Lifestyle Changes and the Lifestyle Selection Process

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Abstract

This paper presents an analysis of barriers to the uptake of eco-friendly ways of life that is based upon an evolutionary complex systems approach to the workings of the mind and the choices that people make. It questions the effectiveness of price-based policies for promotion change and emphasizes the role of non-price factors and complementarities in choice. Inducing behaviour change may therefore requite ensuring consumers' lifestyle prerequisites are met. In the light of Hayek's (1952) *The Sensory Order*, the paper examines the systematic processes by which cognitions are formed and minds evolve, and potential for inducing changes via policy measures that aim to derail stereotypical lines of thinking. Though the paper's theoretical perspective differs from the behavioural economics that underpins the 'Nudge' approach to policy, the paper's analysis is intended to be complementary with the 'Nudge' approach.

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1. Introduction

It is not always clear to consumers whether their choices are limiting or worsening their impact on the environment. For example, switching to reading books via a Kindle or iPad will reduced paper consumption and the environmental costs associated with airfreighting books to consumer, but paper serves as a carbon sink whereas electronic devices require energy and their production requires energy and outputs from mining. Such uncertainties may result in unjustified preferences for the status quo instead of leading to efforts to uncover clear bases for eco-friendly choices. But there are many choices that clearly can make a significant difference to our ecological footprint. For example, we can:

- Choose not to have (so many) children, since bringing up children will consumer resources and once grown up they will become consumers and possibly create yet more consumers.
- Switch to a vegan diet, thereby not merely reducing animal exploitation but also potentially reducing the land area required to generate one's food supply (since it is more efficient to eat grain directly than eat meat from livestock that have been fed on grain) and reduces net emissions (by reducing deforestations to create pastures and by reducing the amount of methane generated by farm animals).
- Choose not to have pets, since cats and dogs are carnivores and, more generally, the production of pet-food uses up land that could have provided habitat for a more diverse set of wild species.

- Embrace more communal forms of living, for example, by opting to live in a townhouse or apartment complex rather than a standalone property, or even join co-housing communities in which household capital items and chores are shared (cf. the discussion of communal living in Denmark in Roko Belic's (2011) documentary film *Happy*).
- Do not take holidays on cruise liners, as many tons of ship have to be moved for each passenger, resulting in appalling fuel consumption (according to *Wikipedia*'s entry on the Queen Mary 2, at cruising speed, the 148,528 ton liner consumes 6 tons of marine fuel per hour whilst transporting up to 2620 passengers), and they also cause major local pollution even when in port (see Connolly, 2015).
- Cut back on air travel, for example by avoiding holidays that require it, and by making more use of Skype to keep in touch with distant friends and relatives. Although the most efficient modern jet airliners can average over 100mpg per passenger, a couple taking a road trip-based vacation in a fuel-efficient vehicle are likely to use less fuel than if they fly to a vacation destination, since the distances travelled in the former case is likely to be shorter.
- Downsize our (fleets of) vehicles, make more use of public transport, cycling and walking, and rent vehicles with inherently poor fuel consumption (such as large 4WDs) on occasions where their specific capabilities are needed (such as when actually venturing off sealed roads in remote areas).

- Become self-sufficient in electricity by installing solar/battery power generation/storage systems and eschew installing air-conditioning systems until one has done this.
- Switch to part-time work, swapping income and material goods for more leisure time with friends and family.
- Extend our 'recycling' to include disposing of things that we would otherwise merely be hoarding for potential uses that rarely or never materialize. Using online social networks and markets to dispose of unneeded durables will reduce the demand for newly produced goods as well as making our homes less cluttered and making it easier to downsize.

Some of these changes involve trying to live more as earlier generations did, without access to forms of consumption that modern consumers take for granted or aspire to enjoy. But if the 'happiness economics' research is to be taken seriously (for example, Easterlin, ed., 2002; Layard, 2011), consumers that implemented these changes could end up just as happy, or even happier than they otherwise would have been. Yet if we reflect on our own behaviour and that of people we know, it is clear that the report card must be marked 'could try much harder in this area'. These changes do not require consumers to have the intellectual capacities of a rocket scientist, merely to ask the question 'how can I reduce my ecological footprint?' and then to act mindfully once armed with the basic knowledge. If these changes are not made voluntarily by large numbers of consumers in the near future, compulsion may eventually be necessary to save the plant from the excesses that result from leaving people 'free to choose'.

In this paper I offer an evolutionary economics perspective on what is happening, on whether we will see rapid moves towards making life on earth sustainable, and on policies that could be used to speed up these changes. To make my perspective as comprehendible as possible to those who are not familiar with the evolutionary approach to economics, and to foster a pluralistic approach to policy design, section 2 presents my interpretation of how orthodox economists (including modern behavioural economists) tend to make sense of environmentally profligate consumer behaviour. Section 3 begins to offer the evolutionary perspective by presenting its view of choice in terms of 'complex systems' and contrasting this view with conventional analysis. Section 4 considers how some common organizing principles that consumers use when constructing their lifestyles have damaging environmental consequences. Section 5 examines cognitive processes that determine the openness of consumers to changing their lifestyles and shows how people can gradually become open to changes that once they would have found hard to contemplate. Section 6 offers a concluding discussion.

2. The conventional economic wisdom on consumption and the environment

The dominant approach to analysing consumer behaviour views choice as an act of constrained optimization. It presumes that consumers can compare any pair of rival bundles of goods and services and say which they view as the best bundle or whether they are indifferent between them. From this standpoint, a person's lifestyle is nothing more than the set of products he or she chooses to consume. Though the formal focus is on preference orderings in terms of rival *bundles* of

products, the analysis offers a one-level, reductionist view of choice in which *individual products* can in principle be added to, or deleted from, the set consumed in favour of, or in deference to, any other single good or set of other goods (including cash or a cash adjustment). All that is necessary for changes to be made is a change in relative prices, or in access to information, that results in consumer judging that an improvement in their wellbeing will result if they change what they are doing.

The mathematical concept of a 'corner solution' is the standard means for making sense of cases in which a consumer purchases zero units of a commodity. However, the theory predicts that, if the price of a product is reduced further and further there will eventually be a price at which the consumer starts buying this product. Failure to purchase a product is thus always viewed as arising because its price is 'not right' rather than because, in some sense, the consumer 'doesn't like it'. Furthermore, the orthodox analysis is not actually concerned to understand consumers as 'individuals'; its aim is merely to understand aggregate behaviour. Consequently, theoretical models are typically set up in terms of a 'representative consumer' whose utility function has a shape that precludes corner solutions: the representative consumer is, in effect, the weighted average consumer, who chooses a bit of everything that has a market price.

The orthodox view regards environmentally destructive behaviour as resulting from relative prices that fail to align private costs with social/environmental costs, or from consumers being poorly informed about how their current actions conflict with their longer-term interests. The solution is thus to engineer the right set of prices and/or provide appropriate information. This approach to policy is applied even with an issue such as

human-induced global warming, where free-riding by selfish consumers may result in insufficient change even where the community is well informed about the dangers of the status quo. Here, the solution is seen as a matter of tilting relative prices, as with the use of carbon taxes. The general approach is to leave people free to choose rather than to try to engineer environmentally-friendly behaviour by using propaganda or by regulating what people can do, say, via emission limits for cars or by cutting the number of parking spaces and/or maximum parking time. By instituting policies that align marginal private costs of using resources with the wider social and environmental costs of using them, marginal benefits will end up being equated with marginal social/environmental costs and 'deadweight losses' are minimized.

If policymakers try to alleviate environmental pressure by, say, reducing the price of using public transport relative to the cost of undertaking the same journey by car, some people may switch in response to small relative changes, but others might hold back unless large relative price changes are engineered. Ultimately, though, the standard prediction is that everyone has a price at which they will switch.

Where people fail to switch in favour of a product even if it is being provided 'for free', this is not seen as an anomaly in terms of the conventional analysis. Rather, it is to be taken as a sign that they still view the product as having some kind of cost that makes it unattractive. For example, travelling by 'free' public transport might take longer than by car and thereby require the sacrifice of leisure by those who use public transport. If so, the key for the policymakers is to find a way of tilting the relative price yet further in terms of this wider view of the trade-offs that consumers see themselves as making. For

example, policymakers might speed up public transport by introducing bus-only traffic lanes, or make motoring more expensive at the margin via higher excise duties on fuel or higher parking fees..

The kind of behavioural economics that is rapidly becoming part of the mainstream toolkit provides a modified view of all this, a view that is simultaneously more pessimistic (regarding behaviour in the absence of policy interventions) and more optimistic (regarding the potential impact of policy interventions). Either way, added insight comes from taking account of behavioural research that is taken as demonstrating that humans are 'predictably irrational' (Ariely, 2009) as a result of using decision-making heuristics that generate systematic behavioural biases.

On the pessimistic side, behavioural economics leads one to recognize that consumers may fail to make adjustments due to factors such as:

- *Being prone to procrastination due a human tendency to discount the future hyperbolically rather than exponentially* (Ainslie, 1992; O'Donoghue and Rabin, 1999). As a 'planner', a person may be able to see the long-term benefits from changing their behaviour but, as a 'doer', the same person may be prone to give undue weight to immediate costs and benefits relative to those that lie further into the future. The person may thus choose to the status quo today whilst resolving to change their behaviour in the future. The trouble is, when the future materializes, the change will once again seem less appealing than actions whose benefits are skewed towards the present and whose downsides lie further away. For example, as a 'planner', the consumer might decide to start trying tomorrow to get fit enough to cycle to work,

whilst as a 'doer' deciding to watch TV this evening rather than having a workout—with this all being repeated when tomorrow comes. This line of thinking can be extended to analyse failure to stick at new kinds of behaviour, such as 'back-sliding' into using one's car to get to work on the basis that today a special reason applies to justify not cycling.

- *Being prone to suffer from the 'endowment effect' due to loss aversion* (Kahneman, 2011, chapter 27). Economic analysis has traditionally framed choices as if consumers are interested in the absolute amounts of the things (or product characteristics) that make up the bundles between which they are choosing. However, from the work reported by Kahneman, it appears that consumers assess rival bundles in terms of prospective gains and losses relative to what they already have, with a loss of a given amount being seen as only worth incurring if offset by a gain valued a couple of times that amount. This results in choices becoming path-dependent, with people being willing to take risks to avoid having to realize losses on their past choices. So, for example, if a policy intervention causes a fall in the price of gas-guzzling vehicles, owners of gas-guzzler are likely to carry on using them rather than dispose of them and thereby realize large capital losses, even if they would chosen to buy a less profligate vehicle if their gas-guzzler were stolen or written off in an accident.
- *Being prone to arrive at decisions on the basis of poor guesses and/or inappropriate probability estimates that are the result of failures of logic and/or a lack of statistical expertise.* The 'MPG illusion' identified by Larrick and Soll (2008) provides the classic environmental economics example of what happens when people make guesses rather than taking time to do

simple calculations. They asked subjects to consider a consumer who runs two vehicles, one that gets only 12mpg and the other that achieves 34mpg. If the consumer covers 10,000 miles a year in each vehicle and has the choice of replacing the former with a vehicle that could do 14mg rather than replacing the latter with one that could get 50mpg, which switch of vehicles would save the most fuel? Most people guess wrongly and say that the car that gets 34mpt should be replaced, not the 12mpg gas-guzzler, basing their answer on the differences between current and prospect mpg figures.

On the optimistic side, modern behavioural economics points towards additional avenues for policy in terms of 'nudges'. The liberal paternalism agenda of Thaler and Sunstein (2008) is based on the view that if we understand how less than fully rational behaviour is produced by heuristic and biases, we can induce changes in consumer behaviour that will enhance wellbeing without any need to impose the heavy hand of the State. Instead of making certain kinds of behaviour compulsory, the State can try to steer choices in a desired direction by managing how alternatives are presented to consumers. For example, people can be nudged in the direction of a vegan diet in public canteens by presenting them with attractive-looking vegan options at eye level, with consumers then having actively to look elsewhere in the display cabinet for meat-based meals. From the 'nudge' standpoint, the key is how options are framed in cognitive terms, not their inherent qualities. Thus to deal with the Larrick and Soll's 'MPG fallacy' and nudge people in the right direction when they are managing their household vehicle fleets, it might merely be necessary to require that fuel

economy measures are presented in terms of gallons or litres per 100 miles, rather than in miles per gallon or litre.

3. The architecture of everyday life

Thaler and Sunstein frequently characterize their 'nudge' approach to policy design as entailing the manipulation of the 'choice architecture' faced by consumers. In doing so, they are using the term 'architecture' to connote the style of presentation of options to the consumer, as with what is presented as the default option, or at eye-level. By contrast, the evolutionary approach to consumer behaviour views 'architecture' as connoting the design of complex structures or systems that consumers construct as means for coping with life. The two approaches should be viewed as complementary for policy-making purposes even though the evolutionary perspective leads to a very different view of why consumers may be failing to switch to more eco-friendly ways of life despite not lacking information about the potential consequences of not changing their behaviour.

The evolutionary view leads to the conclusion that change may be resisted, not because incentives are weak but because making the change would compromise the architecture of a system the consumer has created. Indeed, market price may not even be figuring in the consumer's choice process; rather all the focus may be on non-price factors. For example, a 'soccer mom' may drive her children to after-school activities not because the marginal cost of running her vehicle on these journeys is cheaper than the cost of bus tickets but because it is logistically impossible for her to use public transport to get her children to their venues at the required times. Making bus tickets cheaper than the marginal

cost of using her car will not solve her logistical problem; what she requires are buses that run sufficiently frequently. Policy initiatives that ensure particular system prerequisites are met may fail if consumers, in effect, make their choices on the basis whether or not entire sets of requirements are satisfied. For example, to get people to switch to cycling may not merely require the provision of cycle-lanes to make cycling seem safe enough; it may also require the provision of facilities for showering at workplaces and for secure storage of bicycles. Trying to nudge consumers into cycling by policies that frame it as healthier and no slower than using one's car may gain little traction, despite investments in making roads better for cyclists, if these other requirements for cycling are no also met. Where mainstream economics focuses on substitution in its reductionist way and gives scant attention to complementarities, the evolutionary approach is viewing complementarities as central to the choice problem and as crucial determinants of willingness to make substitutions.

The evolutionary perspective thus sees system-driven choices as determining differences in price elasticity of demand between products (Earl, 1986a); that is to say, it offers a theory of price elasticity of demand whereas the traditional perspective has merely offered a means for measuring it. Policies that significantly raise the prices of products that have negative environmental implications may fail to induce many to change their behaviour if the products are commonly seen as system prerequisites: rather than give up a significant system, the consumer may simply accept the increased cost of its necessary ingredient. If the lack of demand for something is driven by system requirements rather than relative prices, the solution requires finding a means to meet those requirements rather than a change of relative prices. The good news is that, if

many choices are choices between rival systems and eco-friendly systems are being rejected because they lack something that is seen as a crucial ingredient, then investment in overcoming the specific problems may have spectacular payoffs.

As with the behavioural economists' view of loss aversion, the evolutionary economist accepts that choices are made in the context of past accumulations of assets rather than each day entailing merely the choice of a bundle of perishable consumables. However, the evolutionary economists' approach again focuses on the possibility that changing one thing may require changing many other things that are part of the consumer's life. These 'many other things' may not merely be physical assets but also elements of the way the consumer thinks. On the evolutionary view, loss aversion is not simply a commonly observed human trait but something that may be usefully viewed as driven via the prospect of the 'dislocation effect' (Richardson, 1960, pp. 178–80) that arise from the structural complexity of physical and cognitive systems that consumers create for coping with everyday life.

In the evolutionary economics view of the consumer, a lifestyle is thus viewed not as a bundle of unconnected assets and activities but as a system of connected assets and activities that results from choices that are constrained by the consumer's cognitive system for making sense of the world. Consider how people furnish their homes: they normally do not seem to do this in an unstructured manner that causes them to end up with rooms containing haphazard jumbles of items from different eras and styles; rather, they methodically attempts to construct some kind of coherence, order and consistency of style. If is as if their choices are based on sets of organizing

principles. So, too, with the designs of their gardens, the outfits they wear, and so on.

The work that introduced this view of lifestyles to economics was by Earl (1986b) but his thinking drew on an earlier tradition from marketing, known as 'psychographics' (Wells, 1975) that used research methods from personal construct psychology (beginning with Kelly, 1955) to segment populations into groups of consumers with roughly similar patterns of choices based on broadly similar ways of viewing the world. Central to the personal construct theory approach to how people think is the idea that people organize their views of the world in a hierarchical manner, with some ideas being accorded 'core' status and being used as foundations for constructing interpretations of incoming stimuli and for forming expectations. That this is what people do is acknowledged in the cliché of a person's life being said to 'revolving around' a particular idea or assumption—just as mainstream economics 'revolves around' the core proposition that every act of choice should be viewed 'as if' it is an act of constrained optimization. A system collapses if it loses any of its core ingredient, but it can remain recognizably the same system if peripheral components are removed or replaced by other peripheral elements that are not at odds with the core. The 'soccer mom's' lifestyle is thrown into disarray (along with the hopes she has for her children) if she is deprived of her vehicle. Moreover, if she makes her self-image depend on her sense of status, only a select set of brands will be acceptable to her. Thus she may be rather indifferent between SUVs by Lexus, BMW, Audi and Mercedes-Benz but would regard having to drive, say, a Toyota or Mitsubishi or Kia as a major blow to her pride as it would take her into a lower social league.

Viewing lifestyles in terms of complex systems in which some elements are 'core' and others are 'peripheral' makes it easy to appreciate why some kinds of changes cause great distress and others cause rejoicing. Success with an examination may causes rejoicing because it is a prerequisite for achieving many things that a person has envisaged in their 'ideal self' construct. By contrast, losing one element to a system may spoil it much in the way that if one removes one of the key ingredients of an aeroplane—wings with aerofoil profiles, movable control surfaces for up/down and left/right, or forward motion from an engine—it ceases to be a viable aeroplane that has the 'emergent' capacity of being able to be flown in a controlled manner. There is a famous line from the Coen brother's (1998) movie *The Big Lebowski* that captures this perfectly, in the context of interior design: the destruction of a lounge rug during a home invasion causes grief on a scale that makes little sense in terms of conventional economics but is readily understandable from the evolutionary perspective on lifestyles, for 'That rug really tied the room together'.

The distinction between the evolutionary and mainstream views of consumer behaviour can be drawn formally in terms of graph theory (Potts, 2000). The mainstream way of modelling approaches economics from the standpoint of field theory, with a 'field' being a system that has no distinct architecture because every element is connect to every other element. This is why it leads to the conclusion that people will always substitute amongst goods, sooner or later, as relative prices are tilted: its representative agents are not committed to specific products with an absolute aversion to others. By contrast, a complex system has a definite architecture because connections between system elements are specific and incomplete. It is this incompleteness and

specificity of the links that presents barriers to change, but the lack of flexibility of lifestyle systems that gives individuals their integrity and character. For example, one is a vegan or vegetarian on principle, not because of the price of meat and fish relative to vegetables. Likewise, a 'soccer mom' earns her label because of the consistency in her behaviour that her organizing principles produce; she does not veer between being obsessed with giving her children opportunities one day and being a neglectful slut the next. Owing to the ways in which people organize their constructs, there are many things that they 'don't like': they see these things as having features that are at odds with their views of their world, and possibly the mere thought of consuming them invokes a visceral kind of response.

It may at first sight seem odd to propose that people choose to structure their lives around personally constructed constraint that limit their openness to possible courses of action and produce what conventional theorists would see as preference discontinuities. But there are good evolutionary reasons for humans to have ended up making their lives revolve around restricted sets of core ideas about themselves, the nature of the world, and how to cope with life. For one thing, it limits the costs caused by coordination failures, as the core principles a person uses makes their behaviour more predictable to others (including to firms that undertake psychographic research). This assisted human evolution long ago but now it helps capitalism work: if consumer choices were not constrained by organizing principles, it would be very difficult for entrepreneurs to become confident enough to undertake investments in new capacity, for swings in relative prices could divert fickle customers in all manner of

alternative directions (cf. the discussion of the role of 'imperfections' in investment coordination in Richardson, 1960).

More importantly, perhaps, having sets of resilient organizing principles reduces the dangers of indecision that might otherwise result from choice overload. Conventional economics avoids such considering problems by assuming complete preference orderings and unlimited cognitive capacities, but in reality the rankings we assign to rival options emerge from applying our principles and the decision rules we have associated with them. In other words, we literally 'make up our minds' on the spot, constructing preference orderings within the area on which we are focusing, rather than letting choices drop out from preference orderings that we already have. Of course, rankings constructed on previous occasions in similar contexts may be augmented as we choose today, but the preference systems that we construct remain inherently incomplete. If we are not born with the kind of preference orderings assumed in conventional economics and we also have no organizing principles for assigning value, choice becomes impossible unless we outsource the task to others.

In short, consumer lifestyles are perhaps most conveniently viewed as the consumer's equivalent of a firm's corporate strategy and manual of operating procedures. To have any hope of competing successfully, those who run a firm have to set a view of what kind of business they are in, and how they go about doing this kind of business. They can then use this view as a basis for making bold commitments, instead of making half-hearted investments that fail to generate economies of scale and scope. They also thereby escape repeatedly incurring the costs of trading in existing assets in second-hand markets that would arise every time they reinvented the nature of their business. Some

consumers and some firms will end up disappointed and low-achieving because they have made poor choices of how to define themselves and organize their operations, but those who fail to come up with some sense of who they are and what they do run the risk of being overwhelmed or having life pass them by.

4. Organizing principles and the environment

The different sets of organizing principles that underpin consumer lifestyles can have very different implications for the environment. In principle, consumers can organize their lives around the core notion that they are the kind of person who minimizes the damage they inflict on the eco-system and uses every available opportunity to encourage others to do likewise. A few committed 'greenies' clearly do precisely this. But most of us employ principles that are far less eco-friendly.

Some of these principles may arise from genetically programmed sensibilities that in the past might have enhanced evolutionary fitness but which are potentially dysfunctional in a world of innovation. For example, in general, there is much to be said for building systems on the principle that the system components should be of a similar standard, for if components are of different standards there is likely either to be a waste of resources due to redundancy (the system's performance being only as good as its weakest component allows) or to be disastrous (due to the system failing because a component is too weak to cope with demands that other components can readily handle). But the pursuit of consistent standards can put the consumer on a treadmill of expensive and premature upgrading of elements in consumption systems, a phenomenon labelled by McCracken (1989), as 'the Diderot Effect'. The term alludes to the

financially disastrous track that the eighteenth-century French philosopher Denis Diderot found himself on after receiving the gift of a new dressing gown that was vastly better not merely than the dressing gown he already had but also than his other possessions. Many householders would acknowledge the Diderot effect as driving their decisions to renovate their homes and upgrade their appliances: for example, a fridge fails and its replacement makes other kitchen appliances look old and shabby, but replacing them without replacing the work surfaces and joinery has the same effect on the latter, leading to a complete kitchen makeover that then makes the home's laundry and bathrooms look inconsistent with the quality and modernity displayed by the kitchen, and so on.

Other environmentally problematic organizing principles may come from the social contexts in which consumers have grown up and/or now live. These principles may not even have been consciously selected but instead are inculcated as part of the process of construing what constitutes normal behaviour (Hodgson, 2003). People may choose to eat meat, have children, pets, large 4WDs, ocean cruises, and so on, without questioning whether they ought to be doing other things, because they are doing what people in their circles normally do. They may be acknowledging opportunity costs at the tactical level—which kind of meat, whether to have a dog instead of a cat and if so which breed, and so on. However, at the higher strategic level, the complex systems of consumption that they assemble result not from choosing mindfully as individuals. Rather, their lifestyles arise from their social embeddedness (Polanyi, 1957; Granovetter, 1985), that is to say, from the rules of the social networks of which they are members.

Where behaviour reflects the norms of the social network in which one is embedded, change is problematic even if one is open to considering breaking the unwritten rules about what one should normally do. Conformity is easy, as it poses no challenge to one's social network, whereas deviance will invite requests for justification and will generate pressures to conform and thereby uphold established expectations. If the behaviour is seen as unjustifiable and unacceptable, the deviants may find themselves punished by being ostracised from their social networks, disinherited by their parents, and so on. Where social pressures stand in the way of breaking away from norms and behaving in a more eco-friendly manner, there is limited scope of policies that rely on market incentives unless they can offset the 'frown costs' that society imposes on the deviants. Giving tax bonuses to those who opt not to have (so many) children—rather than, as is common in advanced economies, to those that breed—may not be deemed as an acceptable inducement, even if on a substantial scale, by those who feel guilt and pressure at the prospect of disappointing their parents by not providing them with grandchildren. It may be necessary to resort to the heavy hand of the State, as China did with its 'One Child Policy', or be better to invest in educating the population about the dangers of population pressure and thereby to try to bring about a change in social norms.

It is important to recognize here that the fact that consumer lifestyles are socially embedded is entirely consistent with consumers engaging in environmentally destructive behaviour that serves their own goals. The norm may be that social status is accorded to those who demonstrate via acts of conspicuous consumption their success at earning money. (Normally there are unwritten rules about how to go about this in a socially acceptable way, without

displaying 'bad taste'.) Those who do not set out to achieve high incomes may run into the forces of social pressure on this count, too; even if their chosen occupation contributes to the wellbeing of the planet, they may be disappointments to their families and shunned by their peers. Thus in the process of social competition, some lifestyles will enjoy greater evolutionary fitness than others and there is no guarantee that selection pressures will favour lifestyles that are sustainable.

Last but by no means least, we need to emphasize the role of the consumer's core constructs as potential barriers to doing the right thing in terms of the environment. This can be an issue even if the consumer's view of the world does not revolve around grand ambitions for income and consumption and even where change toward eco-friendly modes of behaviour would not provoke undue social pressures to the contrary. Creating a new lifestyle involves making new sets of connections and success in doing this requires knowledge. Until the requisite knowledge has been acquired, there is potential for social embarrassment or anxiety due to feeling out of one's depth and at risk of not making choices of the quality one sees oneself as normally able to make.

Having an overly rigid self-construct and expectations of being able to predict and control events can thus stand in the way of change. For example, people who view themselves as standing out from (or fitting in with) their peers due to their capacities to be immaculately presented are going to find the idea of cycling to work highly problematic. Even if they do not take the view that cyclists are people who are poor and/or peculiar (a view common in in the UK, as documented in a study by Pooley *et al.*, 2011), the prospect of having to deal with 'hat hair' (due to compulsory cycle helmets) and limits to what they can wear

could be quite enough to make them view cycling as unthinkable. Change requires people to have core constructs that make them open being seen to be bumbling and not fully in control, open to making mistakes and taking advice from others in order to assemble a new way of coping with life's challenges.

5. The process of acquiring new ways of looking at the world

Evolutionary processes do not seem to have favoured humans who were readily open to jettisoning their existing ways of looking at the world and trying to build radically new ones each time problems were encountered. This is not surprising, for survival requires action and action based on a somewhat ill-fitting analytical system is normally better than no action at all as a means of buying time to come up with a better system. Moreover, a tendency to harbour nagging doubts is also at odds with action. Hence evolutionary processes have favoured those who have capacities for deferring change and for reducing cognitive dissonance via wishful thinking (Festinger, 1957). By twisting their cognitions so as maintains their core beliefs, people escape the cognitive costs of designing new thought systems and coping with the choices these might require. For example, if people see becoming a vegan or vegetarian as a threat to their core views of themselves as socially smart and capable decision-makers—for example, because such a change unleashes potential for difficult interactions with members of social networks, reduced confidence in capabilities for shopping for food and cooking, problems in finding when travelling, and so on—they will be prone to accept arguments of pro-meat lobbyists to the effect that the livestock industry does not involve animal cruelty or needless environmental pressure.

These change-resisting cognitive processes are able to operate because incoming cognitive stimuli do not determine how recipients view them; rather, as Hayek (1952) argued in his book *The Sensory* Order, the recipients of stimuli have to make sense of them in terms of their existing cognitive frameworks. The same applies to any new ideas that the mind puts together by combining existing mental constructs (such as the idea of 'oneself' and the idea of 'a vegetarian' being combined to form the idea of 'me as a vegetarian'): the imagined construct can only be evaluated in terms of the person's existing framework for categorizing things, and that framework may categorize a construction as 'unthinkable', barring it from further discussion within the person's internal reflective dialogues.

While this perspective on the drivers of conservative behaviour may seem to point to a gloomy prognosis for the environment, it needs to be recognized that precisely the same processes underpin the behaviour of those who change their lives in eco-friendly directions. For example, people who see themselves as 'compassionate', 'someone who does the right thing' and 'someone who is open to logical argument' may find it hard *not* to accept the case for switching to a vegan or vegetarian diet if it is presented to them, even if making the switch will have significant dislocation costs. Such people accept the costs of making the switch because failure to make it will impose even greater costs in the form of them having to change their core views of themselves. If they do not switch their behaviour, the implication is that they are not the kind of person they thought they were and actually they are the kind of person they do not believe it is a good person to be. Moreover, the process of reducing cognitive dissonance will result in them downplaying the downside of the lifestyle to which they are switching.

For example, if one also tells oneself that one will be limiting overseas travel for environmental reasons, or one would in future focus on taking vacations in countries where vegetarian diets are common, it is easier to avoid having to worry about the challenges of trying to operate as a vegetarian or vegan whilst a tourist in a country where such diets are uncommon. Where there are complementarities between components of a new lifestyle, the dissonance-reduction process can work as a powerful counter to loss aversion induced by complementarities between elements of one's existing lifestyle.

If core constructs are crucial determinants of openness to change, the task of promoting the adoption of eco-friendly lifestyles initially looks inherently problematic. It can be viewed as an individual's equivalent of achieving a switch to democracy in a military dictatorship run by self-serving generals. Clearly, people will become willing to change some of their core constructs when the systems they have produced come to work so badly as to threaten constructs that are even closer to the cores of their worldviews. Just as the Soviet system eventually produced problems on such a scale that even the military were no longer inclined to support it, so, at some point, environmental crises would threaten everyday life so much that conservatives would adopt green lifestyles. However, waiting for change to arise in this way seems dangerous, since it might occur after a point of no return had been passed.

A more promising scenario can be assembled in the light of Hayek's (1952) theory of how the mind works as a complex neurological system, and Hodgson's (2003) argument that core values arise via the 'hidden persuaders' process of being embedded in a particular social setting. From Hayek's standpoint, the repeated sets of stimuli from our social circles are things that we

have to interpret ourselves. Therefore we are not necessarily going to end up with identical identical views of what is normal and how we should conduct out lives even if we have grown up in the same social milieu. Even so, repeated exposure to similar sets of stimuli could result in people creating similar interpretive systems from inherited elements that are part of human nature, especially if they do this with the aid of inputs (i.e., nurture) from family members who have previously ended up with ways of looking at the world consistent with this set of social norms.

From Hayek's standpoint, memories of the event we have made some sense of are stored in our brains as sets of neural connections that fire up when we recall those events. Incoming stimuli make sense to us insofar as there is a match between any of these stored sets and the sets of neurons that are fired up by sensory receptors. Of course, the stimuli that first grab our attention may not completely fire up any single stored set of neural connections. If they fire up parts of several stored sets, there is scope for them to be interpreted as a new hybrid concept, with this new set of neural connections being stored for future reference. But if the stimuli initially considered do not permit even this, the mind can set out to resolve the uncertainty about what it is looking at by trying to enlist other stimuli from (or about) the object in question. These other stimuli may be ones that are already available but have hitherto been crowded out by those that initially grabbed attention, but further sources of stimuli may also be sought.

What initially grabbed attention would have been the kinds of stimuli favoured by evolutionary selection processes, such as aural or visual punctuations that might signal danger and a need for action; now the mind's

problem is to find potentially relevant patterns of stimuli, to separate helpful signals from a mass of noise in its information environment. Hayek's view of how the mind does this is a forerunner of what neuroscientist s call 'brain plasticity' and it provides the basis for taking an optimistic view of the scope for changing consumer behaviour in eco-friendly ways. My interpretation of Hayek's proposed mechanism is as follows.

With finite attentive capacity and millions of store sets of neural connections at its disposal, the mind cannot passively soak up available stimuli and wait until some kind of match is found, especially not when the set initially available can be augmented by search. Rather it has to use stored neural patterns as templates to filter stimuli; it is, as the expression goes, 'looking out for' relevant stimuli that it expects there to be a good change of finding. This is simply an extension of the mechanism for alertness that is always running in the background trying to detect punctuations in the flow of stimuli. This applies at multiple levels: we simplify the set of potentially useful templates by assessing incoming stimuli only after first defining the context, but categorizing the context—which can be construed as successively finer levels of abstraction—is itself an act of cognition.

How are the templates selected at any moment? In Hayek's theory, the probability of any set of neural connections being tried as a template for categorizing a set of incoming stimuli is a function of both the cumulative frequency with which the set has been fired up in the context in question and how recently it has been fired up. (The latter would help account for 'availability bias'.) This is because each time a stored set of neural connections is fired up, the connections become closer to being hard-wired, much in the way that close

relationships are forged within social networks. However, again similar to social network relationship, the strength of a set of neural connections can wither from lack of activation. It is by this process that, as a result of repeatedly encountering similar sets of stimuli, we firm up our views of what is normal in a particular kind of context; we thereby become able to make rapid assessments of what we have seen and to form expectations.

In other words, just as there is competition among stimuli to gain attention, there is also a competitive process going on in the mind for the sequence in which templates are tried for their fit with incoming stimuli. If an acceptable match is quickly found, we 'jump to a conclusion' about what we are looking at, or about what to do, and alternative potential interpretations stored as weaker sets of connections fail to get considered. The result of this is that the templates that did get tried now have a bigger chance of being tried again, especially the one that had the decisive match. By this process, some sets of neural connections achieve a kind of superstar status in our minds and we increasingly look at the world in a particular way so long as our brains succeed in finding matches between stored set of connections and incoming sets of stimuli. This comes at the risk that we will categorize events on the basis of simple stereotype using readily available information, rather than seeking to gather more information and then form more multi-faceting interpretations of what we are looking at.

For change to occur, it is necessary to disrupt the cumulating effects of this evolutionary process so that alternative sets of stored neural connections get tried for fit (and are found indeed to match the neurons being fired up by incoming stimuli), or new sets of neural connections are constructed and found

to fit. By finding it necessary to resort to less favoured sets of stored connections or to use the imagination to create new ones, the brain changes the probabilities that the hitherto-favoured ones will, as the common expression goes, 'get a look in' next time. The cumulating process can then start working in the opposite direction, the more so that the brain's template selection function is weighted towards recently-used sets of neural connections rather than those with high cumulative rates of use. People can thereby gradually become accustomed to new ways of looking at the world; they can start to see as acceptable, and later, normal, what they one viewed as odd, unacceptable and/or threatening or as a sign of some kind of failure. As social pressures to maintain old norms start to crumble, alternative forms of behaviour will become more widespread, thereby sending more sets of their associated stimuli for onlookers to process. In turn, having to make sense of these stimuli will increase the chances of alternative ways of thinking becoming established. As these cumulating processes continue, there will come a point at which the old norms come to be seen only as normal as newly accepted kinds of behaviour, and eventually there will be a point at which they come to to seen as unacceptable against what becomes seen as *the* new norm. This has happened with the rise and fall of smoking, and it now needs to happen with environmentally profligate behaviours versus those of an eco-friendly kind.

Unfortunately, the processes by which the brain manages cognitive dissonance will impede the process just outlined. Dissonance reduction will favour sets of neural connections that have previously served well. They will be augmented with other sets to make templates that adequately match the new sets of stimuli. Success in creating such matches will crowd out alternative

existing sets, or potential combinations thereof, that might have offered an even better fit. In an increasingly challenging external environment it may be necessary to repeat this hybridization process continually in order to maintain the core set of connections—as happened in astronomy with attempts to deal with potentially anomalous observations prior to the Copernican revolution, and as might be said to be happening now in economics with the conventional wisdom being buttressed via modern behavioural contributions. For example, with the advent of internet-connected and driverless cars, people will be able to tell themselves that commuting by car still makes sense by referring to the work they can do in their cars whilst stuck in traffic jams, rather than accepting that they should be working from home or using public transport. However, as Adam Smith (1980 [1795]) recognized, growing cognitive complexity is the cost of repeated ad hoc add-ons, in a Promethean effort to cling to a particular view of the world. At some point, the mind will look for a simpler way of making sense of the situation via sets of connections that reject all or part of the previous core.

6. Conclusion

The evolutionary economist's complex systems view of the consumer makes it easy to see barriers to the changes that may be necessary if life on Earth is to be sustainable. At both physical and cognitive levels, change is problematic wherever it requires the construction of a new connective architecture. Because of this, it may be necessary to do far more than use tax-based policies that change relative prices, and 'nudges' to steer people away from their default choices, if there is to be a big enough shift towards eco-friendly lifestyles.

Questions about the role of the State versus the market in alleviating environmental problems take on a new light once it is accepted that change may be resisted because in order to make one change work it may be necessary to change many other things. Given that market-based coordination mechanisms may serve poorly as means for dealing with complementarities, State involvement may be necessary to ensure that systems meet the requirements of consumers whose choices are focused on complementarities rather than relative prices. However, public bureaucracies do not have great track records in constructing complex systems that involve inputs from diverse departments: witness the often poor outcomes of attempts to design integrated transport policies. Perhaps we will need pin our hopes for the provision of eco-friendly systems on visionary firms or corporate alliances that offer integrated packages rather than individual components. (For example, a Tesla/McDonald's partnership could enable people to charge up their electric cars whilst pausing to have a meal on a long journey, while at home their cars would be an integral part of their solar power, battery back-up, zero emissions energy systems.)

Where choices are constrained by core belief systems based around social norms, changes of behaviour seem to require a focus on changing norms to more eco-friendly ones, rather than expecting that such changes can be readily induced by policies that change relative prices. In suggesting that the key thing for promoting change is to derail consumers from their traditional lines of thought, the arguments in this paper complement the new behavioural economists' 'nudge' strategy of trying to induce change by managing the defaults that consumers face. However, what seems to be implied by the present analysis

is closer to marketing's use of high-profile, fashion-leading consumers as role-models to challenge conventional patterns of choice.

The analysis in this paper implies that conservatism will thrive in situations where there is a lack of diversity in the stimuli people receive about how it is normal to live. If 'others' are encountered infrequently and are not in positions of power, then it may not seem worth the costs of developing cognitive structures for making sense of how they live and see the world; instead, they are dismissed via shallow stereotyping. Green consumers can thereby end up all being viewed as, say, 'long-haired, unwashed, dope-smoking feral types who and live in ill-kempt rural properties and don't hold regular jobs', much in the same way that mainstream economists may view all heterodox economists as being 'on the far left of politics and using waffling prose as a cover for their inability to use mathematics to do rigorous analysis'. More open ways of thinking are fostered if one is embedded in a social setting in which many ways of life are evident. In the midst of such plurality it makes little sense to think in terms of 'the' norm, and exclusion of minority groups is less effective than trying to learn how others think as a strategy for dealing with social differences. While individuals may end up with their own working models for coping with the world, familiarity with how others operate will make it easier for them to change by hybridizing their systems with elements from other people's systems, or to 'convert' to other ways of thinking.

There are usually limits to the extent and speed with which rather undiversified communities can be opened up by infusing them with significant numbers of new members with different lifestyles. However, television provides a means in which people can gain such benefits vicariously—at least, so long as

programming is diverse and does not simply represent the values of high-consumption, status-seeking lifestyles of those in affluent economies. If we do not want to go down the road of having the State engage in eco-friendly social engineering via controls over broadcast content, we might at least acknowledge that policymakers (and eco-friendly corporations) may be able to get norm-challenging leverage by publicizing ways in which highly respected members of society, who seem 'normal' in many ways, have been making choices that reduce their environmental impacts. Turning 'green' is a lot easier to contemplate in the midst of examples of urbane, urban consumers noted for being early adopters of eco-friendly products, especially since those who follow their example can point to them when challenged about breaking with past norms.

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