

The Knowledge of Price and the Price of Knowledge

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Summary

Social science is enmeshed from the outset in an interaction between individual agents, collective action and analytical response. The desire to implement policy and create a preferred outcome provides further complication. There is a fundamental confusion between knowledge in the system and knowledge about it. Classical market analysis divorces the two; in practice agents use both. Moreover, they use their knowledge to change the system. A given set of rules may therefore produce a variety of outcomes. Unless this phenomenon is better understood and analysed, policy making will continue to produce unexpected and indeed undesired outcomes.

1 Introduction

The focus of this article is on the problems that social science has found in providing an analytical framework for its activities while at the same time becoming immediately involved in recommendations for policy and for ‘progress’. Indeed, social science has been since its inception bedevilled by ‘big’ questions, largely because these big questions are also the kind that anyone can have an opinion about. The big questions in physics – such as whether string theory is the best route to a theory of quantum gravity - are not normally the subject of discussion in the pub, bar or café. But we can all debate whether supermarkets rip us off, whether the distribution of income is fair or whether global warming should make us change our behaviour. Governments do not have policies about the orbits of planets, but they do on food labelling, on competition and on social justice.

Before social science even starts trying to formulate testable conjectures, or to discern laws of motion, it is already enmeshed in the interaction of the individual actors, collective action and organised response. Moreover, the attempt to develop conjectures often starts with the social circumstances which the scientist observes. Adam Smith saw new forms of buying and selling and tried to explain them; Keynes observed mass unemployment and wanted to explain that. However, neither stopped at explanation. They, and almost all other social scientists, went on to consider what worked – what would produce a desirable outcome. Sometimes, the problem of defining desirability is addressed – Smith wrote the Theory of Moral Sentiment as

well as The Wealth of Nations – sometimes its definition is left pretty much obscure or assumed to be material prosperity. Nothing much wrong with that in a world of poverty and starvation.

I argue, however, that the blurred boundary between description and recommendation has produced an attitude to analysis which ignores some of the most fundamental characteristics of agents in social and economic situations.

This has occurred even when the issue is directly addressed. For example, the most commonly used basic textbook of economics in the 1970s was Lipsey's 'Positive Economics'. It made a clear distinction between what we knew – the positive – and what we wanted – normative economics. Normative economics relied on choosing a desired outcome, where desirability was constructed in political processes outside the purview of the subject of economics, and then examining what descriptions of the economy were relevant and how they could be manipulated to produce the desired outcome. The definition of better was pushed outside the boundaries of the subject or put into the too difficult (and 'unscientific') box.

The textbook was widely used and has informed a whole generation of policy makers in the UK, those who are now in leading positions. It is implicit in the establishment of ideas about evidence based policy, in which the UK has now established a Research Centre. If the government decide that they want to achieve a particular aim, experts will decide what the evidence is on how things work in this particular area, and whether the proposed tool will achieve the desired outcome. The analogy is with medicine. Before a new medicine is approved, there must be evidence that it works without undesirable side effects. There must be debate about the standards of proof to be required and trials must be undertaken. This debate is to be applied in economic and social policy too – though the nature of trials remains obscure.

Here then is an attempt to divorce what we know about the world from what we would like to see it become. It tries to divorce the descriptive problem from the policy problem. The example comes from the UK but a similar process has been at work in other countries too. At first sight it looks laudable. However, in practice, it sweeps a number of problems under the carpet. In particular, it produces an arbitrary

division between how things work – somehow subject to a set of laws of motion which science must discover – and how we want them to work – the product of beneficent law making by our governments. It assumes that the history that we observe is the only possible history, a feature possibly responsible for economists' tendency to assume that time does not exist. At the same time, we retain the right to change the future. In this view the institutions that we develop become sidelined, although it is also assumed that a process is available to affect how things work and turn them into what we want; that there is sufficient evidence and understanding for this to be possible.

There is, in this world, a set of atomistic agents obeying laws of motion of a system. Separately, there exists a set of experts which understands the system and can manipulate it to produce a different and better system. We are then allowed to argue about what we think is better but must rely on the experts to tell us what can be achieved by the system. When the result is not as advertised, it is because the experts have not been given sufficient data or there has been an external event. It is not because the original division between what we have knowledge in and what we have knowledge about is wrong.

Those who deny this division often also become bogged down in epistemology and a slough of meta levels of knowledge. This article tries to present a way forward that allows the social scientist to think more carefully about the complexities that need to be addressed and the possible instabilities in the analysis, without returning to the overly simplistic world which has dominated social science up to now.

I suggest that the way forward is to focus on information, to establish what information can and has been used by agents in social systems and how it is used. This will enable us to discover whether there is any such thing as a law of motion in a social system that makes sense, and what kinds and scopes of outcomes it might define.

To illustrate this, I want to look at the way in which markets are analysed. Markets are the lifeblood of economies under capitalism – and arguably other systems - and views on how they work and the desirability of their outcomes are cornerstones of

both academic analysis and policy on competition. How markets work have been the subject of economic analysis since the dawn of the subject, and have been the subject of policy – and hence analysis of some sort - since before that. Monopolies have been for sale ever since monarchs managed to get enough control to make the sale possible. And equally there have always been merchants around to claim that such monopolies are unfair and inefficient.

The core paradigm used in the analysis of buying and selling is the competitive market, which is still extremely powerful. Its power can be gauged by the often resented dominance of economics within social science and the research community. Other disciplines have failed to produce pictures of the world which match its clarity and coherence. In discussing social science, economics still sets the standard by which more comprehensive theories must be judged.

2 The Competitive Market

A classical market has a homogenous and well-defined good, whose characteristics are both generally known and easily identified. The only additional information then needed about this good is its price. Price carries all the necessary value information and equalises supply and demand at minimum cost so long as there are sufficient firms.

It is Marshall who can be credited with setting up parsimonious models which allowed the laws of motion of circumstances in which these goods were sold to be defined. This paradigm has been extremely powerful and indeed useful. It enabled there to be a distinction between the actions of buyers and sellers and it showed that price signals were sufficient to produce an efficient outcome so long as firms pursued profit and consumers pursued utility.

The only problem is that these markets hardly ever exist. All markets have rules (institutional processes) which limit who can participate and how, and which give power at different times to different participants. Many market processes can be distinguished by how knowledge is to be acquired in the marketplace. If producers and consumers are identical, then knowledge of oneself is enough, but if they are not,

there has to be a process of discovery, perhaps through the economist's auctioneer, perhaps through market research, perhaps through limiting the players to a number we can know. Most of the major divisions between schools of social science can be reduced to different approaches to these processes and the perceived failures of market outcomes.

For example, economists look for alternative and additional market signals, while sociologists examine the derivation and control of social institutions. Marxists see such failures as fundamental weaknesses and desire to replace markets with a planned system in which history can be chosen, indeed one branch of Marxist analysts have been the major proponents of planned economies in which prices of products are still the most important signals, but they operate within the plan rather than in real markets.

Economists have built a plethora of sophisticated sub models around the basic paradigm. In order to identify a market and how it works, they look at the characteristics of the product (substitutability, marketing processes and information, hedonic characteristics etc) and of the market (numbers of firms, overlap of trading areas, international trade, etc). They may also examine the nature of the cost relationships – is there a minimum point on the cost curve, or are there economies of scale. They consider whether there are limits on what information is available and to whom. All of this is designed to establish the extent to which an individual market, or markets in general, may depart from the perfectly competitive paradigm, where price is all we need to know. Since this picture has appealing characteristics of efficiency, policy is then directed to achieving this desirable outcome for each individual market, so that capitalism can work 'properly'.

In all of these approaches, there is embedded a particular view of knowledge.

3 The Knowledge Standard

In the basic paradigm, a knowledge of price is sufficient to make a market work. Beyond this, each participant need only know their own desires as a consumer and costs as a producer. From these and a motivation to have more utility and profit, the

whole solution can be derived. No participant needs to know anything about others wants or costs. By trying to get more utility or profit, both utility and profit are maximised. The analyst knows everything in knowing a simple set of functions. Economists often make the mistake that in these circumstances, there is a unique outcome that can be defined and achieved and which has optimal characteristics. With differentiated agents, this need not be the case, and there will be multiple possible outcomes, but the knowledge standard remains the same.

Of course, what is important is that the analyst is not a participant. If the person with knowledge of all the others were able to participate, such an agent would be able to manipulate the market and gain an advantage. But equally, all participants have an incentive to find out what others are up to and to reduce the complexities of the market in order to make this easier. So there cannot be a distinction between what the analyst is up to and what the market is up to. In other words, there is an essential confusion at the outset between knowledge inside the system and knowledge about the system.

This confusion certainly predates the invention of social science, since there have always been commentators about the way in which any economy and society operate. Social science has perhaps merely codified the confusion and on occasion has added to it by pretending that it does not exist.

Only in recent years has there begun to be an attempt to disentangle the distinct ways in which individual agents are distinct from collective agents, groups of agents or analysts of agents. These approaches are not always consistent and imply different views about the kinds of knowledge that are important or possible. Indeed, it may be that exploring these differences is the best method for beginning to establish what, if any, laws of motion of social systems can actually be identified.

4 The Missing Links

Game theory makes the smallest step away from the clear distinction between independent agents and reflective, analytic ones. In game theory, players operate within a set of rules – but the rules are themselves determined somewhere else. In the

recent auction of mobile telephone licenses, economic theorists made a significant contribution to designing the game to be played in the auction – making on the way assumptions about how the agents, the bidders in the game, would behave. These assumptions were based on ‘classical’ economic paradigms of the profit maximising firm, but one which was capable of taking the step of acquiring, seeking to acquire, or estimating the potential behaviour of other players of the game.

Knowledge about others becomes a central element in the analysis and outcome, though the postulate that players know how to maximise their profit or utility usually implies that there is a single solution to the game. The limitations of the approach are neatly illustrated by its most recent incarnation. The mobile telephone license auction notoriously raised more money for the UK government than had been expected. The winning companies are now struggling with the consequences in the light of unexpected downturns in the market and are saddled with debt, notably in the case of BT. The inability to predict the behaviour of consumers and therefore to have knowledge of the profit maximising solution implies that no complete analysis can be made, whether by the players or by the rule makers.

An alternative approach is taken by theorists of institutions, who stress not how players interact within the rules, but how the rules are formulated in the first place. Ways of establishing how such rules emerge are still in their infancy. It is not clear whether the rule makers are a distinct group, reflecting a different set of parameters and choices, or whether they are the players themselves. Indeed it is likely that different patterns take place in different circumstances. At any one time, in any real economic market situation, a firm may be working to change the rules by which a market operates as well as applying the rules which exist. It will make decisions which are not affected by what others may do, those which are so affected and those which change the way in which others and themselves can act.

The development of the Kyoto Protocol and its subsequent history provides a case study of the complexities of this process.

While institutional approaches may emphasise the historical process in determining a particular set of institutions which then provide the framework of rules, in which

markets, standard economic theory and game theory may all have a part to play, these systems of thought are still within the system. Knowledge lies with the agents that operate within it, though the analysis expands to cover the process by which the system develops. It acquires a historical context which is specific to a particular era and whose development can be tracked.

There is of course only one history. Historians know how hard it is to find. History looks different from different perspectives and from different distances. It is always being reinterpreted, either deliberately or unconsciously. If it is impossible to ‘know’ any actual history that has been experienced, this suggests that knowing different possible histories is beyond imagination. If Al Gore had become President of the United States, instead of George W Bush, the future of the Kyoto Protocol would probably be different. A handful of Florida voters may have determined the future of global climate – or it may in the end make hardly any difference.

Yet different possible histories are the stuff of every day decision making. Each act requires the judgement of potential and unknown outcomes. These are always bounded by the institutional framework. Where within the space of potential outcomes an agent ends up is indeterminate except in rare circumstances.

We create an institutional framework precisely in order to bound the potential space of outcomes. If it is the case that such bounding cannot reduce the available space to a point, then there are two major consequences:

- Comparisons of outcomes under two different institutional rules cannot decide what the result will be in any individual circumstance.
- Unless there is no overlap between the available space of outcomes, it is possible that nothing will change, and equally possible that the new outcome will be less desirable (by whatever criteria rule makers are using) than the previous one.

For example, it is often argued that global companies exploit workers in poor countries, paying them less than they would workers in rich ones and employing children. It would clearly be better if poor countries were not poor and had the

standards and pay levels of rich ones. Preventing exploitation by global companies is a route to this.

It is indeed possible that banning global companies from employing people on any other basis than that in the richest of the countries in which they operate would prevent such exploitation. It might encourage more self reliance and self investment in the countries in which such companies would otherwise invest. Or it might drive them deeper into poverty and subsistence level activities. Allowing exploitation might wreck local economies and create shanty towns of dispossessed workers. It might also create scope for the emergence of initiative and enterprise alongside the ability to create surplus value which will in the end result in a lively and richer economy for all. If all of these are possibilities, then either the institutional framework must be defined so tightly that only one outcome is possible, or a judgement must be struck on the balance of probabilities over time. If one judges that the balance of historical evidence suggests that countries which allow investment are on average richer than those which do not, then demonstrations against global capitalism are likely precisely to hurt those they are designed to protect.

At any time, individuals are likely to be pressing against the boundaries of the institutional space, either because of curiosity or self interest. The framework may hold firm or give, so that the space is always changing. The more limited the space, it is likely that the firmer the pressure will be.

5 The Challenge

The challenge at all levels is to identify the space of potential outcomes. In a market, what ranges of prices can be supported by a given variety of participants? In an institutional context, what reduction in market power by an incumbent will bring about a distinctly different outcome, rather than being within the initial range?

Crucially, any analysis of a social science question must first decide the level of knowledge which it is appropriate to take. In many circumstances an analysis of the rules of behaviour of the agents will be sufficient to understand the range of potential outcomes and the possible histories. In others, the nature of the bounds to behaviour will have to be carefully defined. Distinguishing between rule making and rule taking behaviour needs to be much more carefully done than has been the case up to now.

If the Kyoto Protocol survives to initiate global trading in emissions reduction, what ranges of prices can we expect and how far will these impinge on global redistribution? This will depend on the rules that are negotiated, and the rules will also depend on the projected outcomes. If the least preferred outcome of the new rules is better than the most preferred of existing outcomes, then a change is clearly desirable. It is much more likely that there will be considerable overlap between the two sets of conditions. At the outset, setting clear parameters for analysis, which provide a way into formulating the simplifications required, is the only way to create realistic rules.

6 Conclusion

The study of complex systems in social science is not a search for the theory of everything. Steps in understanding the interactions that take place between agents need to be taken one at a time. For any given problem, the boundaries (or the rules) need to be carefully defined if any conclusions are to be drawn. If an analysis does not make clear where the boundaries have been set, distrust the conclusions.

Especially, distrust policy conclusions. If a report suggests that a market is insufficiently competitive, it is important to know whether the standard is one of

impossibly atomistic firms and whether the regulations imposed will only work if such atomism is really possible. If not, we will pay the cost of the regulation and the benefits will be hard to find. The advantage of complex systems approaches is that they require that the rules of agent behaviour are defined and that the linkages between different agents and parts of a system are also defined. Atomistic agents become a special case of a more general system which allows us to handle more variation of behaviour.

This is a plea for a case by case approach. There is a long way to go before there can be a core set of axioms – and indeed the way that humans keep wanting to change the rules, there may never be one that could be devised by us in the first place. But the challenge now is to decide what the most general rules of behaviour might be; what motivations are most realistic and how to build relatively simple models which still illustrate real human behaviour. Only such models will generate more useful conclusions than the overly simple ones currently in use.