Student choices under uncertainty: applying Simon's concept of bounded rationality (0069)

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Abstract

This paper will provide an introduction to the theoretical work of Herbert Simon, the American interdisciplinary social scientist and Nobel Prize winner, particularly with respect to his concepts of 'bounded rationality' and 'satisficing' which have been found useful in understanding complex decisions taken under risk. These will then be applied to the issue of access to higher education, looking specifically at an individual's choice to enter and their choice of whether to maximise the status of university they attend. The paper will focus particularly on the role played by different forms of information, guidance and expectation, as well as problematising how risk and risk attitudes influence the decisions of young people from disadvantaged backgrounds. It will conclude by touching on possible policy and practice interventions that can be derived from Simon's work.

Paper

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 where, for example, financial (dis)incentives have proved largely ineffective at influencing demand, despite students' assumed sensitivity around the cost of higher education.

This paper explores theoretical perspectives drawn from the work of Herbert Simon, who won the Nobel Prize in 1978, despite not ostensibly being an economist, for his work on human decision-making under uncertainty. His insights, drawn from an interdisciplinary space between economics, psychology and sociology, have subsequently been applied to many real-world and experimental scenarios, with a consistency of empirical support for the basic tenets. However, these insights have not often been extended to educational decision-making contexts.

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' that could to be derived from the various possible outcomes. This became the basis for his theory of 'bounded rationality' (Simon 1955, 1979, 1987, 2000). Bounded rationality as an idea is deceptively simple:

> '…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. 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 – the processes by which decisions are made and how these processes are shaped by the individual and their wider circumstances (Simon, 1955).

A key idea within bounded rationality is the concept of 'satisficing'. 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 are not only commonly used, but often provide good decisions which are comparable to an exhaustive 'rational' analysis. However, they tend to be emotionally grounded, rely on stereotypes and be short-term in nature: 'the long term is not where life is lived' (Kahneman, 2003, p.1457).

Two key decisions that young people are asked to make are (a) whether to enter higher education, presupposing that they have the relevant qualifications, and (b) whether to attend the university with the maximum status relative to their qualifications. The paper will examine these two processes using bounded rationality as a lens for understanding them. It will focus on the information that is available to young people about the financial and other returns from higher education and question whether rational decisions are a realistic expectation given the uncertainties surrounding future graduate employment. It will also problematise some of the widely-held assumptions about the 'riskiness' of higher education for disadvantaged groups, repositioning risk attitudes more in social terms rather than financial ones.

The paper will conclude with three main points. Firstly, that the current obsession with providing ever more 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. 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, as seen both in terms of their response to increasing tuition fees and differential student bursaries; concepts of risk need to be revised. Thirdly, that efforts to break down stereotypical expectations about elite universities are not working. Well-intentioned, but misguided, work to 'raise aspirations' has not been successful at the macro level, suggesting that more radical options to achieve a fairer social mix may be needed.

References

Gigerenzer, G. and D. Goldstein. 1996. Reasoning the fast and frugal way: models of bounded rationality. *Psychological Review* 103(4):650-669.

Kahneman, D. 2003. Maps of bounded rationality: psychology of behavioural economics. *American Economic Review* 93 (5): 1449-1475.

Simon, H. 1955. A behavioural model of rational choice. *Quarterly Journal of Economics* 69(1):99-118.

Simon, H. 1979. Rational decision-making in business organisations. *American Economic Review* 69(4):493-513.

Simon, H. 1987. Making management decisions: the role of intuition and emotion. *Academy of Management* 1(1):57-64.

Simon, H. 2000. Bounded rationality in social science: today and tomorrow. *Mind and Society* 1(1):25-39.

Sutton Trust. 2004. *The missing 3,000: state school students under-represented at leading universities*. London: Sutton Trust.

Todd, P. and G. Gigerenzer. 2003. Bounding rationality to the world. *Journal of Economic Psychology* 24:143-165.