Paternalism and Entrepreneurship

Robert Sugden*

School of Economics, University of East Anglia, Norwich NR4 7TJ, United Kingdom; r.sugden@uea.ac.uk

ABSTRACT

I explore the area of economic life at the border between paternalism and entrepreneurship, with reference to dual-self Planner/Doer models used in behavioural economics. Using a concept of a 'continuing person' as the composition of her Doer selves at all points in time, I argue that competitive markets provide individuals with every opportunity for feasible voluntary exchanges that they collectively want to use. The mechanism that achieves this result is entrepreneurship. Entrepreneurs do not respond to the preferences that people hold as Planners; they try to anticipate the future preferences of Doers.

Suppose it is a Friday in summer, after several weeks of cold and rainy weather. I check the latest weather forecast and learn that Saturday will be warm and sunny. I form the intention to use this opportunity to do useful but unexciting outdoor jobs at home – cleaning the patio, tidying the garden shed, weeding the flower beds. But when I get up next morning, I change my plans. The weather is just as I expected, but when I actually see the sunshine and feel the warmth, I think about how much I enjoy spending days like this by the sea. I form a new intention: to walk along a local beach and then have crab sandwiches on the veranda of a favourite seaside café. I head off for the beach.

When I get there, I notice that the good weather has brought out many more visitors than usual. It is a little past most people's lunchtime when I arrive at the café and take the last free table on the veranda. It crosses my mind that the crab sandwiches may have run out. However, I am not disappointed. The proprietor tells me that, having consulted the weather forecast on Friday, she expected many people to come to the seaside on impulse, just as I have done. Acting on this belief, she bought more crab than usual. At a time when I had no expectation of wanting to be one of her customers, she was taking actions designed to satisfy preferences that she believed I would come to have. Was she being paternalistic?

This paper is an exploration of the area of economic life that lies at the border between paternalism and entrepreneurship. I will argue that actions like those of the proprietor in my story are an important feature of a market economy. They are not paternalistic; they are a kind of entrepreneurship that we all have reason to value. But the sense in which they are valuable is not as straightforward as the story might suggest.

1 What is Paternalism?

The concept of paternalism gets its meaning from an analogy with the relationship between a child and her parent or guardian. To say that an individual or agency A acts paternalistically towards a person B is to say that A is acting *as if* (which is not in fact the case) B were a child and A were her guardian. In what I take to be core cases of paternalism, B has not invited A to act as her guardian; A has simply assumed this role. From B's point of view, the moral objection to paternalism can be expressed as: 'Don't treat me as a child'. From the viewpoint of third parties, it can be expressed by saying that B is entitled to object – and perhaps even ought to object – to being treated in this way.

But what exactly is involved in acting as someone else's guardian? Part of the answer is implicit in John Stuart Mill's defence of the principle that:

> [T]he only purpose for which power can rightfully be exercised over any member of a civilised community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot rightfully be compelled to do or forbear because it will be better for him to do so, because it will make him happier, because, in the opinions of others, to do so would be wise, or even right.' (Mill, 1859/1972, p. 73).

Having assumed the role of B's guardian, A might impose constraints on B's freedom of choice in the belief that B would otherwise act contrary to her own best interests. Mill's principle asserts that such constraints, if imposed

against *B*'s will, are morally wrong. James Buchanan expresses this sense of wrongness in vivid first-person terms when he describes the 'libertarian' position he held throughout his life:

> The person who shares this perspective places a primary value on *liberty*, as such. He personally disputes, rejects, resents, opposes attempts by others to exercise control or power over his own choice behaviour. He does not like harness. There is an exhilaration in simply being free. (Buchanan, 1986, p. 4)

This attitude to liberty, he says, is encapsulated in the words 'Don't tread on me' on the rattlesnake flag of the American War of Independence (Buchanan, 1986, p. 5). A person who takes this attitude will certainly resent constraints imposed on her by self-appointed guardians who claim to know her own interests better than she does.

But there are ways of treating a person as a child that do not involve the exercise of power or control. For this reason, some recent writers have proposed definitions of paternalism in which restriction of freedom of choice is not an essential component. For example, Richard Thaler and Cass Sunstein (2008; also Sunstein and Thaler, 2003) have proposed an approach to public policy that they call *libertarian paternalism* (now better known as *nudging*). The addressees of their proposals were originally called 'planners', and later renamed 'choice architects'. Explaining why their proposals are both libertarian and paternalistic, Thaler and Sunstein say:

> The libertarian aspect of our strategies lies in the straightforward insistence that, in general, people should be free to do what they like – and to opt out of undesirable arrangements if they want to do so . . . . The paternalistic aspect [lies in the fact that] we argue for self-conscious efforts, by institutions in the private sector and also by government, to steer people's choices in directions that will improve their lives. In our understanding, a policy is 'paternalistic' if it tries to influence choices in a way that will make choosers better off, *as judged by themselves.* (2008, p. 5)

Thaler and Sunstein's choice architect assumes the role of guardian in relation to people in general, trying to 'nudge' them towards the actions that she thinks best serve their interests; but ultimately she does not impose any restrictions on their choices.[1]

Julian Le Grand and Bill New propose a similar definition of *government paternalism*, in which:

---

[1]Thaler and Sunstein repeatedly emphasise the 'as judged by themselves' qualification, but offer little explanation of how individuals' judgements about their own interests are defined, or about how choice architects can discover them. On this issue, see Infante *et al.*, 2016; Sugden, 2017, 2018; Sunstein, 2018).

> [T]he essential characteristic is the government mistrusting the
> individual's judgment. It does not believe that, without the inter-
> vention, the individual will make the 'right' decision – 'right' in
> promoting the individual's own good, at least as the government
> perceives it. ... In brief, we conclude that government intervention
> is paternalistic with respect to an individual if it is intended (a)
> to address a failure of judgement by that individual and (b) to
> further the individual's own good. (Le Grand and New, 2015, p. 2)

For Thaler and Sunstein and for Le Grand and New, 'paternalism' is a morally
neutral term: some forms of paternalism may be objectionable while others
may be praiseworthy. The title of Le Grand and New's book, *Government
Paternalism: Nanny State or Helpful Friend?*, captures this neutrality by
suggesting that the role of a self-appointed guardian may be viewed positively
as well as negatively.[2]

Where does this leave the café proprietor of my story? Her action –
responding to a good weather forecast by buying more food supplies than
normal – did not restrict anyone's freedom of choice; but there is a sense in
which it addressed a failure of judgement on the part of her customers. Had
she acted on *their* beliefs about their future demands, she would have failed to
cater to what *she* believed they would in fact demand. As I have told the story,
she was aware of this divergence between her beliefs and theirs. In acting as
she did, she expected to further their interests as well as her own. Whether she
intended to benefit her customers, and if so, whether she intended to address
a failure of judgement by them, is less clear. (Perhaps she merely intended to
maximize her profits, and these other features of her action were foreseen but
unintended by-products.) But if we accept Thaler and Sunstein's or Le Grand
and New's definitions of paternalism, there is at least a *prima facie* case that
that proprietor's action was paternalistic.

2   Planners and Doers

In the literature of behavioural economics, arguments for paternalistic policies
are often presented in terms of *dual-self* models of human agency. An individual
human being is represented as having two 'selves'. One (sometimes called the
'Planner') is far-sighted and rational; the other (the 'Doer') is short-sighted
and impulsive. The individual's preferences, intentions and actions result from

---

[2]The pejorative term 'nanny state' invokes an old-fashioned, upper-class stereotype of
the nanny – the socially inferior supplier of paid childcare within the home. By contracting
out the hard work of childcare, and by interacting with their child only in circumstances
that allow them to be indulgent, well-off parents can let the child think of the nanny as the
source of any irksome constraints.

interactions between these two selves. Paternalistic policies are designed to shift the balance of power in favour of the Planner.

This way of thinking about paternalism is fundamental to the structure of Thaler and Sunstein's (2008) influential book *Nudge*. The first chapter of this book has the title 'Biases and Blunders'. It catalogues a wide range of cases, drawn from the psychological literature on 'heuristics and biases', which demonstrate 'systematic biases in the way we think' (2008, p. 19). The organising principle of the chapter is an idea that has been proposed by distinguished psychologists – that human thinking involves two interacting systems of mental processing. The *Automatic System* (or 'System 1') is evolutionarily older. It is fast and not under conscious control. Evolutionarily, the *Reflective System* (or 'System 2') has been built to supplement the Automatic System. It is slow and under conscious control; using it is perceived as requiring mental effort (Wason and Evans, 1975; Kahneman, 2003). Dramatizing this idea, Thaler and Sunstein present the thought processes of Mr Spock in *Star Trek* as examples of the Reflective System and those of Homer Simpson as examples of the Automatic System (2008, p. 22). The biases and blunders they describe are attributed to the workings of the Automatic System.

Summarising the nudge approach that they will take in the rest of the book, Thaler and Sunstein say:

> One of our major goals in this book is to see how the world might be made easier, or safer, for the Homers among us (and the Homer lurking somewhere in each of us). If people can rely on their Automatic Systems without getting into terrible trouble, their lives should be easier, better, and longer. (2008, p. 22).

In other words, the aim of nudging is to design 'choice architecture' (the settings in which choices are made) so that people's Automatic Systems will tend to produce the same decisions as their Reflective Systems would have done, had those systems been used. Choice architecture of this kind makes human life easier, because the Reflective System requires mental effort. It makes human life safer, because the Automatic System is liable to cut in on the workings of the Reflective System, generating biases.

But what exactly do Thaler and Sunstein mean by 'bias'? The concept of bias is meaningful only in relation to some standard of correctness. In some of the cases they discuss, non-reflective thinking leads people to make *judgements of fact* that are demonstrably false. Thaler and Sunstein's opening example is of this kind – an optical illusion in which automatic mental processes generate false judgements about the relative dimensions of two shapes. But many of the cases that they classify as systematic biases and for which they recommend nudging interventions are not of this kind. They are more accurately described as systematic *context-dependence* in people's judgements about matters for which there is no objective standard of correctness – or at least, no such

standard that is accessible to the Reflective System of the person making the judgement at the time the judgement has to be made. For example, the supposed bias of loss aversion is a systematic tendency to attach a higher subjective value to a good in a choice context in which the good is 'yours' than in one in which it is not, even if 'yours' is just a matter of framing; but there is usually no correct answer to the question of what the subjective value of the good 'really' is to the person who is valuing it. It is one thing to claim that context-dependence is evidence of the workings of the Automatic System, but quite another to claim that a person's Reflective System is capable of discovering her true valuations. In such cases, libertarian paternalists' claim to be able to steer people towards choices that make them better off 'as judged by themselves' may have no clear meaning.

Faced with the problem of defining the true preferences of a person whose choices are context-dependent, libertarian paternalists often represent context-dependence as evidence of self-control problems. A person with a self-control problem has preferences that in some sense she acknowledges as truly hers, but which automatic psychological mechanisms are liable to prevent her from acting on. Her true preferences are revealed only in situations in which those mechanisms are not at work. Thaler and Sunstein follow this approach in their second chapter, 'Resisting Temptation', using an explicit dual-self model:

> Self-control problems can be illuminated by thinking about an individual containing two semiautonomous selves, a far-sighted 'Planner' and a myopic 'Doer'. You can think of the Planner as speaking for your Reflective System, or the Mr Spock lurking within you, and the Doer as heavily influenced by the Automatic System, or everyone's Homer Simpson. The Planner is trying to promote your long-term welfare but must cope with the feelings, mischief, and strong will of the Doer, who is exposed to the temptations that come with arousal. (2008, p. 42).

They point to an additional bias, which (they argue) interferes with the reasoning of the Planner. In their cool moments, most people recognise the existence of temptation, but they underestimate the effect of arousal. Thus, Planners fail to make adequate plans to frustrate Doers (2008, pp. 41–42).

As an illustration of this dual-self mechanism, Thaler and Sunstein describe a case in which 'even when we're on our way to making good choices, competitive markets find ways to get us to overcome our last shred of resistance to bad ones'. At O'Hare Airport in Chicago, a stand selling fruit and yoghurt (good) is located across a walkway from one selling Cinnabons (bad). A person's Planner sets a course for the fruit and yoghurt stand, but the oven aromas of the Cinnabon stand cause the Doer to take control and change the plan (2008, p. 49). The suggestion, I take it, is that in situations in which people

face self-control problems, libertarian paternalists should intervene on the side of Planners.

Compare this case with my example of the café proprietor. In both cases, entrepreneurship caters to the preferences of Doers rather than those of Planners. In the café case, the entrepreneur ignores plans that the Planner is currently making, instead anticipating the later demands of the Doer. If most people's Planners prefer fruit and yoghurt to cinnamon buns (which one might doubt), the business model of the Cinnabon stand does much the same. Thaler and Sunstein add the objection that the psychological cue that activates the Doer in the airport (the dispersal of the oven aromas) was deliberately designed for this purpose. But this is just a nudge; if it is objectionable, that is presumably because the customers' true preferences are deemed to be those of their Planners. Normatively, the crucial issue is whether (or in what circumstances) it is good or bad that competitive markets privilege Doers over Planners. The aim of the present paper is to show how, contrary to a common preconception in behavioural economics, this property of markets can be seen as valuable.

3   What Entrepreneurship Does: The Wine Economy

Ben McQuillin and I have used a very simple general equilibrium model to illustrate the workings of the kind of entrepreneurship that privileges the preferences of Doers (McQuillin and Sugden, 2012). We call this model the *wine economy*.

There are two time periods, 1 and 2. There are two divisible goods, *money* (good 1) and *wine* (good 2). 'Money' is interpreted as a composite of all forms of consumption other than wine. There is a large number n of identical *consumers*.[3] The economy has fixed stocks of each good. These stocks are in existence from the start of period 1 and can be stored costlessly to period 2. At the start of period 1, each consumer is endowed with (or *inherits*) claims on one unit of each good. A 'claim' on a given quantity of a good entitles its holder to consume that quantity in either period, as she chooses. There is no 'free disposal' option: all claims must be converted into consumption in one period or the other.

Since all consumers are identical, and since the trading arrangements discussed by McQuillin and me treat all consumers in the same way, the analysis is of a single representative consumer. Let h_1^1 and h_2^1 be the consumer's (non-negative) inheritances of claims on goods 1 and 2 at the start of period 1; by assumption, $h_1^1 = h_2^1 = 1$. In period 1, the consumer faces some *opportunity*

---

[3]Throughout this paper, I use the term 'consumer' as a shorthand for the class of market participants whose interests the market is supposed to serve; it includes individuals in the role of sellers of their own labour. The contrast is with individuals in the role of entrepreneur, whose actions are treated as parts of the mechanism by which the market works.

set O^1 of alternative *period-1 outcomes*, defined as tuples $(x_1^1, x_2^1, h_1^2, h_2^2)$, where x_1^1 and x_1^1 denote the (non-negative) consumption of the two goods in period 1 and h_1^2 and h_2^2 denote the consumer's (non-negative) inheritances of claims on the two goods at the start of period 2. In period 2, for any given inheritance (h_1^2, h_2^2), the consumer faces an opportunity set $O^2(h_1^2, h_2^2)$ of alternative *period-2 outcomes*, defined as pairs (x_1^2, x_2^2) where x_1^2 and x_2^2 denote (non-negative) consumption of the two goods in period 2. The *overa opportunity* available to the representative consumer over the two periods is described by the pair $(O^1, O^2[.,.])$. The n-tuple of overall opportunity pairs, one for each consumer, is the economy's *trading regime*.

Before discussing some possible regimes, I describe a feature of the model that is crucial for the analysis of entrepreneurship: the consumer's preferences with respect to period-2 consumption may be inconsistent over time. I focus on a specific case in which the consumer's plans for period-2 consumption are governed by preferences that give relatively low weight to wine in both periods, but in period 2, his choices about actual consumption are governed by preferences that give higher weight to wine.

In period 1, the consumer's choices are governed by the Cobb-Douglas utility function

$$u^1 = 0.5[0.75 \ ln(x_1^1) + 0.25 \ ln(x_2^1)] + 0.5[0.75 \ ln(x_1^2) + 0.25 \ ln(x_2^2)]. \quad (1)$$

Intuitively, he gives equal weight (represented by the 0.5 parameters) to actual consumption in the present period and to planned consumption in period 2. For both present and future consumption, the relative weights of (the natural logarithm of) period-2 consumption of money and wine are 0.75 and 0.25 respectively. Thus, when forming plans in period 1 about consumption in period 2, the consumer acts as if his preferences between the two goods will be the same in period 2 as they are in period 1.

In period 2, however, the consumer's utility function is:

$$u^2 = 0.25 \ ln(x_1^2) + 0.75 \ ln(x_2^2)]. \quad (2)$$

The relative weights of consumption of money and wine are now 0.25 and 0.75 respectively. Intuitively, the consumer's actual preference for wine relative to money is in period 2 is stronger than he expected it to be (or thought it ought to be) when forming plans in period 1.

My interest is in the form that entrepreneurship can take in this economy. To provide a benchmark, I begin by considering a regime of *spot-market trade* in which entrepreneurship is absent. In each period, there is a price at which claims on the two goods can be exchanged. Let p^1 and p^2 be the market-clearing prices of wine (expressed in units of money) in periods 1 and 2. Thus, O^1 is the set of all $(x_1^1, x_2^1, h_1^2, h_2^2)$ outcomes whose money value at the period-1 price (i.e. $x_1^1 + h_1^2 + p^1[x_2^1 + h_2^2]$) is equal to that of period-1

inheritances (i.e. $h_1^1 + p^1 h_2^1$). Similarly, $O^2(h_1^2, h_2^2)$ is the set of all (x_1^2, x_2^2) outcomes whose money value at the period-2 price is equal to that of period-2 inheritances (i.e. $h_1^2 + p^2 h_2^2$). In period 1, each consumer is assumed to act *myopically* – as if there will be no market in period 2, and hence as if $x_1^2 = h_1^2$ and $x_2^2 = h_2^2$. Since all consumers are identical, p^1 must be such that each consumer's net purchase of good 2 is zero. Given that each consumer acts on the utility function (1), this implies $p^1 = 1/3$. At this price, the representative individual's consumption plan is $x_1^1 = x_2^1 = x_1^2 = x_2^2 = 0.5$.[4] At the start of period 2, each individual holds claims on 0.5 units of each good. Again, the market-clearing price must be such that each consumer's net purchase of good 2 is zero. Given that each consumer now acts on the utility function (2), this implies $p^2 = 3$.[5] Even though the individual's preferences are not as he originally expected (or not as he thought they ought to be), the increased price of wine induces him to consume the same quantity as he originally planned.

I now consider a regime of *entrepreneurial trade*. The economy contains not only myopic consumers, but also a separate class of *traders*. Traders have no interest in consuming wine, but are alert to opportunities to make monetary profits by arbitrage and are assumed to make accurate predictions of future prices. This assumption must be understood in relation to the purpose of the model. My aim is to investigate how markets respond to consumers whose aggregate behaviour displays regularities which, even if inconsistent with standard rational-choice theory, are psychologically explicable. It does not seem far-fetched to assume that experienced traders can predict how reliable regularities in human behaviour will affect the terms on which consumers are willing to trade with them.

If there are sufficiently many traders, opportunities for arbitrage will be competed away. Thus, the equilibrium price of wine has the same value p in both periods, and traders' profits are zero. O^1 is the set of all $(x_1^1, x_2^1, h_1^2, h_2^2)$ outcomes whose money value at the market price is equal to that of period-1 inheritances. $O^2(h_1^2, h_2^2)$ is the set of all (x_1^2, x_2^2) outcomes whose money value at the market price is equal to that of period-2 inheritances.

In this competitive equilibrium, $p^1 = p^2 = 1$. In period 1, the representative individual's consumption plan is $x_1^1 = x_1^2 = 0.75$, $x_1^2 = x_2^2 = 0.25$. Acting myopically on the utility function (1), he executes the period-1 component

---

[4]In a Cobb-Douglas utility function, the weight given to the logarithm of consumption of each good represents the proportion of the individual's budget that is spent on that good. If $p^2 = 1/3$, the individual's initial endowments have a market value of $4/3$. The utility function (1) implies that this budget is divided between money and wine in the ratio 0.75: 0.25. Thus, the individual chooses to hold one unit of each good and the period-1 market clears.

[5]If $p^2 = 3$, the individual's endowments at the start of period 2 have a market value of 2. The utility function (2) implies that this budget is divided between money and wine in the ratio 0.25: 0.75. Thus, the individual chooses to consume 0.5 units of each good and the period-2 market clears.

of this plan and acquires holdings of the two goods that are consistent with the plan's period-2 component. Thus, at the start of period 2, he holds claims on 0.75 units of money and 0.25 units of wine. Acting on the utility function (2), he then buys additional wine; his actual consumption is $x_1^2 = 0.25$, $x_2^2 = 0.75$.[6] Relative to the case of spot-market trade, less wine (and more money) is consumed in period 1, and more wine (and less money) is consumed in period 2.

Think about what the traders are doing here. At the end of period 1, they collectively hold claims on $0.5n$ units of wine, for which they have given up claims on $0.5n$ units of money. They have taken positions that are short on money and long on wine. (Imagine that they have paid for the wine by issuing promissory notes.) In period 2, they unwind these positions by making offsetting trades. Their actions have anticipated and ameliorated what would otherwise have been an unexpected scarcity of wine in period 2.

Now look at this from the viewpoint of the representative consumer. In period 1, he chose to sell claims on 0.5 units of wine in return for 0.5 units of money. In period 2, he chose to sell claims on 0.5 units of money in return for 0.5 units of money. If we think of the traders as mediating exchanges of goods between consumers, the exchange that was mediated was between each consumer in period 1 and *the same consumer* in period 2.

This thought might suggest a model in which each consumer has two *selves*, a 'period-1 self' and a 'period-2 self', each of which is treated as if it were a separate person with independent moral status. Such a model, one might think, would provide a way of using an extended version of the Pareto-optimality criterion to assess alternative outcomes for the wine economy.[7] But the relationship between the consumer in the two periods is not that of two separate agents who interact only through voluntary exchange. The consumer's holdings of claims at the start of period 2 depend on the decisions he takes in period 1. If we think in terms of two selves, each with its own preferences over time-profiles of consumption, the relationship between those selves is not entirely voluntary: the actions of the period-1 self have externalities (sometimes called 'internalities' in this context)[8] on the period-2 self.

---

[6]At the start of period 1, the individual's endowment has a market value of 2. The utility function (1) implies that proportions 0.375 (i.e. 0.5×0.75) and 0.125 (i.e. 0.5×0.25) of this budget are spent on period-1 consumption of money and wine. At the start of period 2, the individual's holdings have a market value of 1. The utility function (2) implies that this budget is divided in the ratio 0.25:0.75 between money and wine.

[7]Models in which a 'planning self' and an 'impulsive self' have independent moral status are often used for the normative analysis of self-control problems. One of the earliest such models was used by Edward McClennen (1990) to argue that, if there are costs to the use of commitment devices which constrain later choices, 'resolute choice' (i.e. forming a resolution and then sticking to it) can provide a solution to self-control problems that benefits both selves.

[8]The concept of 'internality' is due to Herrnstein *et al.* (1993).

McQuillin and I propose a different way of understanding the sense in which the exchange between the consumer in periods 1 and 2 is voluntary. On this view, the consumer over time is a single unit of agency – the *continuing person*. What the continuing person prefers is the composition of what the actual consumer prefers in each period; what the continuing person chooses is the composition of what the actual consumer chooses in each period. This idea can be represented by treating the continuing person as made up of a self that is active in period 1 (*Self 1*) and a self that is active in period 2 (*Self 2*). Rather than having potentially conflicting preferences with respect to a common set of alternative outcomes, each self recognizes that it has a distinct *area of responsibility*. Self 1 is responsible for decisions that are taken in period 1; in making these decisions, it recognises that Self 2 has authority to act as it sees fit in period 2. Self 2 is responsible for decisions that are taken in period 2; it recognises that Self 1 had the authority to act as it saw fit in period 1. As a continuing person, the consumer identifies with the decisions of both selves.

Given this approach, the concept of a self's preferences should be defined in relation to things that lie within its area of responsibility – things that can be objects of choice *for it*. For Self 1, the objects of choice are the things that can be elements of O^1, i.e. alternative combinations of period-1 consumption and period-2 inheritances. For Self 2, the objects of choice are the things that can be elements of $O^2(h_1^2, h_2^2)$, i.e. alternative combinations of period-2 consumption. We can rationalize the choices of the myopic consumer in terms of the preferences of the two selves. Self 1's preferences are represented by the utility function:

$$v^1 = 0.5[0.75 \ln(x_1^1) + 0.25 \ln(x_2^1)] + 0.5[0.75 \ln(h_1^2) + 0.25 \ln(h_2^2)]. \quad (3)$$

Self 2's preferences are represented by:

$$v^2 = 0.25 \ln(x_1^2) + 0.75 \ln(x_2^2)]. \quad (4)$$

The two selves participate in an exchange that is mediated by traders. Self 1 sells claims on 0.5 units of wine to Self 2 in return for 0.5 units of claims on money. Self 1 chooses to sell; Self 2 chooses to buy. Since the continuing person is the composition of the two selves, he chooses *both* to sell in period 1 *and* to buy in period 2. Entrepreneurship has enabled the continuing person to act in accordance with his preferences in each period.

4   Entrepreneurship and Opportunity

Under the regime of entrepreneurial trade, the consumer has the opportunity to achieve (and in fact, does achieve) the period-1 outcome $(x_1^1, x_2^1, h_1^2, h_2^2) = (0.75, 0.25, 0.75, 0.25)$ followed by the period-2 outcome $(x_1^2, x_2^2) = (0.25, 0.75)$.

This combination of opportunities is not available under the regime of spot-market trade. In this respect, entrepreneurship has provided the consumer with an additional opportunity.

This is one implication of a more general proposition, which applies to the general class of 'storage economies' to which the wine economy belongs. In competitive equilibrium, consumers collectively have *every* opportunity for feasible voluntary exchanges that, given the preferences of their component selves, they collectively want to use. This proposition, which I will call the Market Opportunity Result, is given a precise formulation and proved by McQuillin and Sugden (2012).[9] Here, I explain the intuition behind the claim, as applied to the wine economy.

Suppose that, in both periods, consumers have been able to trade at (and only at) the market-clearing price p. Each consumer's Self 1 has maximized the utility function (3), given its period-1 inheritances. Each consumer's Self 2 has maximized the utility function (4), given the period-2 inheritances chosen by Self 1. Now imagine that some individual consumer Charlie complains that he was deprived of the opportunity to achieve, through feasible voluntary exchanges with other consumers, some particular combination $\underline{\mathbf{x}} = (\underline{x}_1^1, \underline{x}_2^1, \underline{h}_1^2, \underline{h}_2^2, \underline{x}_1^2, \underline{x}_2^2)$ of period-1 consumption, period-2 inheritances, and period-2 consumption that he (as a continuing person) wanted to achieve. Is this complaint valid?

The complaint must take one of two forms. *Case 1* is that Charlie wanted to achieve the period-1 outcome $\underline{\mathbf{x}}^1 = (\underline{x}_1^1, \underline{x}_2^1, \underline{h}_1^2, \underline{h}_2^2)$, but lacked the opportunity to do so. Had he had this opportunity and taken it, he would have wanted to achieve the period-2 outcome $\underline{\mathbf{x}}^2 = (\underline{x}_1^2, \underline{x}_2^2)$. *Case 2* is that in period 1 he had the opportunity to achieve $\underline{\mathbf{x}}^1$, but had he taken it, he would have wanted to achieve $\underline{\mathbf{x}}^2$ in period 2 and would have lacked the opportunity to do so.

Consider Case 1. For any array Q of quantities of goods, let $w(Q)$ be the total market value of the goods specified by that array, calculated at the equilibrium price p. In period 1, Charlie was free to choose any period-1 outcome $(x_1^1, x_2^1, h_1^2, h_2^2)$ such that $w(x_1^1, x_2^1, h_1^2, h_2^2) = w(h_1^1, h_2^1)$. He is claiming that $\underline{\mathbf{x}}^1$ was not available to him, and that his Self 1 weakly preferred $\underline{\mathbf{x}}^1$ to each of the actually available period-1 outcomes. Since Self 1's utility is increasing in period-1 consumption of money, this implies $w(\underline{x}_1^1, \underline{x}_2^1) + w(\underline{h}_1^2, \underline{h}_2^2) > w(h_1^1, h_2^1)$. Charlie is also claiming that his Self 2 weakly preferred $\underline{\mathbf{x}}^2$ to every period-2 outcome that would have been available to him on the market, had his period-2 inheritances been $(\underline{h}_1^2, \underline{h}_2^2)$. Since Self 2's utility is increasing in period-2

---

[9]The result I have just stated, and which I will use in this paper, is weaker than the Market Opportunity Result proved by McQuillin and me. The latter result states that, in any market-clearing equilibrium of a storage economy, the set of all consumers has every opportunity for feasible voluntary exchanges that those consumers might want to use, whatever their preferences. In effect, the only restriction imposed on preferences is that each self prefers more money to less.

consumption of money, this implies $w(\underline{x}_1^2, \underline{x}_2^2) \geq w(\underline{h}_1^2, \underline{h}_2^2)$. Putting these implications together, $w(\underline{x}_1^1, \underline{x}_2^1) + w(\underline{x}_1^2, \underline{x}_2^2) > w(h_1^1, h_2^1)$. In other words, Charlie is complaining that, over the two periods, he was not able to consume a combination of goods that had a higher market value than his period-1 inheritance. An analogous analysis of Case 2 leads to the same conclusion.

Remember that Charlie's complaint is that he did not have the opportunity to achieve **x** through feasible voluntary exchanges with other consumers. Thus, he is claiming that some other consumer or consumers would have been willing to take the other sides of the buying and selling transactions by which (had the opportunity to make these transactions been available)he would have achieved **x**. But my analysis of Charlie's transactions applies to their transactions too. Given that each of them had the opportunity to trade at market prices, none of them would have been willing to take part in transactions that resulted in consumption with a lower market value than their period-1 inheritances. So Charlie's complaint is *not* valid. The implication is that competitive equilibrium provides consumers with every opportunity for feasible voluntary exchanges that they collectively want to use. This is the Market Opportunity Result.

Here is another way of saying the same thing. Let us say that a person is *willing to pay for* a particular good at a particular time if, at that time, he is willing to give up what would induce other people, or himself at another point in time, to supply it. In competitive equilibrium, the following is true: *Every consumer has the opportunity to get whatever he wants and is willing to pay for, when he wants it and is willing to pay for it.*

The derivation of the Market Opportunity Result uses two properties of competitive equilibrium. In essence, these properties correspond with what have traditionally been called the Law of One Price and the Law of Supply and Demand. In the case of the wine economy, the first property is that there is a single price at which wine can be exchanged for money in both periods. The second is that, over the two periods taken together, consumers' net demands for wine, given this price, sum to zero. The mechanism by which these two properties are satisfied is one of entrepreneurship: each trader acts on the principle of trying to earn profits by intermediating exchanges between willing consumers.

5 What Entreperneurship Does: Dupuit's Bridge

As a supplement to the preceding general equilibrium model, I present a partial-equilibrium example of entrepreneurship in a natural monopoly market that is subject to public regulation. This case is loosely adapted from a famous example in the founding text of cost-benefit analysis, Jules Dupuit's (1844/1952) 'On the measurement of the utility of public works'. An en-

trepreneur is proposing to build a bridge over a river and to charge tolls for crossing it. Most of the costs of the bridge will be incurred before it is capable of carrying traffic. The entrepreneur's plan is to raise the necessary capital by issuing bonds which, over the life of the bridge, will be redeemed from toll revenue. For the project to go ahead, it must be approved by some body of 'legislators'.

Dupuit's recommendation to the legislators is that they should approve the project provided that the tariff for the use of the bridge is set 'according to rational principles, in order to produce the greatest possible utility and at the same time a revenue sufficient to cover the cost of upkeep and interest on capital' (p. 271). A 'rational' tariff uses price discrimination: those customers who are willing to pay most should be charged most. Ideally, no one who is willing to pay more than marginal cost should be deterred from using the bridge. Total revenue should be just sufficient to cover total costs. To the puzzlement of some later readers, Dupuit uses the concept of 'utility' without linking it either to hedonic satisfaction or to rational choice. He says that the 'variable, yea mobile, nature of the value of utility' is well known to merchants, who exploit it by using types of price discrimination which set 'traps for the buyer's vanity and his credulity'. He declares categorically that 'the only real utility is that which people are willing to pay for' (pp. 260–262).[10]

Think what Dupuit's regulated entrepreneur is doing. In the initial stage of the project, she is contracting with bondholders who will pay her money in the present in return for her promises to repay with interest later. She is trading with constructors who are building the bridge in return for present payments of money. She is *expecting* that, in the future, she will be able to trade with people who are willing to pay to use the bridge on terms that will generate enough revenue to redeem the bonds. Presumably, these expectations are based on her general knowledge about the determinants of the demand for travel in the area. But she cannot predict the specific occasions on which specific individuals will use the bridge. Nor, for the most part, can these occasions be predicted by the individuals themselves. Quite possibly, these individuals currently under-predict how much they will use the bridge. (If the bridge reduces the cost of crossing the river, new economic activities will develop, creating new demands for crossings. Potential bridge-users have much less incentive than the entrepreneur to try to predict these developments.) If the entrepreneur's tariffs will be designed to exploit the 'mobile' nature of willingness to pay, we must assume that, even after the bridge is built, the customers' preferences may be inconsistent over time and across decision contexts. Nevertheless, if her expectations prove correct, she will have intermediated exchanges between individuals (bridge users, constructors and bondholders) who, *at each point in time*, participated voluntarily. If entrepreneurs in general are alert to profit

---

[10]For more on Dupuit's concept of utility, see Sugden (2015).

opportunities, and if Dupuit's 'rational principles' are interpreted as allowing entrepreneurs some 'normal' profit, those principles establish an institutional framework in which, to a reasonable approximation, individuals are able to get what they want and are willing to pay for, when they want it and are willing to pay for it.

6   Mutual Advantage

I have investigated two simple models of how markets work when the actions of individual consumers over time may fail to express consistent preferences (consistent, that is, in terms of the rationality assumptions used in neoclassical economic theory). I have identified a mechanism of entrepreneurship that is fundamental to competitive markets and that can be approximated in regulated ones. This mechanism engages only with the preferences that consumers express as Doers – that is, as actual buyers and sellers of goods at the moments at which they buy and sell. It takes no account of whether the actions of a consumer at one point in time are consistent or inconsistent with the actions of the same consumer at another. Nor does it take account of any plans that consumers form prior to buying and selling, except in so far as those plans are predictive of actual buying and selling decisions. As viewed by each entrepreneur, the mechanism is that of seeking to make profits through intermediating transactions between willing consumers.

I have argued that the effect of entrepreneurship is to provide consumers with every opportunity for feasible voluntary exchanges that they collectively want to use. In this sense, entrepreneurship ensures that the market is a system of mutual advantage for consumers. For each consumer, the concept of 'wanting' to participate in a set of exchanges is defined from the perspective of a continuing person who identifies with all her past, present and future preferences as a Doer. If you (as a consumer) take this perspective, you can recognise that, within the constraints imposed by your own endowments and by other people's preferences as Doers, the market works to your advantage. What it allows you to achieve over time is not what you now want as a Planner; it is what you *wi* want as a Doer whenever a time for Doing arrives.

If a competitive market is a system of mutual advantage for consumers, it is not self-evident that the entrepreneurs whose actions make this true are acting on intentions for self-interest. As Luigino Bruni and I have argued, people can and sometimes do engage in market transactions with the intention of playing their parts in the achievement of mutual benefit (Bruni and Sugden, 2013). Take the café proprietor of my opening example. She *might* see her business simply as a means to making profit; but she might equally well have a different understanding of what she is doing. Her intention in business might be that, through supplying her customers with what they want and are willing to pay

for, she creates benefits both for herself and for them. But on neither account is she paternalistic. She is not concerned with what consumers, thinking ahead about what they might buy or sell in the future, now want as Planners. Her aim is to be ready to trade with them whenever they are willing to do so on terms that will also be advantageous to her.

References

Bruni, L. and R. Sugden. 2013. "Reclaiming virtue ethics for economics". *Journal of Economic Perspectives*. 27: 141–164.

Buchanan, J. 1986. *Liberty, Market, and State*. Brighton: Wheatsheaf.

Dupuit, J. 1844/1952. "On the measurement of the utility of public works". *International Economic Papers*. 2(1952): 83–110. Translated by R.H. Barback. First published in French in 1844. (Page references to reprint in *Cost–Benefit Analysis*, edited by Richard Layard. Penguin, 1973.)

Herrnstein, R., G. Loewenstein, D. Prelec, and W. Vaughan. 1993. "Utility maximization and melioration: internalitites in individual choice". *Journal of Behavioral Decision Making*. 6: 149–185.

Infante, G., G. Lecouteux, and R. Sugden. 2016. "Preference purification and the inner rational agent: a critique of the conventional wisdom of behavioural welfare economics". *Journal of Economic Methodology*. 23: 1–25.

Kahneman, D. 2003. "A perspective on judgment and choice: mapping bounded rationality". *American Psychologist*. 58: 697–720.

Le Grand, J. and B. New. 2015. *Government Paternalism: Nanny State or Helpful Friend?* Princeton, N.J.: Princeton University Press.

McClennen, E. 1990. *Rationality and Dynamic Choice: Foundational Explorations*. Cambridge: Cambridge University Press.

McQuillin, B. and R. Sugden. 2012. "How the market responds to dynamically inconsistent preferences". *Social Choice and Welfare*. 38: 617–634.

Mill, J. S. 1859/1972. *On Liberty*. London: Dent.

Sugden, R. 2015. "Consumers' surplus when individuals lack integrated preferences: a development of some ideas from Dupuit". *European Journal of History of Economic Thought*. 22(2015): 1042–1063.

Sugden, R. 2017. "Do people really want to be nudged towards healthy lifestyles?" *International Review of Economics*. 64: 113–123.

Sugden, R. 2018. "'Better off, as judged by themselves': a reply to Cass Sunstein". *International Review of Economics*. 65: 9–13.

Sunstein, C. 2018. "Better off, as judged by themselves: a comment on evaluating nudges". *International Review of Economics*. 65: 1–8.

Sunstein, C. and R. Thaler. 2003. "Libertarian paternalism is not an oxymoron". *University of Chicago Law Review*. 70: 1159–1202.

Thaler, R. and C. Sunstein. 2008. *Nudge: Improving Decisions About Health, Wealth, and Happiness.* New Haven, CT: Yale University Press.

Wason, P. and J. Evans. 1975. "Dual processes in reasoning?" *Cognition.* 3: 141–154.