
PAST LEARNINGS

Complex systems, simple stories and corrupted economics

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The Past Learning series of papers is predicated on the twin propositions that the great bulk of valuable knowledge about the principles of political economy is to be found in past work and that much of this knowledge is forgotten or ‘written off’ in the preoccupations of its current practitioners with their own, incremental contributions. Whilst the search for new incremental knowledge is admirable, the amnesia is not, because it implies a shrinking base to which the increments can be added. In consequence the total value of the associated, collective human capital applied to economic policy problems progresses more slowly than it could and is prone to major periods of regression. The contrast with the physical sciences in this regard is stark.

The aim of the series is to provide a mild corrective to the amnesia by re-presenting some of the older wisdoms and drawing attention to their direct and immediate value in application to today’s policy challenges.

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1. Introduction and summary of main points

Economic systems are complex and adaptive: their evolution over time depends upon an information set of enormous size, sub-sets of which are scattered among a large number of economic agents possessed of differing motivations, perceptions and resources. The agents interact in ways partly governed by sets of ‘rules’ (i.e. economic institutions) which themselves evolve over time. They are eco-systems and everything is, in some way or another, connected to everything else. Developing understandings of such systems requires that they be viewed holistically and, given their complexity, that is difficult to do. Precise forecasting is usually impossible.

For policy makers the functioning of these systems poses what have been called ‘wicked problems’, i.e. problems to which there is no realistic prospect of responding with what ordinarily might be classified as ‘solutions’. Perturbations of the system resulting from changes in laws and regulations, even when they are small in scale and intended scope, tend to have diffusive effects on the functioning of the whole system which are impossible to track in detail.

The challenges do, however, call for a response and the question is: what should that response look like? The proposition to be examined is that they should take the form of a *policy design*, by which is meant a patterned set of measures to be taken, each chosen on the basis of a criterion that the whole set of measures should, considered together, be the best possible combination to tilt the evolution of the system toward what is deemed a favourable path of development.

Given the complexity of the system to be ‘governed’, any such responsive policy design will necessarily be many orders of magnitude simpler in structure than the system it is intended to influence. The late Professor Sir Christopher Zeeman, an expert in the mathematics of dynamical systems, used the expression “*complexity in, simplicity out*”.

Though massively simpler, the responsive policy design will itself be a system, in the sense that its constituent parts are patterned and inter-linked. The effects of the set of measures will not, in general, be the sum of effects that can be separately attributable to the individual elements of the set.

The responsive design therefore also needs to be considered holistically, which is not to deny that there is work to be done in analysing the system’s constituent parts and ‘mechanisms’¹, but rather only that the pattern of relationships between the parts is of very high salience and not to be neglected.

This was broadly the approach taken in the greatest work of classical political economy, *The Wealth of Nations*. Its canvas is an entire economic system; the work examines a range of the economic system’s parts and mechanisms; and its response is a *system of thought*: Smith’s *System of Natural Liberty*. Book IV (of five constituent books) is titled *Of Systems of Political*

¹ There is nothing machine-like about the economic system or the policies adopted for its governance and the word is used in the sense of its more general dictionary meaning: “a natural or established process by which something takes place or is brought about”.

Economy, and it covers other responsive policy designs as well as Smith's own favoured one. The word 'system' appears 242 times in the Gutenberg online edition of the book: it is not difficult to see Smith's approach and method.

At the more specific policymaking level, the responsive policy design can also be thought of as an economic strategy, the literature on which recognises the importance of simplification and coherence (patterning) in its development. The most important component parts of the responsive design are the strategic objectives that are adopted, which themselves emerge from a limited set of identified challenges that are to be taken on. In this exercise, basic economic concepts such as complementarity and substitutability have roles to play. As a first take, for example, it might be asked whether the attainment of one strategic objective makes attainment of the other strategic objectives easier (complementarity) or harder (substitutability).

There are, however, uncountably many different designs/strategies that could be imagined, of varying degrees of simplicity and coherence, and none of them can be deduced in the way that a solution to a ('non-wicked') problem can be. The information embedded in an economic system is too vast for that and uncertainties about the effects of government actions abound. Yet choices have to be made and, in support of the imagination and judgment required to create a new design, the only reliable guide for policymakers is experience, calling for examination of the widest possible set of experiments in policy designs that have been attempted in the past.

Empirically speaking, there seem to be more examples of bad design to be found in the history books than of good practice. What follows, therefore, is chiefly an attempt to identify some generic causes of the relative failures, in the hope that the exercise might at least contribute to error learning.

2. A recurring issue: indifference to, or disregard of, the implications of complexity and uncertainty for economic policymaking

Relative indifference on the part of policymakers toward the implications of complexity and uncertainty for the behaviour and functioning of economic and social systems is a tendency that has been noted by a diverse range of scholars. A few examples serve to introduce one or two of the recurring themes. Some detail is warranted if only because, notwithstanding the intellectual stature of those who have identified the tendency, the implications of their views have themselves been subject to systematic (albeit not universal) indifference or neglect.

Adam Smith on the 'man of system'

In the *Theory of Moral Sentiments*, a theoretical work on ethics that was unusually grounded in observational evidence, Smith introduced the term *man of system* which, translated into today's language, might be rendered as a 'central planner':

"The man of system ... is apt to be very wise in his own conceit; and is often so enamoured with the supposed beauty of his own ideal plan of government, that he cannot suffer the smallest deviation from any part of it. He goes on to establish it completely and in all its parts, without any regard either to the great interests, or to the strong prejudices which may oppose it. He seems to imagine that he can arrange the different members of a great society with as much ease as the hand arranges the different pieces upon a chess-board. He does not consider that the pieces upon the chess-board have no other principle of motion besides that which the hand impresses upon them; but that, in the great chess-board of human society, every single piece

has a principle of motion of its own, altogether different from that which the legislature might chuse to impress upon it. If those two principles coincide and act in the same direction, the game of human society will go on easily and harmoniously, and is very likely to be happy and successful. If they are opposite or different, the game will go on miserably, and the society must be at all times in the highest degree of disorder.”

Salient points to note here are an identified lack of any regard (a) for opposition to the “plan of government” and, of greater relevance for the current discussion, (b) for the likely behavioural responses and adaptations of free men and women to the implementation of the plan. The over-simplification is to treat the behaviour of human agents as no more complex than that of pieces on a chess board.

In the subsequent paragraph, Smith goes on to say that:

“When such imperial and royal reformers, therefore, condescend to contemplate the constitution of the country which is committed to their government, they seldom see anything so wrong in it as the obstructions which it may sometimes oppose to the execution of their own will.”

Generalising, this could be recast as a warning against governments that believe that they have a ‘solution’ in circumstances where there is no ‘solution’ to be had.

Henderson and ‘do-it-yourself’ economics

In his Reith lectures², based on his own experiences as an economist employed by the UK government and the OECD, David Henderson identified the existence of a body of primitive economic thinking that he labelled “do-it-yourself economics” (DIYE). DIYE provided simple accounts of direct and immediate connections between events and of direct and immediate connections between actions and consequences. These accounts or stories/narratives occupied privileged positions in policy thinking, irrespective of their validity. Henderson argued that it was against this body of belief that any new economic reasoning chiefly had to compete, not against other economic reasoning of a more sophisticated nature.

Henderson’s notion of DIYE is close to Frederic Bastiat’s view of analysis that only or chiefly focuses on the *seen* or *direct* consequences of human actions, although Bastiat categorises this simply as bad economics. What DIYE/bad economics fails to recognise is that, in a complex eco-system, everything is connected to everything else.

J.K. Galbraith on the conventional wisdom

Galbraith went a step further in examining why the simple and primitive economic beliefs that Henderson and Bastiat criticized came into being and were then sustained, in effect asking what function they might serve. He wrote:

“To a very large extent, of course, we associate truth with convenience - with what most closely accords with self-interest and individual well-being or promises best to avoid awkward effort or unwelcome dislocation of life. economic and social behaviour are complex and

² David Henderson, *Innocence and Design*, Reith Lectures, BBC, 1985.

mentally tiring. Therefore we adhere, as though to a raft, to those ideas which represent our understanding."³

The suggestion is that what is going on is a substitution of convenience for the more effortful process of discovering what is actually the case. It is often accompanied by a supporting belief that there is little or no consequential difference between the two, which itself functions to reduce any uncomfortable cognitive dissonance. Thus, whereas the notion of DIYE uses a metaphor based on a distinction between professional and amateur economics, the notion of the conventional wisdom draws attention to a distinction between truth and convenience/utility in beliefs, and to the tenacity with which convenience is sometimes defended against evidence that threatens it.

Cannan on popular accounts of causes of substantial increases in prices

Another aspect of the issue was identified more than a century ago by Edwin Cannan, who wrote the following on public perceptions of the causes of unusually large increases in the price of some economic commodity or other:

*[People] "are perfectly convinced that the rise with which they have to contend for the moment is unnatural, artificial, and wholly unjustifiable, being merely the wicked work of people who want to enrich themselves, and who are given the power to do so not by the economic conditions, . . . but apparently by some absolutely direct and inexplicable interference of the Devil. This has been so since the dawn of history ... but no amount of historical retrospect seems to be of much use. The same absurdity crops up generation after generation."*⁴

For current purposes the element of interest here is the reference to simple and specific human agency in popular accounts of the causes of higher prices. The economic circumstances in which the action takes place – i.e. the possibly complex set of contextual factors that, at a given time, could be said to be instrumental in establishing the higher prices – are disregarded in favour of a simple narrative that ascribes the price hikes to the *discretionary* decisions of one particular set of economic actors, namely the suppliers of the good or service. Ironically, the actors who are demonised are precisely those people who, by supplying the market in a time of shortage, may be contributing most to keeping the price of the relevant commodity down.

Cannan's simplified economic narrative can be characterised as melodramatic in that it relies upon exaggeration and simplification with the purpose of inducing exaggerated, emotional responses from the audience/listener/reader. The intention is therefore not to inform, educate, understand or engage in a process of learning or discovery; and it is this intention/purpose that most distinguishes this type of unhelpful simplification from, say, an economic debate in which protagonists may each be relying upon simplified analyses, but in which the *common* purpose is the advancement of understanding and knowledge of how economic systems work, and of seeking to discover appropriate responses to any perceived dysfunctions in their operations.

3. Simple stories and narratives

People generally encounter the mechanisms of the economic system via their own narrow range of experiences of some or other part of the system. They are faced with specific problems and

³ J.K. Galbraith, *The Affluent Society*, Houghton Mifflin, New York, 1958.

⁴ Edwin Cannan, "Why Some Prices Should Rise," written in 1915, published in *An Economist's Protest* (1927).

naturally look for solutions to them. More than that, there is a demand for solutions that are consistent with peoples own, prior perceptions and beliefs (see Galbraith above) and their own financial or ideological interests.

In their search for the votes that will elevate them to power, or sustain them in power, political leaders have a proclivity to offer such ‘solutions’, and sometimes go further by inventing or emphasising problems to which they can then offer solutions. H. L. Mencken exaggerated for rhetorical purposes, but there is a certain truth value in his aphorism: “*The whole aim of practical politics is to keep the populace alarmed (and hence clamorous to be led to safety) by menacing it with an endless series of hobgoblins, all of them imaginary.*”

“Led to safety” points to the storytelling or narrative aspects in this political ‘market’ for solutions to problems. Stories are a powerful mode of human communication, and they can inform as well as entertain. They can, potentially, be useful in communicating understandings of the functioning of complex systems by providing insights into their constituent parts and the natures of particular mechanisms operating within them. But, adopted in response to the specificities of demands for solutions, their subject matter tends to be relatively narrow or limited. They abstract from much of the relevant connectivity in the economic system.

The use of stories in the market for solutions then becomes much more to do with persuasion than with learning, much more to do with rhetoric than with social science; and the stories and narratives tend to follow some generic patterns, characterised by:

- (a) a focus on *sequences* of events along a particular (localised) chain;
- (b) a *high degree of selectivity* in their coverage (i.e. in choosing what events are, or are not, incorporated into, or otherwise associated with, the story);
- (c) a tendency, even among factors that are selected for incorporation, to attribute exaggerated significance to some over others;
- (d) the affording of leading roles to conscious, choosing *agents* and their intentions, and in particular to a small number of leading protagonists;
- (e) reliance on stereotypical forms of human agency (heroic, villainous, etc.);
- (f) a frequent emphasis on changes in fortune and of problems faced and overcome (successful ‘solutions’) and not overcome (unsuccessful ‘solutions’);
- (g) a tendency toward the melodramatic (over-simplification and exaggeration).

This is not a favourable list of characteristics, if the objectives are to: gain a better understanding of a complex, adaptive system; explain its functioning: and craft patterned responses aimed at influencing its evolution.

To repeat, when a policy measure is implemented, it can be viewed as a perturbation whose effects will diffuse or percolate through the economic system as a whole. As they do so, and because of a dense web of interconnectivities, changes will be occurring *simultaneously* at different points within the system. No useful, simple story or narrative can capture this simultaneity which is, in effect, the result of transmission and processing of information along potentially myriad channels. Stories/narratives are singular and sequential/serial in their nature. In public policy contexts, they are invariably works of fiction.

It could be said that a narrative response reflects a poor conceptual gestalt, but it is more than that: the responses tend not even to conceive of such a concept. A dictionary definition of a gestalt is “*something such as a structure or experience that, when considered as a whole, has qualities that are more than the total of all its parts.*” While a collection of narratives can be useful in understanding the parts and individual mechanisms, they are of little use in getting to grips with the ‘more than’ aspect of things.

The size of the gap in understanding can be expected to vary on a case-by-case basis, depending on the structure of the relevant system under investigation, but even that cannot be estimated without a gestalt of the sort that a story or narrative does not provide.

Whilst all this is relatively abstract, an illustration of the spirit behind it can be found in George Eliot’s *Middlemarch*, a fictional narrative. The end paragraph of *Middlemarch*, which amounts to an assessment of its leading character’s effects on the social world (the effects of a small perturbation on a much larger system), is rated as one of the greatest endings in English Literature:

“Her finely touched spirit had still its fine issues, though they were not widely visible. Her full nature, like that river of which Cyrus broke the strength, spent itself in channels which had no great name on the earth. But the effect of her being on those around her was incalculably diffusive: for the growing good of the world is partly dependent on unhistoric acts; and that things are not so ill with you and me as they might have been, is half owing to the number who lived faithfully a hidden life, and rest in unvisited tombs.”

Here, at the end of a long narrative, it is explicitly recognised that it has not encompassed “incalculably diffusive” effects. In economic systems they are everywhere, always.

4. Corrupted Economics

In a previous Past Learnings paper, it was argued that the redeeming grace of economics as a discipline is a focus on the task of understanding the functioning of economic systems and, with this focus, it has a credible claim to being a science (UK Science Council definition: “*Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence*”).

In policymaking contexts, however, the discipline’s usage can become heavily weighted toward satisfying a demand both for solutions and explanatory stories about those solutions. In the face of such pressures, analysis tends to arc away from Alfred Marshall’s “*engine for the discovery of concrete truths*” toward rhetorical advocacy of, or providing justification for, particular policies. In a nutshell, analysis is re-purposed.

The phenomenon is an analogue of the corruption of politicians under pressure of lobbying from interest groups of one type or another -- Adam Smith’s “*clamorous importunity of partial interests*” -- and much of the demand for corrupted economics is largely a derived demand from that political process.

When policymakers substitute private or partial agendas for the public agendas that they are nominally expected to pursue, there is unlikely to be any direct admission of the substitutions that are taking place. Rather, the relevant decision makers can be expected to attempt to cover their tracks. In the economic sphere this is likely, among other things, to include some account

or reasoning concerning the relevant measure under consideration and its anticipated effects. Hence there will tend to be recourse to Henderson's DIYE or, if it exists the relevant context, Galbraith's conventional wisdom.

Neither DIYE nor the conventional wisdom quite captures the phenomena that are of interest here, however. As noted, DIYE calls to mind a professional/amateur distinction, and indeed there are many contexts in which such a distinction is relevant. Today, for example, there are abundant illustrations of it in areas such as health and environmental policies. Professionals with training in disciplines other than those that address the complexity of economic and social systems seemingly appear to be more than ready to make policy recommendations on the basis of very cursory examinations of the immediate and direct consequences of their proposals. They are amateurs in a relevant field of knowledge (complex socio-economic systems).

However, corrupted economics that responds to a demand for clear cut solutions or recommendations can also occur among those who are trained economists, and who therefore are, or at least should be, familiar with systems analysis. In this case, the pressure of the demand tends to lead to a narrowing of the field of vision: large parts of the relevant system to be studied are ignored, by way of the modelling assumptions that are made. The resulting models can nevertheless be complex which can sometimes be worn as a badge of expertise. As Ronald Coase has remarked, it is not that the logic of the modelling is wrong, it is that the modelling is irrelevant, because it has abstracted from large slices of available, observational evidence. The assumptions made amount to turning a blind eye to a wider picture.

Coase called it "blackboard economics", reflecting the teaching technology of his day. In effect, the assumptions made, which are usually unexamined and untested, substitute for more detailed and more extensive factual enquiry. Many an academic career has been forged on this basis, not least because it is a lower cost way (than more extensive investigation) of generating papers and articles, allowing more to be written and facilitating faster build-up of CVs.

A common factor in all of this appears to be a certain degree of pretence. DIYE passes itself off as substantive, systematic thinking; the validity of convenient beliefs is exaggerated; formal 'models' are claimed to offer guidance to decision makers which is more reliable and robust than can conceivably be the case. The pretence is linked to the explicit or implicit claim in much policymaking and analysis that the relevant reasoning is developed to provide a more reliable basis for choosing among alternative policy options, as for example in the context of regulatory impact assessments or cost-benefit analyses. In reality, the assessments are usually back engineered, moulded to meet a wide demand for 'solutions'.

5. The interplay between complexity and simplicity

Ironically, and perhaps counter-intuitively, one of the most damaging of the dysfunctional consequences of corrupted economics is its tendency to introduce *increased complexity* into the workings of economic institutions. This is because multiple, simple stories of problems that need to be corrected tend to lead to multiple interventions (perturbations of the economic system) based on those partial and disjointed stories, leading to instability, disjunction and incoherence in the institutional structures of the economy. This 'disorder' is manifest in incentive structures and is carried through into commercial conduct.

In short, state action justified by corrupted economics tends to disrupt the functioning of economic institutions. Whilst the narrative may be cast in terms of a protagonist “putting things right” or “fixing a problem” (e.g. the policymaker stepping in to correct a ‘market failure’), the outcome is very often to make things worse (because the intervention impairs the functioning of the system as a whole).

The process of over-complication in policy attributable to simplistic storytelling can be illustrated by the notion of *Politicians’ Logic*, as expounded by the fictional civil servant Sir Humphrey Appleby in the BBC comedy TV series *Yes, Prime Minister*: “*Something must be done. This is something. Therefore we must do this.*” The lots of (relatively arbitrary) somethings to which Politicians’ Logic leads tend to lack overall coherence, and to distort incentive structures in all manner of dysfunctional ways. Policy structures can become Byzantine and the rationale for later measures can eventually come to be dominated by mitigation of distortions caused by layer upon layer of previous measures.

A more concrete illustration of the point is afforded by the evolution of the UK tax system. It is reasonably certain that no-one would design the current, long and complex tax code from scratch: where nations have had to take a comprehensive look at a whole tax system, e.g. the Baltic states in their transitions away from the earlier soviet-system, they have come up with much simpler structures. The key words here are ‘had to’: events at the end of the 1980s conspired to force the taking on of a ‘whole system’ challenge that needed to be tackled within a short time-horizon. The result: greater simplicity and greater coherence in the designs.

Continuous tinkering with a system becomes first an engine of increasing complexity in policy design and then, as a result of that, of avoidable complexity in the functioning of the economic system itself. An adaptive system becomes ‘over-constrained’, reducing its adaptive capacity.

6. Context and root causes

The degree of simplicity or complexity of a responsive policy design will vary with context. Economic systems evolve over time and the state of a system will be different in different time periods. A particular set of problems or perceived dysfunctions may, in one period, be traceable back to a small set of root causes, and a responsive policy design might then be very simple in its own structure. In other states of the system, less simple responses might be more appropriate.

An example of radical simplification is to be found in a remark of Adam Smith, made at one of the discussion/debating clubs that flourished during the Scottish Enlightenment period. The context of the remark is itself important: such a club is not the place for the exposition of a full systems analysis (of the sort the *Wealth of Nations* was devoted to) and the relevant period was one of major imperial/colonial conflicts, not least between Britain and its North American colonies – a conflict in which disputes about taxation played a significant part.

Smith is recorded as saying:

“Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice; all the rest being brought about by the natural course of things. All governments which thwart this natural course, which force things into another channel, or which endeavour to arrest the progress

of society at a particular point, are unnatural, and to support themselves are obliged to be oppressive and tyrannical.”

It is rhetoric, but not in a narrative form, and it's a striking example of Zeeman's "*complexity in, simplicity out*". In effect, Smith identifies what might be called three root causes of economic dysfunction, or, in the language of strategy, three key points of leverage for influencing the future dynamics of the economic system. The underlying gestalt is one of a complex, dynamical, adaptive system with its own 'natural' processes.⁵

7. In conclusion

Corrupted economics is bad economics in the sense of Bastiat -- it fails to 'see' salient connectivities in the economic system. It does not meet one of the criteria for good economics set out by Keynes: "*The master economist must ... contemplate the particular, in terms of the general ...*". The natural starting point for the development of effective simplicity in policy design is 'the general', in all its complexity. But, in practice and for the most part, the 'general' is first set aside and left uncontemplated in a rush to find 'solutions' to particular problems.

For these practitioners, the words 'incalculably' and 'diffusive' are not in their dictionary. The favoured method is recourse to a convenient set of untested assumptions, and it is typically associated with either a conscious re-purposing of policy analysis (away from seeking to gain an understanding of the functioning of the relevant system or sub-system), or a willingness to act as an accomplice to such re-purposing by others, e.g. by turning a blind eye to it.

It is therefore characterised by ethical failures, manifested as weakness in countering the illegitimate intrusions of partial or private agendas into government decision making. In a nutshell, there is a willingness to bend analysis to serve those 'partial' (partisan) agendas.

Political economy developed as a subject with an acute awareness of the moral dimensions of the exercise of state power, particularly the responsibilities normatively attached to such a high level of power. A prime example of such a responsibility is that due consideration be given to the interests of all, not just some of, those who might be significantly affected, indirectly as well as directly, by policy actions. Unfortunately, much of that awareness has been lost in more recent periods and things would go better if there was at least a partial restoration.

⁵ As Ronald Coase later pointed out, Smith and his contemporaries were working with theories of evolutionary dynamics a century before Darwin. Coase also pointed out that their successors failed to build cumulatively on that foundational line of thinking, unlike the evolutionary biologists who later followed Darwin. The successors lost sight of the complex dynamics and uncertainties associated with the functioning of the economic system in its entirety..