

PARADIGMS AND FRAMING IN APPLIED ECONOMICS: METHODOLOGICAL ISSUES

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An international student call for pluralism in economics was released on 5th May 2014 (International Student Initiative for Pluralism in Economics, 2014). It referred to three forms of pluralism – theoretical, methodological¹ and interdisciplinary. The call was highly critical of both the narrow range of theory being covered and the overriding emphasis on quantitative methods in mainstream economics. It argued for inclusion of more theoretical perspectives and for qualitative analysis.

Thomas Kuhn's (1970) influential book, *The Structure of Scientific Revolutions*, emphasised paradigms² as determinants of our understanding, and paradigm shifts as descriptors of significant changes in understanding. His interpretation suggests that one paradigm will predominate until circumstances are such that it is replaced. This has been influential in defining the nature of debate between alternative schools of thought. For heterodox and pluralist economists, the concept of paradigms frames the issue in terms of a 'mainstream paradigm' and the need for alternative(s). Pluralism emphasises the co-existence of alternatives, attempting to draw from the 'set of alternative paradigms'.

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- 1 There are alternative interpretations of the term, 'methodology'. Sheila Dow (2012) takes a desirably broad view, seeing it as setting environments within which theories can develop. Drawing also on Bruce Caldwell (1986), she argued that competing schools may fail to understand each other due to their use of different methodologies and evaluative criteria. Criteria used by one school may be inappropriate for critical assessment of another.
 - 2 Kuhn (1970: 10) saw a paradigm as a coherent tradition of scientific practice, including law, theory, application and instrumentation, that has an enduring group of adherents.

Pluralist economics courses commonly cover a number of options, such as neoclassical, post-Keynesian, Marxist, institutional, Austrian, and behavioural (Chang, 2014, Ch. 4 outlines nine different schools).

This article takes a step back from debates within and between schools of thought and on empirical methods to give a different framing of the problem. J. M. Keynes (2007: 297) talked of additional reserves, qualifications and adjustments needed when applying formal analysis to the real world. Consideration of these requirements provides an alternative framing of the issues. The requirements are important, but are frequently overlooked or understated.³

A structure presented here focuses on three transitions or ‘paths’, namely those between theory and the real world, theory and empirical formulations, and empirical results and policy decisions. This provides a basis for critical assessment. By attempting to explicitly recognise the constraints of conventional analyses (seeming application of paradigms), it provides numerous questions which should be considered if research findings are to be viewed in a real world context. In the following sections I present the general structure, then illustrate points relevant for each path, before drawing general conclusions.⁴

A General Structure – Three Paths

In a discussion on the structure of argumentation in economics, Arjo Klammer refers to gaps in the reasoning:

Gaps between the theoretical and empirical arguments have not been bridged, policy implications do not necessarily follow and methodological arguments are, for the most part, seriously flawed (Klammer, 2007: 106).

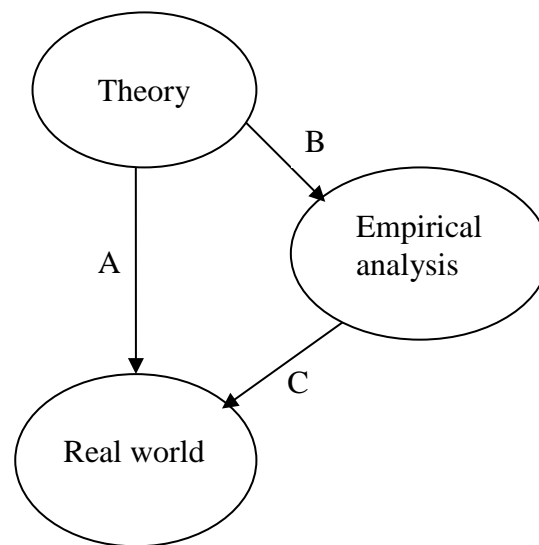
I have constructed Figure 1 to make broadly similar points, focusing on the application of economic studies to real world decisions. It highlights three areas that have received too little attention. There are potential

3 One means of broadening students’ perspectives would be to give increased attention to political economy within the economics curriculum.

4 The material draws from a longer and more wide-ranging manuscript by the author now available as a SpringerBrief, details at:
<http://www.springer.com/series/8876?detailsPage=titles>.

difficulties in the translation of results from one area of analysis to another as described by paths A, B and C. In each of these moves across areas, unrecognised errors are likely to arise. The diagram could be modified to include feedback from the real world impacting on theory and empirical analysis, or from empirical analysis to theory where findings appear to be inconsistent with a theory. This raises further issues about the political and institutional environment in which theories and techniques evolve. They are important, and feedbacks will occur. However, as below, there may be barriers to change when this involves challenges to established positions⁵.

Figure 1: Three Areas for Attention - Paths A, B and C



⁵ Peer review and research assessment exercises tend to constrain research to lie within the bounds of Kuhn's 'normal science', where the fundamentals are not challenged. A few key institutions, organisations and journals can be very influential in defining what is 'acceptable' (Gillies, 2006). Ha-Joon Chang (2014) describes some of these constraints when he writes of mainstream economics being defined by its theoretical approach rather than its subject matter. Political interest groups may also give incentives that promote research and perspectives that are favourable to them.

The arrows shown in Figure 1 direct attention to a range of problems. Theoretical findings, based on specific assumptions, may not translate directly to the real world (path A). The relationships or theoretical findings may also not be accurately or uniquely described in empirical analyses (path B). The results of empirical analyses may not support the claims made about their real world implications (path C). In each of these cases, the paths may not be based on logic, in which case they may rely on rhetoric. Especially where there are accepted conventions, as may arise within a discipline or profession, people may not recognise flaws in the reasoning.

Focusing on the arrows in the diagram, this article illustrates the way this framing shapes what we see. The extra aspects, the pieces that are omitted, must later be added in or refined to get a clearer understanding.

An underlying theme is that the development of ideas, the provision of information, the choice of conclusions and the significance of those conclusions are developed in a political environment. The politics in relation to academia, the governmental sphere, and the news media are very important for public perceptions of issues. They shape what is considered acceptable and what is considered correct. There is also a substantial subjective dimension to people's willingness to agree or disagree with findings presented to them, and also to the conclusions that researchers are prepared to draw from their analyses. These aspects need to be understood if we are to judge the value of findings from economic analysis and understand the environment in which those findings are used.

Central to an understanding of the significance of the diagram and the associated potential errors is the concept of *framing*. This concept is generally not expressly considered by economists, but it is regularly used elsewhere (Scheufele & Tewksbury, 2007; Severin & Tankard, 1997; Tversky & Kahneman, 1981; Weaver, 2007). It has been described as a process of 'selection, emphasis, exclusion, and elaboration' (Severin & Tankard, 1997: 320). Choices are made (sometimes by default) as to what will be included and excluded, and the stories which will be told about the included aspects.

Hyman Minsky was well aware of the problems that framing can cause, although he did not use the term. He drew on an address by James Tobin (1966) to describe its significance in an economics context:

James Tobin, who was a member of the Council of Economic Advisers during President Kennedy's first two years in office and who received the Nobel Prize in 1982, noted that 'The terms in which a problem is stated and in which the relevant information is organized can have a great influence on the solution'. But the way 'a problem' is stated and the identification of 'relevant information' reflect the economic theory of the policy adviser. That is, the game of policymaking is rigged; the theory used determines the questions that are asked and the options that are presented (Minsky, 2008: 110).

How we look at something shapes what we see. Minsky states this explicitly:

In all disciplines theory plays a double role: it is *both a lens and a blinder*. As a lens, it focuses the mind upon specified problems, enabling conditional statements *to* be made about causal relations for a well-defined but limited set of phenomena. But as a blinder, theory narrows the field of vision (Minsky, 2008: 109, emphasis added).

Any description involves framing. Economic models are not representations of the real world. They are simplistic structures which could be more accurately described as 'analogies' for aspects of the real world. Hence, "a 'theory' is not a collection of assertions about the behavior of the actual economy but rather an explicit set of instructions for building a parallel or analogue system" (Lucas, 1980: 697). Theories are alternative representations that, it is hoped, under some circumstances provide information which can be useful in aiding us to understand real world events. Their applicability in any specific situation is open to question and, of necessity, they will not be complete depictions of the phenomena of interest⁶.

Specific problems and pitfalls can be further elaborated in terms of the three 'paths' depicted in Figure 1.

6 Literature on groups and group cultures gives further insight into the context for research activity. This is indicated by Kuhn with his reference to 'normal science', and by J. K. Galbraith (1999) when he talks of 'conventional wisdom'. This aspect is covered in more detail in Birks (2012), as is the additional dimension of rhetoric and its significance in economics.

Path A: From Theory to the Real World

In his Preface to *The general theory of employment, interest, and money* Keynes wrote:

For if orthodox economics is at fault, the error is to be found not in the superstructure, which has been erected with great care for logical consistency, but in a lack of clearness and of generality in the premises (Keynes, 2007: xv).

Path A signals that theory does not describe the real world. Nor is a theory a simplified representation of the real world. Theories present simplified structures that economists and social scientists hope are suitable analogies for aspects of the real world. Extra thought is required for their application.

Given that there may be several possible explanations of observed phenomena, care should be taken about any conclusions that rely on evidence drawn from the real world being 'consistent with' theory. It does not mean that the theoretical explanation is correct: there may be numerous alternative explanations. Theories serve as tools that may aid us in our attempts to understand our environment and to make decisions. As with any tools, they must be used with care.

Theory may also be misapplied. The conventional economics approach to 'market failure' is based on a comparison with an 'ideal', perfect competition. The latter is used as a counterfactual against which to compare the 'failure'. In epidemiology, four alternatives have been suggested as counterfactuals in relation to risk of disease. These are *theoretical minimum risk*, *plausible minimum risk*, *feasible minimum risk*, and *cost-effective minimum risk* (Murray & Lopez, 1999). They represent, respectively, the lowest risk imaginable (even if highly unrealistic); the lowest risk that might be considered possible (even if not currently realistic); the lowest risk that has been achieved somewhere, and thus known to be attainable; and the lowest risk that could be achieved using all cost-effective means available. The economic 'ideal' as a counterfactual would roughly parallel the theoretical minimum risk, containing no distortions, while the others reflect the best we might ever expect to achieve, or the best that has been observed elsewhere, or the best that could be currently achieved using approaches that are known to be cost-effective. When the choice of counterfactual is framed in this

way, perfect competition is seen as an extreme option, presenting an unattainable ideal.

There are some standard reactions to criticisms of a theory. The four described below are common in economics when the 'accepted' theories are challenged. They are:

1. Accept the current theory as a matter of faith;
2. Do not look outside the current theory as long as it can give some explanation of an observed phenomenon;
3. Do not reject a theory, even if flawed, unless a challenger can present a superior alternative;
4. Take a more pragmatic approach.

Let's consider these four views in turn.

Accept the current theory as a matter of faith

Several writers have voiced concern at a perceived debasement of academic standards. Ezra Mishan talked of 'the stringent requirements of scholarship' being set aside where, 'the doctrines of ... ideologically inspired "studies" are not regarded by their proponents as provisional and refutable hypotheses' (Mishan, 1993: 202). Mishan was referring to studies based on gender and ethnicity. However, similar criticisms could also be made against other academics, even without clear political motivation, or rather, through acknowledging the politics of academia. Economics may readily fit this description.

A possible explanation lies in the effect of the framing of economic theory. Though economic theory is perennially claimed to be based on 'provisional and refutable hypotheses', it may be considered that the issues have been fully debated and resolved, or, at least, are so well entrenched as to be accepted as a starting point for any analysis. This would match the concepts of a 'dominant ideological-discursive formation' (Fairclough, 1995), 'normal science' (Kuhn, 1970), and 'conventional wisdom' (Galbraith, 1999). The phenomenon has been described specifically for economics (Robinson, 1970; Rosen, 1972).

Dominant mainstream theory provides a frame that has come to be widely accepted among economists, and this shapes perceptions of economic phenomena. Being 'accepted', it both enlightens and restricts the aspects that are observed. This economic theory has also tended to set

the agenda. In other words, mainstream economics has specified not only the approaches to issues, but also the selection of issues and questions to be considered (and those to be overlooked) by economists.

Do not look outside current theory as long as it can give some explanation of an observed phenomenon

Normal science has been described as ‘a strenuous and devoted attempt to force nature into the conceptual boxes supplied by a professional education’ (Kuhn, 1970: 5). Similarly, ‘conservative conventionalists attempt to preserve existent theories by building onto them ever more elaborate (critics would label them *ad hoc*) peripheral systems’ (Caldwell, 1980: 367). Even if successful, it should not be considered as an end to discussion. Not only is the presence of alternative consistent hypotheses possible but, according to Milton Friedman, it is inevitable:

Observed facts are necessarily finite in number; possible hypotheses, infinite. If there is one hypothesis that is consistent with the available evidence, there are always an infinite number that are (Friedman, 1953: 9).

In summary, this criterion for acceptability of an established theory – that it is consistent with the evidence - sets the bar at such a low level that many theories would be virtually impossible to reject. This could lead us to hold an inflated view of our level of understanding.

Do not reject a theory, even if flawed, unless a challenger can present a superior alternative

Writing on econometrics in *The Economic Journal*, Peter Phillips quotes a claim by Kevin Hoover about scientists: ‘even accumulated falsifications or anomalies do not cause scientists to abandon an approach unless there is the prospect of a better approach on offer’ (Phillips, 2003: C27). The point is made for economics: ‘... you can’t beat something with nothing, and so it is not enough to show that some given rational choice model does not fit the data, it is necessary to show that some other perspective leads to a model with better fit and predictive power’ (Grofman, 1993: 240). This approach would support the use of something that is known to be misleading in preference to admitting

ignorance.⁷ However, although criticisms of a theory or the presentation of contrary evidence have been dismissed on the basis that a superior alternative has not been presented, this is not a valid reason for ignoring flaws in a theory. Socrates, 2,400 years ago, acknowledged that it is important to recognise the limits of one's understanding (West, 1979). Disciplinary boundaries can (and typically do) serve to perpetuate misconceptions and to limit fruitful imagination.

Take a more pragmatic approach

The three views above could be considered as being logically flawed. Alternatively, they could be described as rhetorical arguments that are persuasive for their target audiences. They are widely used by people who want to maintain a particular position. However, another option is available – to take a more pragmatic approach, recognising the possibility of multiple partial truths.⁸

The information on the 2008 award of the Nobel Prize to Paul Krugman includes the statement: 'The truth, as in so many other instances, is that reality encompasses features of both theories' (The Royal Swedish Academy of Sciences, 2008, p. 2). Similarly, Gordon Tullock writes: 'I have given you a number of theories on how regulatory agencies act and I regret to say that instead of telling you now which one of them is true, I think all of them are partly true' (Tullock *et al.*, 1983: 10). There is a danger that a focus on simple explanations, automatically assuming they are valid, not looking beyond a narrow perspective, or rejecting valid criticisms unless alternative superior solutions are presented, results in an inflated sense of the extent to which issues are understood.

A pragmatic approach would result in a qualified use of theory-based understanding. Cross-disciplinary research combines inputs from disparate approaches. Similarly, a number of theories from within a

7 This interpretation could be given to the case put by Milton Friedman in his famous article on methodology (Friedman, 1953). The article has been very influential, but has also been strongly criticised for supporting questionable theory: see, for example, Mosini (2011).

8 There is an additional possibility. Those adhering to accepted approaches may view the undertaking of research as a game with rules or conventions to be followed, even if these are flawed and the conclusions suspect. In such an environment, those pointing out the shortcomings are 'whistleblowers'.

discipline may, in combination and with careful application, give a better understanding than can reliance on one approach alone. Additional consideration is required of necessary reserves, qualifications and adjustments, including aspects such as those highlighted in this article. Alternative evidence can result in two key qualifications that should be recognised:

- a) Valid criticisms should be recognised as limitations of current understanding (and hence on our ability to intervene to bring about desired changes);
- b) All theories should be recognised as being partial. They are analogies for, rather than representations of, the real world. They result in the framing of issues, so it is prudent to use a mix of theories and to acknowledge the aspects that are assumed away in a particular theoretical approach. There are qualifications and adjustments to be considered in any application of theory (to paraphrase Keynes, 2007: 297).

These points can be expressed in another way. Rather than considering that there are ‘theories’ that may ‘explain’ the evidence of the real world, it should be recognised that there are ‘analogies’ that may be ‘consistent with’ the evidence of the real world (and may thus possess some ‘explanatory power’). To represent the latter as the former is to overstate the level and value of our understanding.

Path B: From Theory to Empirical Analysis

There are many technical and practical aspects to consider in relation to Path B, moving to the empirical analysis of theoretical relationships. These include: issues of data availability, quality and applicability; aggregation of data over time, space and other categories; estimation methods and the range of functional forms that can be estimated; and criteria for choosing ‘best fit’. Here I will discuss just one common component in the quantitative estimation of relationships, that of ‘control variables’.

A Google Scholar search for ‘vector of control variables’, conducted on 27 February 2009, produced ‘about 4,140’ results. Repeated on 24 October 2012 the number had grown to ‘about 8,780’, and to ‘about 11,900’ on 13 November 2014. It has become common practice to

convert basic models with a few variables into ostensibly more complex and realistic models simply by adding ‘control variables’. It is then claimed that the results for the variables under investigation are observed having made full allowance for the other effects.

Without further explanation of the functional form, this claim is pure rhetoric. Consider standard approaches to the use of data in different currencies (adjusting for exchange rate differences by converting to a common currency) or different price levels (adjusting for inflation by converting from nominal to real values). Instead of these adjustments, would it be considered acceptable to add an exchange rate or a price index as an additional variable in a linear regression? The implication would be that the effect of, say, a price level change is independent of the magnitudes of all other variables. If such an approach is unacceptable, why should it be assumed sufficient when controlling for any other influences?

Note that in linear regression a unit change in a control variable is assumed to have a fixed effect on the dependent variable. This fixed effect is assumed always to be correct, although it also depends on the specific form of the dependent variable. How can it always be correct? Consider when the dependent variable is:

- a number – the control variable has a fixed numerical effect;
- a log – the control variable has a fixed proportionate effect;
- a total value (such as GDP) – the control variable has a fixed total effect;
- a *per capita* value – the control variable has a fixed *per capita* effect;
- a nominal value – the control variable has a fixed nominal effect;
- a real value – the control variable has a fixed real effect;
- a first difference – the control variable has a fixed effect on the first difference.

Should it be assumed that the relationship is correctly specified, whichever of these is used? This implication would appear to be highly implausible.

Similar issues have been identified in psychology, especially building on the work of Urie Bronfenbrenner, who recognised the impact of wider social factors on individual behaviour. As one illustration,

Bronfenbrenner challenged the idea that the effects of certain factors can be taken out so as to analyse interactions between others:

[Bronfenbrenner] went on to explain that it made no sense at all to control for ethnicity, social class, or household composition in an attempt to isolate 'pure' process. No processes occur outside of a context. And if we want to understand context, we need to take it into account, not pretend to control it away (Steinberg, Darling and Fletcher, 1995: 424)

This suggests a major problem with much of the quantitative work in economics. Unstated and untested assumptions are being made at the specification stage. This will generally have a substantial impact on the results, but not in any predictable or meaningful way. Specification error is a concern raised in econometrics textbooks, but not commonly in relation to control variables.

Path C: From Empirical Analysis to the Real World

Once deliberation on policy begins, additional issues arise. Competing viewpoints frequently cannot easily be resolved through consideration of the evidence, with the result that the policy implications of economic analysis remain uncertain. Other influences on the policy process may then become decisive. This point is clearly made in relation to the longstanding Monetarist-Keynesian dispute by Meghnad Desai (1981)⁹, who also describes the additional difficulties at the political and news media level. Political considerations, such as the information made available, how it is presented, and how support is achieved, become very important. So too do processes such as agenda-setting and agenda-denial and the activities of 'identification groups' and 'attention groups' (Cobb & Ross, 1997). Aspects of this problem were recognised long ago by Adam Smith (1963), when he described rhetoric used in politics, terming it 'deliberative eloquence'. Others have argued strongly that the 'fallacy of the transposed conditional' has resulted in widespread misapplication of tests of statistical significance (Ziliak & McCloskey, 2008).

There are also some specific policy questions to ask when drawing policy conclusions from quantitative analyses such as multiple regression. An

9 See also the excellent critical description of the debate in Wilber (1979).

'ideal' economic approach to policy decisions (assuming perfect information and zero costs of analysis) involves identifying all the available policy options, determining their effects, valuing them to calculate costs and benefits, and then applying a decision rule to select the best option.¹⁰ A statistically significant relationship in a regression equation tells nothing about alternative options. Nor does it address the question of costs and benefits. It merely demonstrates that it *may* be possible to alter the value of Y by changing the value of X. Outstanding questions¹¹ include:

1. Can one change X?
2. How can X be changed?
3. At what cost?
4. How much control is there over this change (how precise are the changes in X)?
5. How variable are the effects on Y?
6. What lags are there?
7. What is the *value* of the resulting change in Y (what is the benefit, does it outweigh the cost)?¹²
8. Are there distributional effects (gainers, losers)?
9. Are there side-effects?
10. Are there other policy options available (including changing the relationship between X and Y)?

10 Even then, decision rules can be flawed. For example, the criterion in cost-benefit analysis of positive or highest net present value ignores the *distribution* of costs and benefits. In other words, it implicitly requires the compensation criterion, although, if expressly stated, this criterion might be considered unacceptable.

11 These questions are raised in relation to econometric studies, but they apply to all policy options where one (policy) variable is altered so as to bring about a change in another (target) variable.

12 This is one of the key concerns raised by Ziliak and McCloskey (2008). Note that effects on Y, and the policy significance of the resulting Y, may not always be continuous. This can cause particular problems, especially where variability of outcome assumes particular significance. Consider the difference, for a non-swimmer standing in a tank of water, between a situation where the water level is constantly at shoulder height and one where the water level is, on average, at shoulder height. Econometric estimation gives average impacts only.

In summary, it is important to consider the ability to change the target variable, and the costs and benefits of such a change, as well as alternative policy options to address the same problem.

Closing Remarks

A standard economics education across the English-speaking world and beyond consists of an almost identical collection of courses based on the same limited number of established textbooks and associated study, instruction and assessment material, combined with some exposure to econometric methods. The focus is on learning the theories and methods so that the student can then understand or engage in research that follows the conventions of these bodies of literature. There is a central emphasis on 'mainstream', essentially neoclassical, economics. Pluralists argue, and can make a strong case, for a broader coverage of perspectives, inclusion of economic history and the history of economic thought and perhaps perspectives from other disciplines such as politics and sociology.

The focus of this article has been at one step removed from the debate on competing theories. The concern has been for the rhetoric and framing that underpins the prevailing conventions. This suggests a framing that highlights three additional areas where economic analysis could benefit from critical assessment. It raises questions relevant for many applications of theory and applied research where the aim is to provide relevant policy advice. The questions are also useful for critically assessing the reasoning used in the political process, especially in the case of 'evidence-based policy'.

The three areas refer to the relationship between theory and the real world, theory and empirical analysis, and to how the results of empirical analysis may relate to real world effects. Theories, if seen as analogies, are not competing directly as full explanations for real world behaviour. In combination they may provide better insights. However, there is still a need to consider additional qualifications and adjustments. One way to identify such additional requirements is to consider paths A, B and C. There are important aspects of each of these which can benefit from more explicit consideration than they generally receive. The points included here provide a basis for telling critiques of much of the accepted thinking in economics and econometrics.

An understanding of framing and associated rhetoric is an important component of this critique. It is useful for identifying possible explanations for the existence and ongoing prevalence of the problems highlighted by these questions. Given that all exposition involves both rhetoric and framing, it also suggests ways in which the situation can be improved, not least by recognition of the nature of the problem.

It is not enough that some people are aware of the need for change. There has to be a group of sufficient size to ensure that the issue is heard and that change occurs. The challenge is therefore not simply for individuals to broaden their approach to economics. It is for economists generally to be open to a wider range of approaches and to be more critical of the approaches that they use. This is harder, but the end result could be an exciting, vibrant, relevant discipline.

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