Journal of Behavioral Economics for Policy, Vol. 2, No. 1, 19-23, 2018

G. L. S. Shackle's introspective behavioral economics

Peter E. Earl[1]*

Abstract
Shackle's introspection-based theory of choice under uncertainty prefigured elements of both Simon's satisficing analysis and Prospect Theory but did so in a way aimed at providing an alternative to probabilistic thinking. His theory focuses on creative, critical use of the imagination in assessing possibilities and potential for surprise, and on the process of focusing en route to choice. This paper covers the genesis and elements of Shackle's framework and considers its implications for policymakers.

JEL Classification: B22; D8; D91

Keywords
decision-making under uncertainty — surprise — imagination — probability

[1] *University of Queensland*
***Corresponding author**: p.earl@uq.edu.au

Introduction

George Lennox Sharman Shackle (1903–1992) deserves to be acknowledged as one of the pioneers of behavioral economics because of his contributions to the theory of choice under uncertainty, even though he did not base his analysis on behavioral research and did not engage in any empirical work to test his ideas. What he offered was based purely on introspection but was rich in its psychological content, being built around the notions of surprise, finite attentive capacity and the bounded creative capacity of the human imagination. He made little attempt to draw policy implications from his framework, operating instead mainly as an economic philosopher, critical of orthodox ideas. Indeed, his emphasis on 'kaleidic' shifts in expectations led some to view him as a nihilist (most notably, Coddington, 1982). However, as this paper will demonstrate, his way of viewing decision-making does have significant implications for economic policymakers.

The genesis and essence of Shackle's theory of choice under uncertainty

Having done his undergraduate training as a mature student, Shackle went on to complete his PhD at the London School of Economics in 1937. His thesis (published as Shackle, 1938) was on the theory of business cycles, initially under the guidance of Hayek but subsequently much inspired by the work of Keynes and Myrdal. He developed his key ideas on the nature of choice in the period 1939-1949, first in a succession of journal articles and then in his 1949 book *Expectation in Economics*. This research was largely a spare-time activity as he spent most of the period working in government service, including statistical analysis for Churchill's War Cabinet.

The novelty of his thinking attracted attention from leading contemporary economists such as Arrow and Klein and in 1951 he took up the Brunner Chair in Economics at the University of Liverpool, a position he held until his retirement. However, enthusiasm for his theory proved short-lived and his attempt to re-launch it via his (1961) book *Decision, order and time* was not successful in rekindling a mainstream audience. He then switched his focus to the history and philosophy of economic thought and thereby began to earn enduring interest from heterodox scholars (for detailed studies of Shackle's life and work, see Ford, 1994, and Earl and Littleboy, 2014).

Shackle's key insight was that the concept of 'potential surprise' could be used instead of statistical probability as that basis for understanding how individuals cope with choosing when they envisage a range of possible outcomes for some or all of their options. Instead of asking ourselves what the probability of an outcome is, we may ask ourselves how surprised we would be if it eventuated. If we can see nothing credibly standing in the way of a particular outcome, we will view it as perfectly possible and not expect to be at all surprised if it eventuates. By contrast, if we can see all manner of reasons to doubt that a particular outcome could happen, we may view it as impossible and expect to be astonished if it does happen. Shackle saw this as much more logical than a probabilities-based perspective as a way to think about uncertain outcomes when taking decisions that people do not expect to repeat and which could in some cases have major impacts on their lives. (The latter he called 'crucial experiments'.) For such choices, an outcome either eventuates or it does not; it does not occur, for the individual, with a statistical frequency, even though, at the level of the population, statistics may exist and be deployed in a probabilistic manner by, say, insurance actuaries.

When all the potentially surprise ratings for a particu-

lar scheme's imagined outcome levels on a particular performance dimension are represented graphically as a 'potential surprise curve' it is conventionally depict outcomes viewed as perfectly possible at the bottom, with the vertical scale rising to a point representing maximum potential surprise (i.e., complete disbelief that a particular outcome could occur). However, although potential surprise curves typically look superficially like inverted probability distributions, the two constructs are conceptually very different. Although complete disbelief in a possibility is akin to a subjective probability rating of zero, a rating of zero potential surprise is not normally equivalent to saying that something seems to be a sure thing as other outcomes may seem perfectly or partially possible; moreover, if we change our assessment in respect to a particular outcome, this does not necessarily imply any change in our potential surprise assessments of alternative outcomes. This is because Shackle's analysis is non-additive. By contrast, if we were using statistical measures of probability as weights in our choice, increasing the probability weight of one outcome would necessarily require reducing the probability weight assigned to one or more alternative outcomes.

Shackle's view of how people choose if thinking in terms of possibilities and potential for surprise went through several iterations as a result of his repeated introspection on the topic. Initially, Shackle (1940) took a view rather akin to that which Simon (1957) offered in his 'satisficing' approach to choice based around aspiration levels: he suggested that schemes of action would be rejected if they seemed to have perfectly possible outcomes that fell short of a target level. Next, Shackle (1941) came up with the view to which he seemed to return towards the end of his life (in Shackle, 1986): he suggested that people rank projects on the basis of (a) their respective best gain that seemed plausible enough to warrant hope, and (b) their respective worst loss that seemed plausible enough to be a cause for concern. In other words, decision-makers would focus on just two possible outcomes for each option, ignore gains and losses that seemed too implausible, as well as the outcomes between the two focal points. In taking this view, he did not just anticipate Simon's analysis by taking account of the limits to human attentive capacities that might result in information processing shortcuts; also, decades ahead of Kahneman and Tversky's (1979) Prospect Theory, he was viewing decision-makers as separating gains and losses into separate mental compartments and using some kind of reference point for drawing the line between them. This differs from the orthodox subjective expected utility approach wherein outcomes are presumed to be viewed as absolute performance levels on a scale, such as how much wealth we might be left with if we make a particular choice, not the gain or loss in our wealth.

Shackle soon came to call the reference point the decision-maker's 'neutral outcome', portraying it as the return to a seemingly safe 'neutral scheme'. The reference point could also be viewed as an aspiration level if Shackle's framework is applied to situations in which the decision-maker is not sure whether some or all of the options under consideration will actually be means of meeting a particular aspiration. In seeking to formalize his theory, Shackle moved away from his initial view of focusing, based around a cut-off level for the plausibility of outcomes, and developed a theory of attention that can be viewed as a striking precursor to the S-shaped utility function of Prospect Theory (see Earl and Littleboy, 2014, pp. 167-177).

At the heart of Shackle's theory of attention was his 'ascendancy function'. Ee contended that small gains or losses that seem perfectly possible will not attract our attention as much as larger ones will; likewise, large gains or losses that have all manner of obstacles to their eventuation will not grab our attention as much as similar-sized prospective gains or losses that have fewer barriers to their eventuation. Implied here was an 'ascendancy function' in which different combinations of gain/possibility or loss/possibility could be ranked in their power to capture our attention. He depicted this graphically via 'iso-ascendancy curves' that look similar to indifference curves in traditional utility theory, except that there are separate sets for losses and for gains, facing in opposite directions.

Shackle's ascendancy function implies that normally, for each possible scheme of action, there will be a gain and a loss that most grabs the decision-maker's attention but that these will not be gains or losses that are either the biggest that seem perfectly possible or the biggest that seem just about possible; rather, they will lie somewhere between these points. The somewhat plausible loss that most causes fear, and the somewhat plausible gain that most excites hope, become the focal points for choice. With limited human attentive capacity, the other imagined outcomes for a scheme end up getting ignored.

With our minds focused and the decision task thus simplified, we choose the scheme of action that offers the biggest positive difference in ascendancy between its respective focus gain and focus loss. This would be subject to the level of fear regarding the focus loss not exceeding a tolerable level. If rival schemes have focus outcomes with similar differences in ascendancy, the decision-maker's risk preferences will be used to resolve the final choice. Moreover, the decision-maker would stick with a 'neutral scheme' (such as staying liquid) if none of the options viewed as offering prospective gains relative to the neutral outcome had focus gains that were more attention-arresting than their respective focus losses.

The significance of reference-dependence and focusing

Shackle's view of how hopes and fears drive risky choices provides a means of making sense of how 'mom and pop' investors who normally seem to be playing safe get sucked into playing financial and real estate markets during boom–bust episodes. It is not that their risk preferences have changed; rather, what changes is the neutral outcome against which they are viewing potential gains and losses. Prior to the boom,

a 3% deposit account might be their neutral outcome/neutral scheme. However, if it becomes apparent that even those who are playing the share market with relatively modest success are achieving returns of 10%, a 3% deposit account may start to seem to entail a 7% loss that could readily be avoided. In theoretical terms, not only would potential surprise curves be shifted to the right on a loss/gain scale but the neutral outcome is also shifted to the right, as is the ascendancy function. Though those who have knowledge of financial history would see switching from holding deposit accounts to holding equities as a move into a more risky market habitat, the 'mom and pop' investors, lacking long-term historical knowledge, or having forgotten what happened earlier in their lives, will not see it that way. If policymakers are keen to limit the scale of a boom and prevent such investors from being casualties of it, they should run investor education campaigns aimed a deterring such shifts in assessments of reference returns and downside risks.

Shackle's theory of focusing also sounds warning bells about risk-taking, for it predicts that even if dire downside outcomes have initially been acknowledge as not being impossible (i.e., the decision-maker has imagined them and would not be utterly astonished if they happened), the focus loss will be something less extreme. This does not bode well for policies directed towards limiting global warming. If decision-makers acknowledge that, because of modeling uncertainties, a particular strategy might not be enough to stop run-away human-induced warming, decision-makers may nonetheless opt for it because they would not be very surprised to see it containing warming within what are assumed to be critical bounds. In terms of their risk tolerance, the focus loss may not seem alarming enough to make them reject the strategy, even though, at the outside, they had initially not ruled out possibilities whose eventuation would indeed be alarming. In short, we may end up taking dangerous decisions because the loss that looms largest in our assessment is significantly less bad than the worst outcome we deem possible.

If investment decisions involve the kind of focusing or zones of acceptability that Shackle inferred, then policies to promote investment will have impacts only insofar as they affect which imagined outcomes would-be investors see as focal gains or losses. Policies that aim to remove barriers to making larger returns or that are designed to prevent poor outcomes may fail to change behavior if they do not change focus gains or losses. It is thus important for policy makers to find out which outcome prospects generate the most excitement or fear for rival schemes of action.

Imagination and expectations

Shackle portrayed the formation of expectations primarily as a deductive, subjective process in which views of what could happen and how seriously possibilities should be taken are products of the imagination. His analysis thus contrasts with that of Keynes (1921), which is in terms of inductive inferences based on the weight of past evidence. Oddly, Shackle did not discuss this aspect of Keynes's thinking, whether out of ignorance (as asserted by Brady, 2013) or for strategic, rhetorical reasons in his quest to emphasize how expectations can become detached from 'real' conditions and how past trends cannot be relied upon to continue.

A more constructive approach would have been to argue that expectation formation involves both inductive and deductive thinking. On the one hand, historical statistics and case study evidence from similar kinds of situations may help us avoid oversights that would otherwise arise due to failures of our imagination, and provide food for thought when we are trying to assess how seriously to take particular possibilities. On the other hand, like members of a courtroom jury, we have to figure out how to interpret evidence and which evidence is relevant to our choices. Moreover, although nothing can be imagined that is *completely* unprecedented, there is enormous scope for wildly novel conjectures and 'kaleidic' shifts of expectations. This is because, as with a limited alphabet that can be used to build thousands of words, we can potentially construct a vast array of new possibilities by combining elements from what we already know (Shackle, 1979).

The important issue here for policymakers is the extent to which people use their imagination when choosing, and how they do so. When combined with insightful, critical assessment of what could intervene to prevent outcomes from eventuating, such creative thinking can provide a basis for successful entrepreneurial ventures. However, there is no guarantee that the imagination will not result in dysfunctional/pathological behavior in the form of reckless risk-taking at one extreme or, at the other extreme, overly fearful reluctance to act that is driven by concerns over things that may never actually happen, at least not to the person in question. The benefits of education that succeeds in enhancing critical thinking skills (including skills in knowing how to gather and use evidence from the past to assess future possibilities), and willingness to use them, seem clear from Shackle's standpoint. This is despite the fact that, as Shackle (1961) recognized, any attempt to work out how seriously to take a figment of one's imagination ultimately is doomed to run into an infinite regress: event A may be assessed as capable of being blocked by event B, but the latter might be blocked by event C unless event D happens, an so on, ad infinitum. Policymakers thus need to include effective stopping rules as part of training in critical thinking.

Shackle's perspective on the imagination points to a different view of the dangers of 'thinking fast' from that offered by Kahneman (2011), though the two should be viewed as complements, not rivals. For Kahneman, fast thinking results in poor outcomes due to the use of bias-inducing heuristics to make judgments from available information. In Shackle's analysis the assessments that people involve considering not merely what they know but also things that they imagine could affect what happens, Moreover, whilst a fertile imagination can be used to generate possibilities and thereby assess potential for surprise, actual surprises entail things the decision

maker failed to imagine. We may infer from this that those who fail to use their imagination to come up with relevant possibilities may leave themselves more open to nasty surprises or fail to see good opportunities for what they are. Getting 'ripped off' in a transaction might reflect failure to check or remember the details of the contract. However, from a Shacklean perspective, it may also be due to failure to devote enough effort to using the imagination to generate possible ways in which things could go awry and hence to failure to insist on appropriate safeguarding clauses being inserted in the contract in the first place.

Living in the present moment

Shackle's view that a probabilistic approach to analyzing choice is questionable in respect to one-off choices is normally articulated in relation to life's crucial experiments. However, people may be prone to treat decisions that are not particularly unique as ones they will never make again: in other words, rather than operating as incompetent statisticians and making biased probability judgments in the manner presumed in 'heuristics and biases' approach to behavioral economics, people may simply not think statistically at all. This is evident when people who are not liquidity constrained buy extended product warranties rather than recognizing that, over their lives, they will buy many products for which such warranties are offered and hence that they would be wiser to decline the warranties in favor of a repair-or-replace strategy for the rare occasions on which such products fail. Likewise, the mystery of the 'equity premium' can be resolved if it is driven by people many years from retirement being worried about the bigger risk of a sudden large fall on equities relative to bonds despite history telling us that share markets normally recover even from major falls within a few years and offset the losses via above-normal returns. It would appear that the extended warrant purchaser and financial market players are thinking rather like children who wail inconsolably after unexpectedly being told they will have to miss a friend's birthday party, despite parents pointing out that there will be plenty of similar parties to attend in future.

Human tendencies to live, as Shackle often put it, 'in the present moment', to fail to think in statistical terms, and hence often to view disappointments as 'the end of their world' need to be recognized by policymakers as a further reason for including decision studies in school curricula. These tendencies can drive impulsive and/or dramatic over-reactions to falsified expectations, including suicide, depression and panic in financial markets.

Enjoyment by anticipation

In the process of developing his theory of choice Shackle realized that human imaginative capacities make it possible to derive enjoyment by mentally rehearsing events before they materialize. Shackle raised the idea of 'enjoyment by anticipation' with reference to cases in which we make commitments and then have to wait before we get a stream of actual consequences, as when buying lottery tickets or embarking on enterprises: until the results are in, our outlay buys us the right to imagine good outcomes. However, this idea seems relevant even when we are merely browsing online or 'window shopping' so long as the possibilities we imagine seem feasible to us.

Being able to rehearse future situations in our imagination has a downside that may be a driver of procrastination: the further ahead we start thinking about something, and the sooner we make a commitment to it, the more scope we have to imagine its unpleasant aspects. For example, booking a holiday early gives us scope not only to look forward to the holiday but also to exercise repeatedly our fear of flying'. If we anticipate that we 'will be dreading the flight' we may opt not to make an advance booking, even at the risk of not being able to book later. If people are to choose to do things that they dread, they may need to be able to commit to doing them, with little forethought, at the last moment and then immediately be able to put themselves through the aspect they dread. A possible implication of this is that notoriously slow legal processes might deter crime better than those involving summary justice, even if the conviction and sentencing statistics are identical.

Conclusion

Shackle's non-probabilistic analysis of choice may be useful for understanding how choices get made on occasions where people make serious attempts to figure our how the future could unfold despite them being uncertain about what inferences they should draw from the past. Via the role it assigns to the human imagination, it points towards the importance of capacities for creative and critical thinking as determinants of economic wellbeing. The development of these capacities should be a policy priority.

References

Brady, M. E. (2013). The economic consequences of G L S Shackle's ignorance of Keynes's Theory of Probability, uncertainty, and decision making. Available at SSRN: https://ssrn.com/abstract=2309259 or http://dx.doi.org/10.2139/ssrn.2309259

Coddington, A. (1982). "Deficient foresight: A troublesome theme in keynesian economics". *The American Economics Review*, 72(3), 480-487.

Earl, P. E., and Littleboy, B. (2014). *G. L. S. Shackle*. Houndmills: Palgrave Macmillan.

Ford, J. L. (1994). *G.L.S. Shackle: The dissenting economist's economist*. Aldershot: Edward Elgar.

Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Strauss and Giroux.

Kahneman, D., and Tversky, A. (1979). "Prospect theory: An analysis of decision under risk". *Econometrica*, 47(2), 263–291.

Keynes, J. M. (1921). *A treatise on probability*. London, Macmillan.

Shackle, G. L. S. (1938). *Expectations, investment and income*. Oxford: Oxford University Press.

Shackle, G. L. S. (1940). "The nature of the inducement to invest". *Review of Economic Studies*, 8(1), 44–48.

Shackle, G. L. S. (1941). "A means of promoting investment". *Economic Journal*, 51(202/203), 249–260.

Shackle, G. L. S. (1949). *Expectation in economics*. Cambridge: Cambridge University Press.

Shackle, G. L. S. (1961). *Decision, order and time in human affairs*. Cambridge: Cambridge University Press.

Shackle, G. L. S. (1979). *Imagination and the nature of choice*. Edinburgh, Edinburgh University Press.

Shackle, G. L. S. (1986). "The origination of choice". In I. M. Kirzner (Ed.), *Subjectivism, intelligibility and economic understanding: Essays in honour of Ludwig M. Lachman on his eightieth birthday*, (pp. 281–287). London: Macmillan.

Simon, H. A. (1957). *Models of man*. New York, NY: Wiley.