

Real World Economics: The Peculiar Case of Applied Economics Provision in England and Wales

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Abstract: This paper examines the teaching of Applied Economics and questions whether it could be seen as a trendsetter providing a pluralist perspective via robust policy analysis. This is achieved through three elements. Initially by reviewing the characteristics of Applied Economics teaching in England & Wales we find very little variation in undergraduate pedagogy. Subsequently, we explore how the symbiotic development of economics and mathematics narratives could contribute to this rigidity. The results show an inherent idealism that inhibits and destabilises any value applied economic analysis could contribute to the pluralist position. Finally, we introduce Lakoff's cognitive linguistics to explain how applied economics could impede the exploration of heterodox ideas. We conclude that Applied Economics teaching, as presently practiced in England and Wales, has less to contribute to the education of economists than typically asserted. Unless there is a conscious intent of highlighting pluralist implications in Applied Economics, we recommend a refocus on the study of the History of Economic Thought.

Keywords: Applied Economics; Real World Economics; Neoclassical Economics; History of Economic Thought; Cognitive Linguistics; Lakoff; Teaching Pedagogy.

1. Introduction

This paper investigates the nature of the 'Applied Economics' in higher education in England and Wales. Applied Economics is defined as a module principally designed to acquaint students with core policy inference skills, rather than the rarer and more confused use of the term to signify quantitative methods. It begins with a simple question: can the modules under scrutiny be considered a key component of pluralism in the economics curricula? This stance finds its impetus in how realism is frequently forfeited for the sake of theory in many neoclassical economic modules. Reiterating the continued influence of Friedman (1953), it seems that economists need only to worry about the inconvenience of actual outcomes when assessing a theory's predictions. With little need for model assumptions to conform to reality, in the explanatory words of Dow (2003, p. 13), theories "[are] simply instruments for predicting the values of variables". In this context Applied Economics becomes a tool for investigating whether specific modelling 'works'. This should ideally include an exploration of how particular theoretical approaches fail, and subsequently stimulate debate between different schools of thought in order to ascertain a better prediction for actual outcomes.

More progressive interpreters of Applied Economics argue that it provides the perfect vehicle to introduce heterodox ideas not covered in core theoretical materials. Earl and Peng (2012, p. 194), speaking more generally about delivering pluralism in economics, write:

"The big chance for heterodox economics lies in applied work where theories meet facts rather than simply being 'proved' mathematically for a stylized context. Here, pluralism has enormous Trojan Horse potential. The pluralist applied economist can present as a well-read researcher with no particular theoretical axe to grind, who is merely interested in finding out how a particular part of the economic system works."

In the hands of the heterodox economist, Applied Economics can be subtly mobilised, whilst ostensibly being deployed to introduce the vibrancy of economic thought; it can also covertly expose limitations that lie at the heart of the neoclassical theory taught at the introductory level.

A contrasting, and arguably more negative interpretation of Applied Economics, is that it is used only as a forum for reiterating the unimpeded narrative of fundamental neoclassical values. Re-affirming the apparent invulnerability of theoretical economic approaches, their limitations remain unchallenged. Stifling debate, Applied Economics can thus become a stage

on which to rehearse and re-rehearse lines learnt elsewhere. Whilst there may well be a genuine effort to illuminate topical economic issues, this approach constrains Applied Economics and relegates its role to one that necessarily engineers a narrow focus within the student cohort. This mostly finds form when the interpretation of empirical evidence is motivated by the desire to ensure consistency with apparent economic laws.

To see how this particularly conservative visioning of Applied Economics operates, take for example the reaction to Card and Krueger's minimum wage research, in which core concepts of labour theory were questioned. The barrage of criticism that ensued is pertinently encapsulated by Leonard, who posits that the reason why economists have been so resistant to the findings of Card and Krueger is because discovering the absence of any effect of minimum wage legislation on employment raises doubts about the core theory. As Backhouse and Biddle (2000, p. 16) note, "[t]heory is there to be applied, in the sense that models can be fitted to data and policy conclusions can be drawn, but the relationship is one-way".

The structure of this paper is as follows. Section 2 introduces our review of Applied Economics in English and Welsh Universities. We investigate who is and who is not providing these modules. We investigate the required reading guidelines and the characteristics of learning outcomes. Together, without knowing the detailed lecture plans, this allows us to reveal some general characteristics of current Applied Economics curricula. Section 3 then asks whether curriculum reform is needed to deliver a pluralist perspective. First, taking a brief look into the History of Economic Thought, we analyse the language of neoclassical economics and explore how the historical evolution of economic discourse may intrinsically hinder any pluralist delivery. We consider whether simply applying neoclassical economics to policy problems is sufficient to engineer a form of 'real world economics'. Second, we refer to linguistics and show how Applied Economics could be counterproductive to the pluralist cause. Third, we return to our review and analyse how choice of policy analysis has narrowed the teaching experience.

2. Reviewing English and Welsh Applied Economics Provision in Higher Education

There is significant variation in the design of degrees across the UK. For example, Scottish Universities, to generate a flexibility in design to enable a broader education, use a 4-year

degree system. Given that such differences will only generate further noise for our review of Applied Economics, we restrict our consideration to universities in England and Wales. Within these universities we use available on-line curriculum information for degree structures in either BA or BSc Economics programmes. Rejecting any university where this information is not provided in detail, we are left with economics programmes in 59 institutions. Overall, we find that Applied Economics at Year 1 and Year 2 of undergraduate education is only provided in 42% of institutions. It is therefore surprising how many economics graduates may proceed to their final year with very little visible application of economics to real-world problems. Table 1 summaries the key characteristics of the learning aims and outcomes mentioned in the Applied Economics modules at Year 1 or 2.

[Table 1 Here]

Not surprisingly, we find that three quarters of these modules refer directly to policy. A superficial indiscriminating glance—contextualising pluralism in terms of real world application— may suggest this is evidence of pluralist delivery. These modules could well be used to show the distinction between theory and practice. There are, however, potential problems with this viewpoint. First, it is noticeable that the second most popular required reading refer to textbooks used in Introductory Economics modules. While it is still possible that such orthodox texts are used as part of the critique of theoretical claims, only 25% of modules refer to ‘critical appraisal’ in their learning aims and outcomes. Attempts to improve the curriculum, such as INET-CORE, have also met criticism over insufficient innovation. Morgan (2014, p.10) is scathing of CORE’s contribution:

“What began as recognition of fundamental problems that require fundamental change is becoming a more modest set of alterations. An initial recognition of failure within economics is being translated into a context of relative success, requiring more limited changes.”

In addition, our fourth category- the breadth of economics- is rarely mentioned, suggesting these modules are not used to investigate the boundaries of orthodox economics.

Policy is also often mentioned within the learning aims, typically in conjunction with the term ‘analytical’. Analytical skills are an integral part of economics undergraduate training. Such

modules are consistent with the need to provide students with the Quality Assurance Agency for Higher Education (2015, p. 6) benchmarks:

“to provide students with analytical skills and an ability to develop simplifying frameworks for studying the real world. They should be able to appreciate what would be appropriate levels of abstraction in order to study a range of economic issues and the specific assumptions that guide the criteria for simplification.”

Within a monist perspective, such analytical skills can simply refer to the ability to apply models learnt within Introductory Economics, thus risk sliding into “naïve, superficial generalism(s) with little in-depth insight [or] problem solving capacity” (Groenewegen, 2007, p. 172). The standard approach may therefore merely reinforce the dominance of neoclassical theory and the failure to consider alternative schools of thought.

Most modules focus on textbook reading support, with only a small percentage referring to a focus on journals and magazines. There is little variation in choice, with four different Applied Economics texts mentioned and preference for one clear choice. Devoted use of textbooks, as discussed in Watson et al. (2014), is typically inconsistent with the pluralist perspective. It immediately dictates and constrains the role of the teacher who (like the book) becomes unquestioned as students are directed towards a ‘truth’. This encourages an approach to their subject with few self-conscious reflexes, and limited ability to interrogate or understand their own situation in relation to it. The author/teacher is always right and the student’s role is to follow.

We now turn to the characteristics of the institutions that currently are not providing an Applied Economics module option. As summarised in Table 1, we separate the relevant programmes according to two overall criteria:

- **Constrained Programmes:** Programmes which perceivably have no room for an Applied Economics module due to module commitments elsewhere. We consider three aspects. First, many economics programmes are within business schools. Here, it is common to have a more uniform Year 1. This allows greater flexibility for academic transfers across disciplines. Second, we consider variation in technical skills across economics programmes. Thus, some universities may impose much greater

technical training on Year 1 students. Third, there may be a greater focus on more general skills training as universities target increased employability.

- **Alternative Approaches:** There could well be better approaches to supporting pluralism in economics. Dow (2009, p. 42) makes a valid claim that the “questions posed by pluralism are essentially methodological and therefore require students to be both methodologically aware and methodologically informed”. We therefore also control for programmes that, rather than providing Applied Economics, offer History of Economic Thought and/or Economic History.

Broadly speaking, the non-providers are equally split between our two criteria. Of the programme constraints, we do not find evidence that there is a restrictive reliance on either technical skills or the provision of more general employability skills. However, over a third of the programmes cannot offer Applied Economics modules because Year 1 provision is on a par with a joint honours in Economics & Business. More positively, we find a continued reliance on either provision of History of Economic Thought or Economic History.

Our short review suggests a relatively conservative approach to Applied Economics. One possible response would be to replace such modules with an option in History of Economic Thought, Economic History and/or Economic Philosophy (Duhs, 2006). Investment in these areas may well be encouraged by key employers. The Economic Network’s employer survey (Pomorina, 2012), for example, includes responses from key members of Britain’s Government Economic Service (GES). Investigating weaknesses in economics curricula, there is evidence that the GES does see Economic History as a key subject skill. However, an alternative response would be to pursue a transformation of Applied Economics. We now investigate this further, using linguistics to highlight why there has been a tendency so far towards monist delivery.

3. Applying Language & Linguistics

There exists an abundant literature examining the application of language and linguistics analysis to economics (e.g. Samuel, 1990; McCloskey, 1995). Here, we offer a variant of this analysis to understand the difficulties in linking Applied Economics with the delivery of a pluralist perspective. This separates into three elements. First, we examine the origins of the

neoclassical narrative and argue that its development reflected the contemporaneous pursuit of mathematical certainty. This characteristic has subsequently become difficult to dislodge because of the perceived value of that certainty when applied to policy discussions. Second, we apply theories of cognitive linguistics to Applied Economics to explore how these modules are used to frame perceptions of truth. Policy analysis repeatedly frames certainty in response to the optimal strategies provided by neoclassical economics. Third, returning to our review, we provide examples of policy analysis to illustrate how this false sense of truth can hinder the learning experience and restrict critical appraisal.

3.1 Argument 1: The ideological origins of Applied Economics

One of the more frequent criticisms of neoclassical economics is its over-reliance on mathematics. Blaug (1997, p. 3), for example, writes, “Economists have converted the subject into a sort of social mathematics in which analytical rigour is everything and practical relevance is nothing.” Attacking the application of mathematics in economics, however, lacks academic merit. There are numerous textbooks, such as Elsner *et al.* (2015), which show how alternatives to neoclassical concepts can be even more technical in their design. The real problem is supposedly how neoclassical economics is essentially a meritless copy of the physics metaphor, as summarised by Mirowski (1989, p. 368):

“[H]owever coy and ambivalent neoclassicals may appear to be about their physics metaphor, it cannot seriously be repudiated or relinquished, because there is nothing else that can hold the neoclassical research program together. In the absence of the metaphor of utility as nineteenth-century potential energy, there is no alternative theory of value, no heuristic guide to research, no principle upon which to base mathematical formalism, no causal invariant in the Meyersonian sense, and most threatening, no basis for the claim that economics has finally become scientific.”

While we are not disputing this argument, to understand the lack of pluralism in economics we believe a more careful assessment of the role of mathematics is required. Weintraub (2002, p. 2) rightly noted that “[i]f economics is intertwined with mathematics in the 20th century, in order to understand the history of economics we need to understand the history of mathematics”. Consideration of that history leads to a particularly pessimistic outlook for neoclassical economics within a pluralist context.

Marshall codified the modern economic approach. He could indeed be held responsible for the unnecessary complexity that was introduced and subsequently evolved to justify the privileged role of economists for policy making. In 1884, for example, he referred to how economists could become “a specialist voice in the art of policy-making” as theoretical training became “inaccessible to laymen”. There is also no disputing the relevance of Marshall for how Applied Economics is taught today. Ekelund and Hebert (2002, p. 198) note:

“When we refer to neoclassical economics today, we usually mean the collection of tools of economic knowledge available to (and invented by) Marshall, channelled and directed into uses dictated by Marshall’s view of economic science.”

However, Ekelund and Hebert also acknowledge that the tools of neoclassical economics substantially predate Marshall. Important figures include: William Whewell (1799-1866), who adapted mathematics to render economics more systematic; and the astronomer and railway engineer Dionysius Lardner (1793-1859), one of the first to sketch out the theory of the firm.

So how can we understand the nature of mathematical analysis during this period? Key insights are offered by the detailed historical account provided by Cohen (2008, p. 14-15). Whewell is characterised as a Victorian idealist who yearned to find certainty through mathematics:

“[He] cited the Roman naturalist Pliny the Elder, who declared upon the mathematical prediction of an eclipse, ‘Great men! Elevated above the common standard of human nature, [have] discover[ed] the laws which celestial occurrences obey.’”

The ‘elevated’ position of mathematicians in the heavens with access to celestial knowledge serves the progressive optimism of the 19th century particularly well. Scientists becoming gods in their own right as they not only uncover the secrets of the world, but master them through an increasingly sophisticated number system. The era in which economic language originated is therefore characterised by the noble desire to eliminate uncertainty via the precision of mathematics. Such a position of divine right echoes the sentiment of Plato who claimed in the *Epinomis*:

“If numbers were banished from mankind, we could never become wise at all. One can hardly imagine a stronger assertion: Without mathematics- that God-given way of illuminating the universe- human beings would flounder in the dark.”

In the quest for absolute accuracy and perfect meaning only numbers will do. Words are far too ambiguous, too inherently plural, and too vulnerable to misinterpretation. This would

seem to be anticipated by the philosopher John Wilkins (1614-1672) who attempted to avoid the uncertainties of speech by creating a new dialect based on symbols. As Cohen (2008, p. 28), explaining the idealism, puts it: "Words can lie, distract, mislead, confuse, and advance false religion; clean notation, exemplified in the symbols of mathematics, cannot". Implicit in Cohen's terms is that there is something innately immoral about language's fickle and wayward relationship with truth.

The prevalent ideology of the time therefore can be summarised that the universe is divided into two planes: the sacred realm of the ideal and the profane realm of matter. This relates to the contemporaneous European narrative of Symbolism and, in this instance, it is mathematics that allows man to pierce the sacred veil between the real and the ideal. For the fiercely religious Whewell, the illuminating characteristics of mathematics lifts humanity closer to God's ideal. Thus, it is possible to situate the origins of neoclassical economics firmly in a time where mathematical idealism is driven by the desire to emulate and attain a religious 'truth'.

Economics derived its own language (linguistic and symbolic) from disciplines intent on proving their own infallibility, their privileged relationship with the infinite and importantly at the time harbouring little doubt that this state of perfection could be achieved. Such positioning explains why, even today, over one hundred years since neoclassical economics evolved, the chaos of the material world is considered irrelevant to the purity of the mathematical modelling. It also illuminates why occasionally the interference of reality is even scorned as a corruptive influence, diluting the pristine form of the discipline. The religious intensity which fuelled the ideals from which it emerged encourages such moral judgements. The idealism of the late 19th century is never far away from the current economic dialectic precisely because it still operates within the signification of that time.

To summarise, during the late nineteenth century the discipline of economics experienced profound changes that culminated in the subject we know today. It parted company with the social sciences and sought less discursive methods to fix its interpretation of the world. But why has it been slow to adapt since? Fullbrook (2016, p.2), referring to the subsequent narrative pluralism which developed in physics, writes:

“The achievements resulting from this opening up of physics to other narratives have been even more spectacular than those that came from classical mechanics. Without that intellectual liberation, human reality would be radically different from what it is as I write.”

We have indicated that, rather than just being a misapplication of early physics theory, neoclassical theory evolved from within the unyielding narrative of mathematical idealism. Borrowing from Herschel’s (1861) words on the abstract, it has hidden from the “reeling tempest of conflicting meanings”. Idealistic and shunning conflict, clear policy messages are generated. This creates further demands for clarity and further shifts the impurity of pluralist debate to the side-lines.

3.2. Argument 2: Framing a truth with Applied Economics

We now turn to how Applied Economics is used to support idealism within neoclassical economics. To do this, we apply the lessons provided by cognitive linguistics. The founder, Lakoff, argues that language is more than a communication device and that metaphor is the essential component of thought, “Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” (Lakoff and Johnson, 1980, p. 3).

Language therefore triggers a mental landscape that shapes how we construe reality. The implications of Lakoff’s stance on how we understand political signification is dramatic. Debates suddenly become contests, not between each individual’s logical and persuasive rhetoric, but between substantial metaphors that act as shorthand keys to established and pervasive meanings that are difficult to challenge because they are never fully formulated. Rather than a rational electorate basing their conclusions on a logical pursuit of factual information, they look for frames that are “fixed in the neural structure of their brains” by sheer repetition.

The promise of tax ‘relief’, for example, frames tax as an affliction, something which would ideally be avoided rather than a positive contribution to a society that repays and redistributes. Even the use of ‘benefits’ (currently the preferred public term for ‘welfare’) triggers a negative response – it necessarily implies that people are profiting from society in a way that others are not. To receive ‘welfare’ reinforces the hierarchy and explains why people are far more comfortable donating to food banks than to redistribute income fairly:

they do not believe then that someone is benefiting at their expense. This shorthand language feeds directly into very fixed hierarchical ideas of how society is structured and how equality should be achieved. It is easier to support the idea of the welfare state than it is to tolerate the benefit system, due to how language triggers an associative and repetitive response in the mind.

So how can this be applied to Applied Economics? We can start by referring to how Applied Economics hypothetically operates. Gallardo (2004) neatly separates Applied Economics into two branches:

- The Theorists: who, adopting a mathematical language, have little need to validate their approach through empirical models.
- The Practitioners: who use applied models with the primary intention of formulating economic policy.

This binary split necessitates a teaching system open to both positions. Ideally a dialogue between theory and empirical evidence should result in logical shifts that can be fed directly into policy making. This process is summarised in the following figure:

[Figure 1 here]

Lakoff's approach offers a window into the linguistic shortcomings that inherently disrupt this logical process. If language operates how he suggests then all of the most familiar well-used terms in the economic lexicon become implicated as substantial metaphors that trigger a specific shared mental landscape. As long as the discipline operates with an awareness of this implicit meaning then its integrity cannot be called into question. However, without the linguistic self-consciousness that Lakoff liberates, debate in economics becomes just another metaphoric dance that is repeated endlessly as primary terms are exchanged ad infinitum without any real comprehension of what the words really mean.

This is particularly pertinent for economics as the core terms have remained fixed for over one hundred years. In the light of this, Applied Economics can easily become a forum not for the enlightening process of analysis suggested in Figure 1, but for a process in which 'sheer repetition' of over-used terms replaces critical appraisal. Terms such as 'perfect competition' are themselves obstacles to debate as they immediately trigger and impose the abstract idea

of an illusory epitome on the reality that refuses to accommodate it. The language is effectively resisting debate since it refers to a sanctified space which must be overcome before critical appraisal and policy implications can be addressed. At its extreme the exchange of metaphors in economics creates a language that essentially governs a closed abstract space where meaning is sustained only by endless repetition.

Argument 3: The framing of Applied Economics involves restricting policy discussion.

To refer to topic selection in Applied Economics curricula and how it is used as part of this exercise in repetition, we return to our review of English and Welsh Applied Economics. We investigate the topics covered and, with reading material considered, look at how policy analysis is treated. A summary is provided in Figure 2.

[Figure 2 here]

The most popular topic is Labour Economics, which inspires more optimistically how Applied Economics can assist in delivering a pluralist perspective. For example, Winter-Ebmer (2014, p. 87), discusses the successful application of Behavioural Economics in labour analysis:

“It is also a bit surprising to me that the actual International Student Initiative for Pluralism in Economics (www.isipe.net) is unhappy with neo-classical economics, but does not acknowledge the extensive and far-reaching insights from behavioural economics”.

This appears to be promising. Lakoff also refers to the importance of Behavioural Economics, considering how the likes of Kahneman and Tversky explain economic choices through frames and metaphors. However, is this behavioural analysis within the labour curricula covered? The evidence suggests not. A superficial look at reading lists exposes a repetitive litany of neoclassical concepts, particularly supply and demand theory used to understand policies such as the minimum wage and migration. Profound analysis— the application of ‘mini-concordance’ analysis of a standard Applied Economics textbook— supports this stance. Figure 3 presents the top four ‘mutual information scores’ for the two most popular Applied Economics terms: ‘market’ and ‘competition’.

[Figure 3 here]

The collocation of vocabulary is revealing. Given the preference towards studying Labour in Applied Economics, it is not unexpected to see such a strong occurrence of the word 'market'. However, there is very little reference to individual 'workers', which suggests that the terms are fixed in a certain frame and that the analysis is typically another rehearsal of supply and demand. The fourth strongest association is with the term 'free', which frames the market in a particularly positive light. This influence is emphasized by the most common words partnering to 'competition' are 'perfect', 'policy' and 'increased', all referencing how the optimal nature of the market can be maintained. These linguistic confluences typify economic language which uses a relatively small pool of terms in a variety of hyphenated orders ensuring self-confirming repetition. This quick glance at the language sufficiently reveals how the principal terms constantly relocate the economic mind in the limited abstract space of the neoclassical framework.

Other popular topics suggest that using 'policy' as a shorthand code for pluralism is indeed an overly optimistic leap. Consider, for example, Environmental Economics. Language cannot be trusted when a 'policy' topic on Environmental Economics such as global warming, coupled with the textbook Griffith and Wall, is used to push an idealised 'least-cost solution'. The complexities associated with perceived overconsumption and overproduction, and their impact for our understanding of sustainability, are not mentioned in the text.

This deficiency is highlighted further in the Financial Economies. Of the modules referencing this subject area, the financial crisis is only directly referred to three times. One case, however, does refer to how the crisis can be used to press the perceived importance of a behavioural macroeconomic stance. Through application of corruption and bad faith, there is a clear intent to show problems with the general assumption that the economy can be largely seen as self-regulating.

Overall, however, the topics selected in Applied Economics suggest they are an excuse to support introductory microeconomic and macroeconomic concepts. Transport Economics is used, for example, to again replicate internalisation of externalities used within introductory microeconomics. Other popular topics include reference to macroeconomic policy and Industrial Economics (largely the consideration of privatisation). It is reasonable to assume that these modules are therefore mere shadow puppets disseminating the tenets of core provision and providing an occasion to further reinforce neoclassical core theory provision.

Our understanding of the topics covered is not complete. The textbook, with initial focus on standard neoclassical analysis, may subsequently be developed to critically assess conflicting perspectives. However, it is notable that only one subject area—Defence Economics—consistently refers to different schools of thought. Trying to appreciate the impact of military expenditure and arms production on the economy, reference is made to debate across liberalism and other schools of international political economic thought. There is also reference to internal debates within schools such as Marxism. This topic, however, is a rarity in Applied Economics. This arguably reflects how, although it is a relatively small sub-discipline, there is less insularity as academics in this field struggle to alleviate difficult security problems. Elsewhere, inconsistent approaches adopted by non-economists are as likely to be ignored as the schools of thought which reject the neoclassical viewpoint. Strassmann's (1993, p. 64) observation is illuminating,

“As long as adherence to central stories determines theoretical importance, modifications that do not adhere to these stories will be marginalized and known in detail almost exclusively by those who specialize in them.”

4. Conclusions

Our review of English and Welsh Applied Economics indicates how three intertwined factors have constrained Applied Economics delivery. First, the influence of late 19th century mathematics generated an innate preference for policy analysis focused on delivering a technical optimal outcome. The notion of an economic approach capable of delivering an understanding of ‘truth’ becomes accepted. Second, Applied Economics— rather than testing the boundaries of economic analysis— is typically focused on reaffirming this truth. Through the lens of cognitive linguistics, we reveal how Applied Economics becomes easy prey for the repetition of neoclassical metaphors. Third, to maintain this repetition, the breadth of analysis covered is curtailed.

Responding to these issues, one possible solution is to break away from Applied Economics and to more consistently provide modules in the History of Economic Thought, Economic History or Economic Philosophy. Here, students would be free from the rigid closed language of neoclassical economics to consider the most important, yet strangely overlooked, economic questions: “how so” and “why”.

There is, however, an alternative: transformation of the adopted pedagogical approach. Rather than using Applied Economics in support of core economic modules, the curriculum can instead focus on 'wicked problems'. Batie (2008) summarises such problems as 'social messes', where analysis is difficult and solutions elusive due to the wide range of social and political factors that must be considered. Examples include terrorism, global climate change, poverty, crime, pandemics, and stem cell use, all ideal vehicles for the pluralist perspective as there is no consensus over policy and therefore a vital and immediate need to evolve a substantial debate between the different solutions offered by alternative viewpoints. Pluralism, rather than being a posture that one adopts, should refer to the liberated intellectual space which accommodates differing voices without any single one dominating at the expense of the others.

References

- Batie, S.S. (2008) 'Wicked problems and applied economics', *American Journal of Agricultural Economics*, Vol. 90 No. 5, pp. 1176-1191.
- Backhouse, R.E. and Biddle, J. (2000) 'The concept of applied economics: A history of ambiguity and multiple meanings', *History of Political Economy*, Vol. 32 No. 5, pp. 1-24.
- Blaug, M. (1997) 'Ugly currents in modern economics', *Options Politiques*, Vol. 18 No. 17, pp. 3-8, reprinted in Mäki, Uskali (Eds.) (2002) *Fact and Fiction in Economics: Models, Realism and Social Construction*, Cambridge and New York: Cambridge University Press.
- Cohen, D.J. (2007) *Equations from God: Mathematics and Victorian Faith*, The John Hopkins University Press.
- Dow, S. (2003) 'Critical Realism and Economics', in Downward, P. (Eds.), *Applied Economics and the Critical Realist Critique*, Routledge.
- Dow, S. (2009) 'History of thought and methodology in pluralist economics education', *International Review of Economics Education*, Vol. 8 No. 2, pp. 41-57.
- Duhs, L.A. (2006) 'Is economic philosophy a subject worth teaching?', *Australasian Journal of Economics Education*, Vol. 3 No. 1-2, pp. 90-110.
- Earl, P.E. and Peng, T-C. (2012) 'Brands of economics and the Trojan horse of pluralism', *Review of Political Economy*, Vol. 24 No. 3, pp. 451-467.
- Ekelund Jr., R.B. and Hébert, R.F. (2002), 'The origins of neoclassical microeconomics', *Journal of Economics Perspectives*, Vol. 16 No. 3, pp. 197-215.

Elsner, W., Schwardt, H. and Heinrich, T. (2014) *The Microeconomics of Complex Economies: Evolutionary, Institutional and Complexity Perspectives*, Academic Press Inc.

Ferraro, F., Pfeffer, J. and Sutton, R.I. (2005) 'Economics language and assumptions: How theories can become self-fulfilling', *Academy of Management Review*, Vol. 30 No. 1, pp. 8-24.

Friedman, M. (1953) 'The methodology of positive economics', pp. 1-43 of his *Essays in Positive Economics*, Chicago: Chicago University Press.

Fullbrook, E. (2016), *Narrative Fixation in Economics*, WEA and College Publications.

Gallardo, A. (2004) 'Historia del pensamiento económico y progreso de la ciencia económica. Una perspectiva pluralista', *Cuadernos de Economía*, Vol. 23 No. 41, pp. 11-48.

Groenewegen, J. (2007) *Teaching Pluralism in Economics*, Edward Elgar.

Herschel, J.F.W. (1831) *A Preliminary Discourse on the Study of Natural Philosophy*, London: Longman, Rees, Orme, Brown and Green.

Lakoff, G and Johnson, M. (1980) *Metaphors We Live By*, University of Chicago Press.

McCloskey, D. (1995) 'Metaphors Economists live by', *Social Research*, Vol. 62 No. 2, pp. 215-237.

Mirowski, P. (1989) *More Heat than Light*, New York: Cambridge University Press.

Morgan, J. (2014) 'A Heterodox Perspective on the Curriculum Open-Access Resources in Economics (CORE) project of the Institute for New Economic Thinking', *World Economics Association Newsletter*, Vol. 4 No. 1, p. 10.

Pomorina, I. (2012) *Economics Graduates' Skills and Employability*, Economics Network: Bristol.

Quality Assurance Agency for Higher Education (2015) *Subject Benchmark Statement: Economics* [online]. <http://www.qaa.ac.uk/en/Publications/Documents/SBS-consultation-economics.pdf> (Accessed 8/9/2015).

Rutherford, E. (1924) *The Electrical Structure of Matter*, Reports of the British Association for the Advancement of Science, C2.

Samuels, W.J. (1990) *Economics as Discourse: An Analysis of the Language of Economists*, Springer Science + Business Media, LLC.

Strassman, D. (1993) 'Not a free market: The rhetoric of disciplinary authority in economics', in Ferber M.A. and Nelson, J.E (Eds.), *Beyond Economic Man: Feminist Theory and Economics*, Chicago: University of Chicago, pp. 54-68.

Watson, D., Cook, S., Arico, F. (2014) 'Death of the pedagogue: pluralism and non-didacticism', *International Journal of Pluralism and Economics Education*, Vol. 5, pp. 242-255.

Weintraub, E.R. (2002) *How Economics became a Mathematical Science*, Duke University Press.

Winter-Ebmer, R. (2014) 'What is (not) behavioural in labour economics?', *Labour Economics*, Vol. 30, pp.86-87.

Table 1: Characteristics of Applied Economics in England & Wales

Learning Aim & Outcomes Mentioned		%
<i>Policy Orientated</i>		75.00
<i>Analytical Skills</i>		41.67
<i>Critical Appraisal</i>		25.00
<i>The Breadth of Economics</i>		4.00
Required Reading		%
Griffiths & Wall: Applied Economics		37.50
Standard Micro/Macro Core Theory Textbooks		18.75
Le Grand et al.: The Economics of Social Problems		12.50
Bowmaker: Economics Uncut		6.25
Freakanomics		6.25
<i>None: Use of Journals</i>		18.75
Characteristics of Non-Providers		%
<i>Constrained Programmes</i>		
<i>Business</i>		35.3
<i>Technical</i>		8.8
Employability		2.9
	<i>Total</i>	47.1
<i>Alternative Approaches</i>		
<i>History of Economic Thought &/or Economic History</i>		35.3
<i>Social Science</i>		17.6
	<i>Total</i>	52.9

Figure 1: Critical Appraisal in Policy Analysis

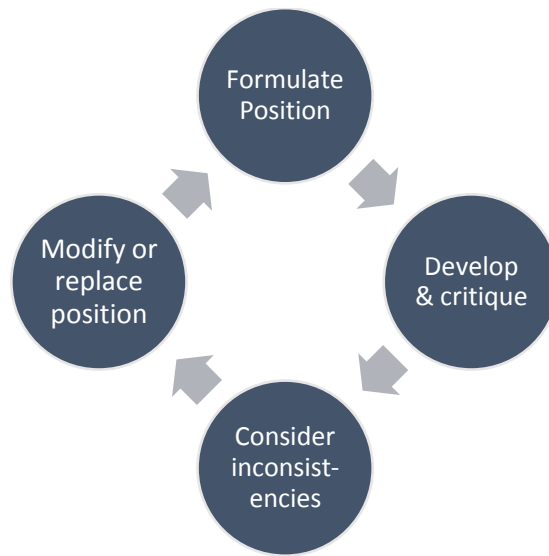


Figure 2: Topics Covered in English & Welsh Applied Economics Modules

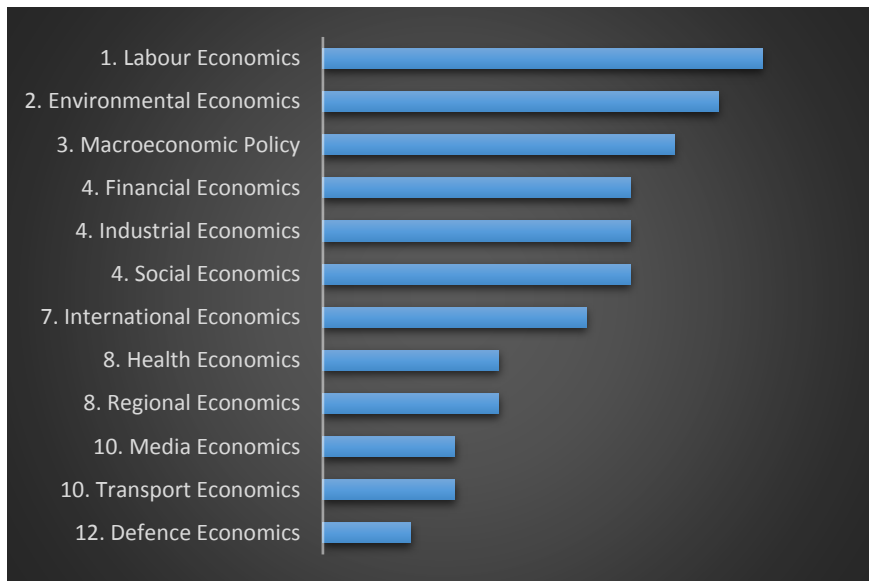


Figure 3: Applying Text Analytics to an Applied Economics Textbook

