of which information is readily accessible at the outset of the decision-making process, as well as influencing the unfolding of the process itself; this is further influenced by the circle of advisers on which they are able to draw. Individuals will also have conflicting priorities that extend beyond the purely financial, touching perhaps on personal wellbeing or the need to maintain social relations, with different cues having different levels of salience for each person. Finally, cognitive resources are limited and mediated through a range of systematic biases, particularly under time pressure and emotional stress (Simon, 1987).

A key tenet of bounded rationality is the concept of ‘satisficing’, which Simon (1955) used to explain decisions he witnessed in field studies. Satisficed decisions are not intended to be optimal, but to provide an intuitive balance between outcomes and the costs (in time, mental effort and things forgone) of the decision itself, while meeting a threshold criterion of expected utility. These ‘fast and frugal’ (Gigenenzer and Goldstein, 1996) heuristic approaches were not only commonly used, but often provided good decisions which were comparable to an exhaustive ‘rational’ analysis. Indeed, subsequent work by followers of Simon (e.g. Todd and Gigerenzer, 2003) has shown that heuristic approaches can even be preferable to rational ones when they eliminate unnecessary and confounding information or cues.

Kahneman’s work draws heavily on bounded rationality and focuses on the role of intuitive processes as a means of navigating complexity. It primarily concerns the cognitive biases that impede rational decision-making and the heuristics used by individuals when operating with unknown outcomes under risk. The list of these biases and heuristics is legion (Kahneman, Slovic and Tversky, 1982; Kahneman and Tversky, 2000; Kahneman, 2011).

While Simon drew his theoretical insights mainly from fieldwork, Kahneman and colleagues within what has become known as ‘behavioural economics’ have worked mainly through experimental psychology, presenting people with a range of carefully-designed tasks to examine underpinning decision processes. This initially culminated in ‘prospect theory’ (Kahneman and Tversky, 1979) derived from simple gambles concerning different probabilities and financial outcomes – positive and negative. They were able to demonstrate the use of intuition in decision-making under risk rather than ‘rational’ reasoning, and like Simon, demonstrated the fallacy of a simple calculation of expected utility:

‘The central characteristic of agents is not that they reason poorly but that they often act intuitively. And the behaviour of these agents is not guided by what they are able to compute, but by what they happen to see at a given moment’ (Kahneman, 2003, p. 1469).

Behavioural economics views people as inherently intuitive and emotional decision-makers (Kahneman, Wakker and Sarrin, 1997), with the use of intuition over reason as an obstacle to rational decisions, although the result of intuitive processes is not necessarily significantly poorer, especially given the lower informational and cognitive needs (Kahneman, 2003). This holds even where the decision is complex and the outcomes are expressed over long time periods. Indeed, studies that have focused on real-world long-term decision-making such as investments or house purchases have found results that are consistent with prospect theory (Barberis, 2012). Indeed, List (2003) demonstrates that substantial professional experience involving repeated decisions is needed to overcome intuitive biases to maximise long-term financial returns.

Kahneman’s experiments have generated a number of specific insights that are relevant here. Firstly, people prefer to risk a larger loss over a certain small loss, in contrast to gains, where preferences are generally for a certain gain over riskier gambles; in other words, individuals tend to be loss-averse rather than risk-averse. Importantly, the individual’s current situation (e.g. level of wealth) is vital in determining the choices made, with the potential change in circumstances influencing the decision, rather than the absolute value of the outcome. In concrete terms, a £1,000 gain has more utility to someone with £10,000 than someone with £100,000, and the two individuals make decisions accordingly: ‘Utility cannot be divorced from emotion, and emotions are triggered by changes’ (Kahneman, 2003, p.1457). This ‘reference-dependency’ (Koszegi and Rabin, 2007) is considerably more nuanced than a simple scale of risk aversion as is often used in studies of decision-making (e.g. Breen, van de Werfhorst and Jaegar, 2014).

Kahneman has also identified a ‘framing effect’, whereby decisions are strongly influenced by the wording and explanation of the possible outcomes, even where the inherent information is identical. There is often a ‘passive acceptance of the formulation given’ (Kahneman, 2003, p.1459), as well as a process of editing to simplify options into more recognisable categories (Kahneman and Tversky, 1979). Two related heuristics are particularly relevant to this chapter. The first is ‘accessibility’, where the brain uses information from memory that is most readily brought to mind. This is built on the individual’s past experiences, as well as a general privileging of the familiar. The second is ‘representativeness’, where the specifics of a decision are intuitively linked to known archetypes – e.g. with people in certain occupations being substituted with personality types associated with those occupations.

This brief introduction to bounded rationality and behavioural economics for those unfamiliar with the theoretical foundations and empirical results is necessarily partial in its treatment, but hopefully clear in its basic premise: that individual decision-makers have marked constraints on their ability to distinguish between options, especially where (a) these options are numerous, (b) the outcomes are probabilistic and ‘risky’, (c) there are multiple (and conflicting) measures of utility, and (d) their ability to draw on experience or advisers with experience is limited. Furthermore, finite cognitive resources are compromised by involuntary systematic biases, especially where there is an emotional component to the decision or where it is taken under pressure. This is summarised diagrammatically in Figure 1 below.

*Figure 1: Visualisation of factors impacting on decision-making under risk*

**Applying bounded rationality and behavioural economics**

While bounded rationality and behavioural economics have been applied to numerous environments, they have not yet enjoyed wide use within education. This is perhaps due to a discomfort in viewing educational decisions as economic ones, but there is good evidence that this is how they are increasingly viewed by prospective students (Purcell et al., 2008). Indeed, one of the advantages of bounded rationality as a theoretical lens is that it draws focus to the social and individual elements of financial decisions, while acknowledging the economic imperatives behind the decision.

A number of useful conceptual insights can be summarised from the theory and empirical findings introduced above; these are not intended to be exhaustive:

1. **More information is not always useful**

Neoclassical economic theory is predicated on perfect information as the basis of rational decision-making. Conversely, bounded rationality posits that the acquisition of information is not a costless exercise, in terms of time needed for collection and analysis. This is further complicated if the size of the information set is unknown and if the relative value of full information compared to partial information is not known – i.e. how much is enough? Even if full information is achieved, it can actually have an adverse impact on decisions by clouding or adding unnecessary cues.

1. **Decision complexity increases exponentially**

Laboratory experiments are generally based around relatively simple decisions between a small number of options with known outcome probabilities and clear distinguishing cues (e.g. financial gain/loss). However, real-life decisions tend to be significantly more complex than this, with numerous options, unknown probabilities and multiple criteria. Weighing these cues quickly becomes challenging and overall complexity of the analytical task grows exponentially. Behavioural economics predicts that people will take intuitive, rather than rational, opportunities to reduce this complexity using heuristics drawing on familiar memories or archetypes.

1. **Money is not the only source of utility**

While neoclassical economics does allow for non-financial forms of utility, these are generally underplayed. Conversely, bounded rationality expects decisions to be exercised across multiple concepts of utility. Relevant other forms of utility for educational decisions might include happiness/wellbeing, the desire for academic success, the maintenance of positive social relationships or the non-transgression of societal expectations. In particular, both Simon and Kahneman view humans as emotional decision-makers who seek to maximise their positive affect, especially in the short-term.

1. **Responses to cues are highly individual, but socially embedded**

Bounded rationality predicts that individuals will react differently to the same options. Specifically, people react primarily to changes in their financial situation rather than the absolute endpoint; as all financial situations differ, so do the decisions. In particular, relative gains are more likely to be valued by those with lower wealth. Furthermore, prior experiences and the wider social environment will impact on their concepts of value and the criteria used to estimate it, as well as shaping expectations – which, in turn, shape the framing of decisions in ways that are redolent of Bourdieu’s concept of ‘habitus’ (Collet, 2009).

1. **Risk is contextualised and attitudes are nonlinear**

Experimental studies suggest that people are risk-averse when considering losses, but more risk-tolerant when considering gains. Furthermore, tolerance is higher when the probabilities and outcomes are known rather than unknown or unknowable. People are not generally good estimators of the likelihoods of particular events occurring, especially over a lengthy passage of time and with an emotional component: ‘the long term is not where life is lived’ (Kahneman, 2003, p.1457).

**Higher education choices**

This section explores how these theoretical principles might be applied to higher education decisions. No specific claims to knowledge are made here; the discussion is speculative and illustrative in nature. It uses a bounded rationality lens to examine three key decisions where empirical evidence suggests that many students, especially from disadvantaged backgrounds, are making non-rational decisions; for simplicity, it will focus on young applicants, although the principles are likely to relate to mature students too. The decision-making process surrounding entry to higher education starts early in the teenage years for most and is undoubtedly complex, with a wide variety of higher education forms on offer, including thousands of degree programmes across around 150 universities in England.

For the purposes of this chapter, three principal decisions with the most obvious economic component are examined, although these will be supplemented by issues of personal preference (e.g. which specific university) and myriad micro-decisions (e.g. whether to live in halls of residence).

*Should I enter higher education?*

This is obviously the most fundamental decision and the one that contributes to national performance indicators on higher education access. It is predicated on the possession of qualifications that permit higher education entry and the majority of individuals who possess these do choose to progress, almost regardless of their socio-economic status (Coleman and Bekhradnia, 2011; Crawford, 2014). This imperative is strongest among those with the most and the highest status qualifications. Nevertheless, some do choose not to seek entry to higher education, particularly those with fewer or lower status qualifications.

Regardless of the reality, for most students the decision is driven in large part by a general belief in ‘human capital’ (Becker, 1994) – that the accumulation of qualifications will have a positive impact on their long-term finances and wellbeing (Purcell et al., 2008). This is juxtaposed against the short-term costs of higher education in terms of loan accumulated for tuition fees and living costs, as well as forgone earnings and career progression over the period of study.

There is, therefore, an economic decision to be made. On the one hand, basic information about direct costs is readily-available through a host of official websites. The opportunity costs of participation are harder to estimate: what job could have been secured outside higher education, what might it pay and with what chances for progression. These estimates are assembled in a congested graduate employment market where work previously available to 18-year-olds now requires a degree as a minimum (Brown, 2013). Those with strong or vocationally-focused qualifications (or useful family networks) might have realistic expectations of securing a traineeship or apprenticeship with on-the-job training and progression routes. However, for most, the alternative to higher education would be low wage and low prospect employment or unemployment.

Conversely, information on possible financial outcomes from higher education is harder to obtain (and inherently out-of-date). Partly due to the congested market, the likelihood of securing graduate-level work is uncertain (Scurry and Blenkinsopp, 2011; Purcell et al., 2012), while graduate salaries are heavily dependent on degree subject, university status and degree result (Walker and Zhu, 2011; Chevalier, 2011; Naylor, Smith and Telhaj, in press). Even given figures for typical graduate pathways or average salaries, the prospective student is far from in possession of perfect information, especially given increasing dispersion in salaries (Green and Zhu, 2010), with their own estimates tending to be too high (Jerrim, 2011).

It is often assumed that young people from low income backgrounds will be disproportionately deterred by the cost of higher education due to higher risk aversion and lower family resources (Callender and Jackson, 2005), but this has been increasingly challenged by evidence. Firstly, Crawford (2014) has shown that qualifications accrued at 16 account for around 95 percent of the variation in university participation rates, such that the social differences are created much earlier in the lifecourse, with little ‘space’ for debt aversion to play a major role. Secondly, official data (e.g. Universities and Colleges Admissions Service [UCAS], 2015) shows that major increases in costs in 2006 and 2012 were met with rising demand from lower socio-economic groups, rather than falling. Finally, interviews with students finds them mainly reporting tolerant attitudes to the costs of higher education (Harrison et al., 2015; Esson and Ertl, 2016).

Using a bounded rationality lens, this potentially counterintuitive situation can be more readily understood. Firstly, the long-term financial returns from higher education are unpredictable and becoming more so. There is no reliable source of information available to prospective students; reliable data are always necessarily out-of-date. Government, universities and schools therefore rely on a general exhortation towards higher education with a tacit ‘promise’ of an improved future. Secondly, for young people from low income backgrounds, their ability to lose through the higher education ‘gamble’ is lower. While the precise outcome is unpredictable, there is confidence it will be higher than the likely alternative: unemployment or low prospect work, especially in periods of recession and in deprived areas. This is consistent with the loss-aversion (as opposed to risk-aversion) predicted by behavioural economics.

Furthermore, the anticipated gains from higher education *feel* more significant due to the low income context of the family. Conversely, the full costs of higher education are counterintuitively higher for those from more advantaged backgrounds as their alternatives are likely to be more lucrative, while the potential gains are more muted when pitched against higher family wealth. This may explain why this group has been more sensitive to increases in tuition fees (UCAS, 2015; Harrison, 2016).

*Which subject should I study?*

This is often a vexed decision for prospective students, with contradictory influences and conflicting priorities. As noted above, the imperative to make decisions that lead to improved long-term life chances looms large, but students often also value subjects where they have been academically successful or that hold an intrinsic interest for them (Purcell et al., 2008).

As a result, students will need to trade-off utility from future salary expectations with the need to enjoy (at least in part) their years of study and to choose a subject with a good prospect of academic success. They are likely to be significant social factors impacting on this utility equation – family expectations, classed and gendered concepts of ‘respectable’ work, local labour market opportunities and so on (e.g. Skeggs, 1997; Croll, 2008; Shah, Dwyer and Modood, 2010; Archer, DeWitt and Wong, 2014).

However, this decision will have important ramifications for the outcome of their initial decision to enter higher education. Walker and Zhu (2011) demonstrate that the financial returns across different academic subjects are widely distributed; indeed, students expect differential salaries depending on the degree chosen, while the confidence in (Davies, Qiu and Davies, 2014) and accuracy of (Jerrim, 2011) these estimates varies between social groups. There are also differences in the variance within subject choices (Chevalier, 2011), with some pathways having a relatively predictable salary while others have a high variance around the mean.

This primary effect of subject choice in terms of future salary potential is then mediated through the degree classification that the individual achieves (Naylor, Smith and Telhaj, in press), which is, in turn, a partial function of their aptitude for and engagement with the subject. Indeed, Purcell et al. (2008) found that students rated future enjoyment as the most important factor in their subject choice, highlighting the emotionally-grounded nature of the decision. Employment-related factors (either general or specific to a profession) were somewhat less important, while a record of academic success played some role for around 40 percent of their sample. Many students are trading-off between subjects with a lower predicted return which they enjoy and in which they might achieve highly against subjects with a higher predicted return in which they have little interest or record of success. In other words, even a seemingly rationally ‘optimal’ choice of subject can be undermined if the fit for the individual transpires to be poor, causing them to underperform. Of course, students may have a strongly preferred career where high financial returns coincide with enjoyment and aptitude – provided they meet the entry requirements.

The complexity of this decision is staggering when considered in the round and from an expected utility perspective. Rather, bounded rationality predicts that complex decisions like this will be simplified by the individual with intuitive recourse to the familiar to eliminate options and ignore cues. The individual’s decision will inevitably be a satisficed one, attempting to square off multiple criteria (financial, social and individual) across a manageable quantity of information in a reasonable timeframe – in a period where they are working towards the examinations that will determine the success of their university applications. A bounded rationality approach does not see this as flawed, but an unavoidable consequence of complexity and finite resources.

A major initiative in recent years has been to increase the information provided about courses through the National Student Survey, as well as the ‘Key Information Sets’ which, *inter alia*, describe graduate outcomes. This is intended as an aid to decision-making, but a bounded rationality lens would question this if it adds new (and possibly spurious) cues to the existing decision. Indeed, Davies (2012) questions whether publishing mean starting salaries is useful without measures of dispersion, while ‘student satisfaction’ has a questionable relationship with outcomes. A more useful approach might be to help prospective students to identify the most important cues in determining their long-term outcome, as well as broadening the satisficing options out beyond the familiar – for example, by stressing the need for enjoyment and illuminating the wider career paths associated with particular subjects, while downplaying simplistic representations of financial returns.

Undoubtedly satisficing is sometimes unsuccessful, with a relatively high proportion of students changing their degree programmes within or after their first year (Harrison, 2006), which has led to a focus on student retention (Thomas, 2012). This work is clearly valuable in promoting high-quality teaching and support, but there is a danger that it is predicated on students making the ‘right choice’ first time; indeed, financial support changes have made it increasingly difficult and costly for students to change their decision, even where they are shifting their position within higher education to increase their long-term utility from it. Under bounded rationality, government and universities should make it easier for students to change subject on the basis of their early experiences; this is likely to particularly benefit students from disadvantaged backgrounds who are more likely to make familiar (and low return) choices based on their limited knowledge of higher education (Davies, Qiu and Davies, 2014).

*Should I maximise university status?*

It would appear outwardly ‘rational’ that all students would seek to go to the ‘best’ university possible given their qualifications, especially in a hierarchical pseudo-meritocratic system like the UK (Croxford and Raffe, 2015), where elite institutions have their ‘quality’ legitimised and reinforced through media-generated and government-endorsed league tables. Indeed, there is substantial evidence that the status of the university is the strongest predictor of long-term outcomes, with many high-status employers choosing only to recruit from these (Milburn, 2009). However, it is moot whether these league tables measure anything more tangible than historical over-subscription for places.

Nevertheless, many students, and particularly those from lower socio-economic groups and minority ethnic communities, do choose not to maximise university status (Mangan et al, 2010; Modood, 2012; Boliver, 2013; Shiner and Noden, 2014). This phenomenon has had significant attention from sociologists, who find evidence of fears about ‘social fit’ and dissonance with the ‘institutional habitus’ of elite universities (Whitty, Hayton and Tang, 2015). Such universities are ‘not for people like them’, with assumptions about the socio-economic or ethnic mix, as well as the academic standards required. Behavioural economists might view this in terms of the representativeness heuristic, with elite universities being understood through an archetype (hyper-academic and for the social elite), perpetuated through media depictions and teacher expectations (Oliver and Kettley, 2010).

Decisions may also be influenced by a desire to remain in the family home for financial or cultural reasons (Holdsworth, 2006), potentially limiting university choices to the local. Mangan et al (2010) find that where there is a nearby elite university, students from disadvantaged groups are as likely to choose it as other students, but where there is not, they are more likely to seek a local lower status option. In this instance, a familiarity heuristic would appear to be in play; that elite universities are accepted into the choice envelope if the individual has personal experience that overcomes the archetype.

Under the auspices of attempting to improve social mobility for ‘talented’ young people (e.g. Department for Education and Employment, 2000; Milburn, 2009; Department for Business, Information and Skills, 2016), successive governments have attempted to manipulate decisions from individuals who it is felt *should* attend elite universities. However, these have broadly failed, with little or no change in their social mix over the last fifteen years (Croxford and Raffe, 2015). The latest figures show that the proportion of students in elite universities drawn from the most deprived communities has risen from just 2.4 percent to 3.3 percent since 2011 (UCAS, 2015), despite the investment of substantial sums of government and university money; furthermore, most of the improvement is located in a handful of universities, with most seeing a backward slide (Harrison, 2016).

One example of this attempted manipulation was the creation of means-tested bursaries, ostensibly to offset the 2006 increase in tuition fees (Department for Education and Skills, 2003). The amounts offered were left to the universities’ discretion, but a pseudo-market inevitably formed whereby elite universities offered considerably higher sums than lower status universities (Callender, 2010; Harrison and Hatt, 2012). These bursaries effectively formed a discount to the cost of higher education, with a distinctly higher discount for students choosing elite universities. Neoclassical economics would predict that a fall in ‘price’ would increase demand, but Callender, Wilkinson and Hopkin (2009) found that students largely ignored this financial incentive, with evidence that some even felt that larger bursaries were a sign of inferior courses (Davies et al., 2008). Taking a bounded rationality perspective, this ‘irrational’ behaviour from students that are normally constructed to be the most price-sensitive and risk-averse is more readily understood, with the financial utility of the bursary dimming next to educational priorities and the disutility of spending three years in an institution that feels alien.

**Conclusion**

This chapter has introduced the theory of bounded rationality and concepts from behavioural economics which emerged from it. It has then applied these ideas to three key decisions made by prospective students, highlighting the potential for new insight, especially with respect to phenomena that other theories have failed to predict.

Firstly, the current obsession with providing endless information to improve students’ decision-making is likely to be ineffectual and possibly even counter-productive, simultaneously increasing the complexity of the decision and introducing additional cues of dubious validity. This is not to argue that prospective students should not be given adequate information, but that careful thought needs to be given to its purpose, while not assuming that ‘more is better’. Improving access to reliable and high-quality advice and guidance, untainted by normative expectations, is likely to be a more fruitful avenue.

Secondly, purely financial understandings of student behaviour are inadequate. Evidence is mounting that students do not respond to financial cues in the ways predicted by neoclassical economics. This has been seen both in terms of their response to increasing tuition fees and differential bursaries. Similarly, concepts of risk need to be revised to understand the nonlinear nature of expected utility, with higher education often seen by disadvantaged young people as less risky than the alternatives.

Thirdly, that efforts to break down stereotypes about elite universities are not working, with the inherently conservative heuristics around accessibility and representativeness holding sway. Well-intentioned, but misguided, work to ‘raise aspirations’ has not been successful at the macro-level, which suggests that more radical options to achieve a fairer social mix are needed, especially when the best graduate opportunities are preserved for certain universities. Alternatively, there needs to be a reassessment of the basis on which elite status is conferred, maintained and valorised, towards a more equitable distribution of opportunities.

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