

## 10. Frank Knight's pluralism

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Behind every fact is a theory and behind that an interest.  
(Frank Knight, 1922)

Monism is moonshine!  
(Frank Knight, 1925)

#### 1. INTRODUCTION: THE CHANGING FACE OF PLURALISM IN ECONOMICS

The plea for pluralism in economics has been a frequent refrain throughout the history of modern economic thought. This refrain has usually been voiced by those who were outside, and critical of, the mainstream in modern economics. It is not surprising that economists who consider themselves to be excluded or marginalized – those of the Marxist, institutionalist, Austrian, or other heterodox persuasion for example – would protest the uniformity and lack of diversity that exists in both the theory and the method of mainstream economics. In a few cases these critics have focused their attention on the *epistemology* or *methodology* of mainstream economics (or at least the views that the mainstream purports to hold on such issues) – examples include the synthetic *a priori* of the Misesian Austrians and the historical materialism of traditional Marxism – but the most common plea is simply for an alternative *theory*, and not for an alternative approach to theorizing. In other words, the recurrent exhortation for pluralism in economics has traditionally been a plea for theoretical pluralism rather than a plea for the (potentially more radical) pluralism of a methodological, an epistemological, or even an ontological sort. The critics have generally agreed with the mainstream about ontology (there is only one economy), about there being only one path to the discovery of truth about the economy (economic science), and about methodology (follow the 'scientific method') – the disagreement has been about the profession's lack of theoretical diversity.

Recent trends in the philosophy of science, and intellectual life more generally, have started to change the situation in economics. Whether one

focuses on the 'paradigms' of Thomas Kuhn, the 'interests' of the Strong Programme in the sociology of scientific knowledge, the 'language games' of Wittgenstein, or Richard Rorty's deconstruction of the 'mirror nature', it is clear that recent philosophical trends have moved in the direction of *contextualism*. Increasingly the universal and the necessary are being replaced by the perspectival and the contingent; that which was once viewed as foundational – a place to stand outside of the human context – is increasingly seen as situated, socially constituted, and deprivileged.<sup>1</sup> This contemporary contextualism has started to change the face of 'pluralism in economics'.

One example of this change is the methodological pluralism that Bruce Caldwell defended in the final chapter of *Beyond Positivism* (1982). Caldwell's pluralism is clearly motivated by the impact of contextualism in the philosophy of science; it surrenders the traditional methodological problem of finding rules for theory choice and it endorses theoretical pluralism, although it does still retain a type of epistemic monism based on Popperian critical rationalism.<sup>2</sup> The 'rhetoric of economics' approach of Donald McCloskey and others is a different response to contextualism in economics.<sup>3</sup> The rhetoric of economics literature uses arguments similar to those of Richard Rorty (1979) to motivate the complete rejection of traditional epistemology in favour of rhetoric and discourse analysis. While the rhetorical perspective is certainly not inconsistent with theoretical pluralism, McCloskey's economic practice suggests that it need not imply it.<sup>4</sup> Still other recent responses to contemporary contextualism include the Marxist overdetermination view of Stephen Resnick and Richard Wolff (1987)<sup>5</sup>, the social constructivist reading of the history of general equilibrium theory by Roy Weintraub (1991), and the various feminist strategies for economic theorizing presented in Ferber and Nelson (1993).

All of these recent approaches are informed by contextualism, and all of them advocate a pluralism that is philosophically more radical than the simple theoretical pluralism that has traditionally been the concern of those advocating pluralism in economics. We are confronted with a plurality of new approaches that advocate pluralism in economics, but the relationship between these various views is unclear and, more importantly, it is not clear what the implications of these more radical views are for the more traditional question of theoretical pluralism. Do these contextualist-inspired perspectives support the view, held by most of those who have advocated pluralism in the history of economic thought, that the economics profession should encourage a wider range of theoretical strategies?

While I am certainly not going to provide an answer to such a general question in the context of this brief chapter, I will attempt to get some insight into the question by turning backward to a figure in the history of economic thought who was also concerned with many of these same issues.

The figure is Frank Knight. Knight stated repeatedly that he was a 'pluralist'. It is also clear that he was concerned with a number of issues that would now be considered 'contextualist'; he was anti-positivist, relatively hermeneutic and anti-scientistic about social science, and sensitive to the idea of social constructivism. He was not though, a theoretical pluralist about economic theory. This mix, an explicit pluralist with elements of contextualism who advocated a theoretical monism in economics, makes Knight a figure who is potentially relevant to the current debate regarding pluralism in economics.

## 2. KNIGHT AND CONTEMPORARY CONTEXTUALISM

Before I attempt to unpick Knight's use of the term 'pluralism', I would like to consider a few of the many contextualist aspects of his general position. In particular I will focus on three – interrelated but still separable – aspects of Knight's perspective that are consistent with the spirit of contemporary contextualism: his anti-scientism, his emphasis on the theory-ladenness of empirical observations, and his recognition of the social aspect of human knowledge.

Contemporary contextualism is not simply 'a theory' or 'a point of view'; it is a loose amalgam of partially conflicting insights and conceptualizations that share a few common themes. One of these common themes is the rejection of the scientific world view as advocated by the Vienna Circle in the late 1920s.<sup>6</sup> According to the Vienna Circle there is one and only one path to knowledge about the world, it is the path of natural science based on empiricism and logicism. Metaphysics, or any form of reasoning that resembles metaphysical speculation, is simply nonsense. This view lends support to those who promote a unified science, the claim that all human and social sciences should strictly follow the method of, and where possible be reduced to, the physical sciences.

The Vienna Circle's scientistic view of social science was vehemently rejected by Frank Knight. As Knight frequently argued, this type of scientism leads to a rigid behaviourism where human agents are devoid of motives, intentionality, free will and, ultimately, all mental life. For Knight the behaviour of human agents is goal directed and intentional; it is driven by motives that are not empirically observable and can not be reduced to mere physical or biological processes; any successful social science must fully recognize this human fact.<sup>7</sup> Positivist human science is simply impossible – 'it just cannot be done' (Knight, 1946, p. 109) – and this is a good thing because if it were possible it would mean that humans were not really humans at all, but simply mechanisms.

To begin with, it is well to recognize explicitly that behaviorism is in fact the application of scientific method in the strict sense, as developed in the natural sciences, to the study of human phenomena, ... . In opposition to this view I propose ... that we *cannot* treat human beings as unconscious organisms or mechanisms, and that we do not want to do so even if it were possible. (Knight, 1925, pp. 247–8; emphasis in original)

It seems to us that science is a special technique developed for and applicable to the control of physical nature, but that the ideal so constantly preached and reiterated, of carrying its procedure over into the field of the social phenomena rests on a serious misapprehension. (Knight, 1935a, p. 133)

Knight's alternative to the positivist view of human science was a 'common-sense' view of intentional, motivated behaviour that is much closer to the continental *Verstehen* and hermeneutic schools than to scientistic or behaviourist social science. While Knight's characterization of social science as motivation-based might not seem very radical by contemporary contextualist standards, his rejection of the positivist view of unified science and his support for a more interpretive approach to human behaviour is a position that many contextualists would also endorse.

A second common theme in contemporary contextualism is that empirical observations are theory-laden. The theory-ladenness thesis asserts that scientific theories – or the conceptual frameworks employed by any other group of systematic inquirers – determines what the investigators will and will not 'see'. The implication is that there does not exist a separate and theory-neutral domain of empirical observations that can be used for the objective evaluation of scientific theories; there may exist something that can be called 'the empirical' but it is relative to, and at least partially constituted by, the particular community of scientific inquirers.

Knight clearly recognized the problem of the theory-ladenness of observations. The example that he referred to a number of different papers was the problem of 'force' in physics. Force is the product of mass times acceleration ( $f = ma$ ), but 'mass is not measured and not experienced directly, but only as force' (Knight, 1944, p. 306).<sup>8</sup> The implication that Knight saw for economics was that since theory-ladenness exists in all sciences, the common complaint that 'utility' is not independently observable is not nearly as incriminating to the discipline of economics as is frequently suggested. For Knight, the entire issue of what is observed and what the observer contributes is less than clear cut. In his words, 'no one has ever proposed a distinction acceptable to critical common sense between what we perceive and what we infer' (Knight, 1944, p. 306).<sup>9</sup>

Knight's recognition of the problem of theory-ladenness is simply the adjunct of another, more radical, aspect of his overall view: the notion that knowledge is socially constructed. This is a third aspect of Knight's position

that has much in common with contemporary contextualism. For Knight all knowledge is social knowledge and the empirical testing of scientific observations 'is chiefly, and always ultimately, a social activity' (Knight, 1956, p. 156); this means that 'all knowledge of the world of sense observation, whether that of the plain man or that of the scientist (not to mention knowledge of social data)' is actually a 'social activity and a social phenomenon' (ibid.).<sup>10</sup> Knight's main argument for the social construction of knowledge is the interaction and intercommunication that is always involved in the human learning process. Learning is a process that takes place through interaction with other individuals who share a common language and social context.

There can be no question that we build up our knowledge of an external world through the interchange of experience with our fellow beings. The individual learns from others to perceive and observe, to interpret the 'buzzing booming confusion' which experience in the raw must be ... into a world of objects, movements, relations, and forces. ... [O]bservation itself, understood in anything approaching its scientific meaning, is a power socially developed and trained in the individual, and produced in the course of history by accumulation of communicated and compared experiences. Only in this way do we learn even to see with anything like accuracy. And always we see largely what we expect to see, what fits into our organized knowledge of the world. And the structure of our thinking is notoriously that of our language, our medium of communication. ... Observation in the scientific sense is therefore restricted to the limits of possible communication; and nothing very far from the common experience and symbolized by speech forms, could be observed even if it existed. (Knight, 1935b, p. 96)<sup>11</sup>

Knight's social constructivism extends to his notion of truth. For Knight, truth is neither an absolute nor completely relative; it is a consensus. The consensus theory of truth endorsed by Knight is the pragmatic notion derived from Charles Sanders Peirce; it is that '*the truth is simply "the limit of inquiry", that is, what the scientific enterprise will discover in the idealized long run*' (Rescher, 1993, p. 23; emphasis in original). In Knight's own words:

The point is that illusion is what we agree is illusion, and reality what we agree is reality, because in each case it is shown to be so by tests which we agree are valid. It is ultimately a matter of agreement, of common-sense. Truth is established by consensus as much as beauty. In both cases, to be sure, it is a consensus of the 'competent.' But the competent are selected by agreement, another consensus; and ultimately we must come to principles agreed upon by the great mass of mankind. (Knight, 1925, p. 253)

Again, this particular (Peircean) consensus theory of truth may be relatively tame when compared to some contemporary contextualist positions, but nonetheless it places Knight squarely within the general contextualist genre.

### 3. KNIGHT'S PLURALISM

Knight stated repeatedly that he was a pluralist. Since he was typically writing about economics and the other human sciences, his pluralism was almost always presented in the context of his views on the philosophy of social science. This is not to deny (or assert) that Knight's pluralism went deeper than merely his views on social science; it is only to assert that this is the context in which his opinions about pluralism were most often stated. Given this frequency, and given that my particular focus is economics, I will restrict my attention to Knight's characterization of pluralism as a philosophy of social science.

Knight's fundamental claim is that 'Economics deals with human beings, and their study demands a *pluralistic* approach' (Knight, 1961, p. 188; emphasis in original). This pluralism is based on the argument that human beings are not simple systems; they have a number of fundamentally different, and mutually irreducible, aspects. Human beings are at once, physical, biological, intentional and social entities. Any knowledge we have of human behaviour or society must, according to Knight, acknowledge these different aspects of human existence.<sup>12</sup>

In his discussions of social science and social policy Knight frequently divided the various aspects of human phenomena into (at least) the following six categories.<sup>13</sup>

- I. Positivistic
  1. Physical
  2. Historical or institutionalist
  3. Biological
- II. Motivated or problem-solving
  1. Economic behaviour
  2. Abstract or socially motivated action
  3. Value deliberation

The first three categories – physical, historical, and biological – are listed under the general rubric 'positivistic' because they are aspects of human behaviour that are capable of being treated in a scientific way, that is, as a science in the positivist sense; they are phenomena that exhibit discoverable universal empirical regularities. The first of these categories, physical laws, seems to be straightforward. The second category is perhaps less familiar; it would include the type of empirical social regularities that could be uncovered by historical, sociological or anthropological studies. In the case of economics this second category would include some studies by institutionalist economists (I suspect Knight would consider Mitchell's work and NBER-

type studies to be in this category) as well as the work of the German Historical School. Knight did not say too much about biology, but he seemed to place it in the positivist category with some reluctance.

Knight put *economic science* in the second category of 'motivated' or 'problem-solving' approaches. His definition of economic science was quite narrow; it was 'using given means to achieve given ends' (Knight, 1935a, p. 105). Economics, for Knight, was about 'economizing', using the most effective means to achieve *given ends*. In contemporary terminology, Knight characterized economics as the science of instrumental rationality: finding the most efficient way of achieving (often maximizing or minimizing) a given objective (or objective function). Knight's use of the term 'economic science' for this type of economic theorizing should be interpreted carefully; it is a type of science but it is not a positivistic science like those in the first category. Because economics involves motivated behaviour and given ends (goals, desires, etc.), it is an intentional or common-sense science, not a positivistic one; such a 'science' is capable of explanation and, at least to a limited sense, prediction, but it is not a science like those in the first category.<sup>14</sup> As Knight says,

a treatment of economics as defined by this basic notion cannot be an 'empirical' science in the literal sense of that word. Effectiveness, a synonym for economy, is inherently relative to some purpose, motive or intention, and these are not known, by one person for himself or for others, through sense observation; nor yet through experiment, in a direct or scientific meaning. (Knight, 1961, p. 187)

For Knight, economics is a science that is narrowly concerned with efficiently achieving given ends – such as the maximization of utility or profit. It is a science, but it is an intentional, not a positivistic, science.

The distinction between the second and third categories under the heading of 'motivated or problem-solving' behaviour is more subtle. The second category, abstract or socially motivated action, is human behaviour that is not explicitly goal directed (economic), but is also not concerned with value formation (not 'value deliberative'). Examples include behaviour that is done 'simply out of curiosity' or is 'purely exploratory' (Knight, 1935c, p. 5) – things like 'sport' and 'play'. Such activities do not involve achieving any specific goal; they are just done for entertainment or for exploration. The third category, value deliberative, is a very important category for Knight; it is behaviour that is 'value-seeking' or 'value-defining'. Humans, unlike other animals, choose their values; they decide what is right, what is good, and what they want to want. In Knight's words,

But man is also a problem-solving entity at the higher level of critical deliberation about ends, or free choice of ends on the basis of thinking ... That is, he is a being

who seeks, and in a real sense creates, values. The essential significance of this is the fact that man is interested in changing himself, even to changing the ultimate core of his being. ... In contrast with natural objects – even with higher animals – man is unique in that he is dissatisfied with himself; he is the discontented animal, the romantic, argumentative, aspiring animal. (Knight, 1982, pp. 281–2)

The main point of Knight's pluralism is that when *considering human beings, and particularly when considering social policy, it is necessary to consider all six of these categories*. Human behaviour can not be reduced to the categories of positivistic science since humans are motivated and intentional agents – economic, goal-directed behaviour matters. By the same token, there is much more to a science of social policy than merely economics; in addition to being rational goal-seeking agents (and physical, and biological, systems) human beings also 'play' and choose their own values. Humans are physical, biological, historically contingent, rational-purposeful, arbitrary, social, and value determining; any knowledge we have of human society must recognize this pluralism.

While Knight was primarily concerned with the mistake of carrying over the 'categories of natural science into the field of social relations' and the 'supreme catastrophe' or 'suicide' of 'intelligence itself' (Knight, 1935c, p. 20) such scientism would entail, he was also critical of any attempt to discuss social policy from the narrow perspective of only one of these points of view: including economic theory. The rational economic man of neoclassical economic theory is, for Knight, a useful abstraction that is fundamental to economics as a (motivational) science, but it is just one tool for understanding human society. Knight freely admits the restricted vision of pure economics.

Economic laws in any very strict and distinctive meaning are reached through isolating by abstraction a particular aspect of conduct and ignoring much that is quite as real and important: The economic view is important, intellectually and practically, but we must not make applications that disregard other and equally significant considerations. Account must be taken of all views or approaches, in their proper relations and perspective. (Knight, 1946, p. 111)<sup>15</sup>

Although a detailed discussion of Knight's view of social policy is beyond the scope of this chapter – it would require an inquiry into the nature of his particular brand of 'liberalism' and his views on democracy and democratic consensus<sup>16</sup> – it is clear that his view is inexorably intertwined with his pluralism about humans and human society. He is a pluralist about the categories of human inquiry, and a pluralist about the variety of approaches that must be involved in social policy, but he is not a pluralist about economic theory. Economic science is the narrow investigation of goal-directed rationality: the actions of rational economic man. For Knight it is this type of rational goal-directed activity that defines 'the economic'. But Knight also

recognized that there is much more to human life than that which is purely economic.

#### 4. CONCLUSION

In conclusion I would like to point out just two of the many possible lessons that can be learned from Knight's pluralism and its relationship to contemporary contextualist ideas.

First, *much of contemporary contextualism is not new*. Although philosophers writing in this genre are usually quite clear about this – witness Rorty's (1979) frequent references to Nietzsche, Heidegger and Dewey – economists eager to apply the most recent philosophical developments often seem to lose sight of this fact. This is particularly troublesome when the author is advocating a more historically sensitive approach to the discipline of economics – history should begin at home. In the above discussion I have shown that many aspects of Frank Knight's philosophical position are quite consistent with recent contextualist trends.<sup>17</sup> Although I focused exclusively on Knight, I suspect that a similar story could be told for many other twentieth-century economists who were influential prior to the post-war hegemony of mathematical economics and econometrics. There is much to learn from this earlier generation of economists, and that includes some things about contemporary contextualism.

Second, I think it is important to note that Knight's pluralism did not imply a theoretical pluralism about pure economic theory. Knight retained a relatively pristine view of economics while recognizing the extraordinary complexity of the social world. Perhaps there is a tension here that is problematic for Knight,<sup>18</sup> but perhaps not. The point is not really about Knight, it is about the 'inevitability' of theoretical pluralism. The question is whether theoretical pluralism – or at least the support for a theoretical view that is fundamentally different from rational choice theory – is necessarily an implication of being sympathetic to contemporary contextualism. Knight's work clearly indicates that this quite common presumption needs to be carefully re-examined.

#### NOTES

1. As Jürgen Habermas characterizes the situation, '[C]ontextualism has become a manifestation of the spirit of the times. Transcendental thinking once concerned itself with a stable stock of forms for which there were no recognizable alternatives. Today, in contrast, the experience of contingency is a whirlpool into which everything is pulled: everything could also be otherwise, the categories of understanding, the principles of socialization and of morals, the constitution of subjectivity, the foundation of rationality itself' (Habermas, 1992, p. 139).

2. See Caldwell (1988 and 1991) and Hands (1993a).
3. McCloskey (1985 and 1994) and Klamer *et al.* (1988).
4. The variety of theoretical views consistent with the rhetoric of economics is clear in Klamer and McCloskey (1989).
5. See Amariglio, Resnick and Wolff (1993) for a discussion of how these authors view the relationship between their position and other epistemological and theoretical strategies in economics.
6. The single best statement of this view remains the original statement by Hahn *et al.* (1973).
7. The argument that economics is based on unobservable intentional concepts is a main theme in Alexander Rosenberg's recent book (1992). For Rosenberg though, unlike Knight, this presents a problem for economics. For Knight, economics is intentional and thus different from natural science, but that is not something problematic for economics; the human sciences are, should be, and must be, different from the natural sciences. I speculated about how Knight would respond to Rosenberg's critique in Hands (1993b).
8. Also see Knight (1931, pp. 62–3; 1935b, p. 81; 1946, p. 109; and 1961, p. 161).
9. Knight's recognition of the problem of theory-ladenness is discussed by Daniel Hammond in his article on Knight's anti-positivism. 'Knight claimed that the primary observational data of the external world require testing themselves and that this testing is inherently a theoretical exercise. Therefore observational data cannot be prior to theory, and influence must run both from data to theory and from theory to data' (Hammond, 1991, p. 371).
10. McKinney (1977) argues that Knight's social constructivism is at odds with his individualistic economic theory; he calls 'Knight's combination of radical individualism and sociological determinism the basic *pluralistic paradox*' (p. 1445; emphasis mine). In relating Knight's work to contemporary debates it is interesting to note that McKinney's criticism of Knight is essentially the same as Mirowski's (1987, 1992) criticism of McCloskey.
11. Hammond discusses Knight's social constructivism in the context of Knight's criticism of MacIver's *Social Causation* (1942): 'Knight's major criticism of MacIver was that he had not adequately confronted the social character of knowledge. Knight emphasized that *all* knowledge not just knowledge of society, is social. In all of our inquiries we are confronted by the fact that we simultaneously stand outside and inside our object' (Hammond, 1991, p. 376; emphasis in original).
12. Pluralism is a sufficiently dominant theme that it is often discussed in the secondary literature on Knight's work. For example:

From James, Knight takes the concept of *pluralism*, which becomes the dominant theme of his moral and social philosophy. ... Each of these 'universes' has its own kind of truth which may contradict the truth of other universes. (McKinney, 1977, p. 1439; emphasis in original)

He had the uncommon gift (and the curse!) of the compound eye; human society appeared to his perception through many angles of view which compelled a projection that was a mosaic of great riches, complexity, and ultimately, mystery. (Gordon, 1974, p. 571)

He applied his philosophical ideas to develop a pluralistic theory of human nature and conduct, a notion that influenced his views regarding the social aspects of economic activity and the proper method of ethical analysis. (Kasper, 1993, pp. 414–15)

13. This particular form of the six-way classification is from Knight (1956, p. 173), but variations of the scheme appear in a number of different papers: 1935c, p. 2; 1935d, p. 327; and 1982, pp. 286–7 for example.
14. Knight makes it very difficult for his readers because he uses the term 'science' in at least three different ways. First, and most narrowly, is 'positivist science'; this is science that could be done, and perhaps is done, in the way that science is characterized by the Vienna Circle. Knight wants to argue that sciences like physics are positivistic sciences, and yet

he also argues that even physics is not as 'positivistic', in particular not as 'empiricist', as the positivist philosophers seem to think. The second, much broader, category is what I would call 'theoretical science'; this includes almost any theoretical inquiry that attempts to predict and explain empirical phenomena. This second use corresponds most closely to the way that the term 'science' is used in the English language. Knight's third use of the term is even more broad; it corresponds roughly to the continental usage where 'science' means any systematic or rigorous inquiry. This latter use of the term science would also include many fields considered to be 'humanities' in Anglo-American academic culture.

15. As Knight said in a letter to Clarence Ayres dated 25 August 1941,

I have said 'hundreds of times' that the theory of competition takes the individual as given, as to their 'wants, resources, and technology'; but that it is absurd for either general social theory, or social policy, to take this point of view. It is really from this point onward that I have tried to contribute something, all this seems to me so obvious. (Samuels, 1977, p. 510)

16. I suggest Gordon (1974) and Kasper (1993) on these matters.  
 17. And given Knight's pragmatist background, his views seem to have the same philosophical origins as the views of a neo-pragmatist such as Rorty.  
 18. As argued by McKinney (1977); see note 10.

## REFERENCES

- Amariglio, J., Resnick, S. and Wolff, R.D. (1993), 'Division and Difference in the "Discipline" of Economics', in E. Messer-Davidow, D.R. Shumway and D.J. Sylvan (eds), *Knowledges: Historical and Critical Studies in Disciplinarity*, Charlottesville, VA: University of Virginia Press, pp. 150–84.
- Caldwell, B.J. (1982), *Beyond Positivism: Economic Methodology in the Twentieth Century*, London: Allen & Unwin.
- Caldwell, B.J. (1988), 'The Case for Pluralism', in N. De Marchi (ed.), *The Popperian Legacy in Economics*, Cambridge: Cambridge University Press, pp. 231–44.
- Caldwell, B.J. (1991), 'Clarifying Popper', *Journal of Economic Literature*, **29**, pp. 1–33.
- Ferber, M.A. and Nelson, J.A. (eds) (1993), *Beyond Economic Man: Feminist Theory and Economics*, Chicago: University of Chicago Press.
- Gordon, H.S. (1974), 'Frank Knight and the Tradition of Liberalism', *Journal of Political Economy*, **82**, pp. 571–7.
- Habermas, J. (1992), *Postmetaphysical Thinking*, Cambridge, MA: MIT Press.
- Hahn, H., Neurath, O. and Carnap, R. (1973), *The Scientific Conception of the World: The Vienna Circle*, Dordrecht, Holland: D. Reidel Publishing. (Originally published as 'Wissenschaftliche Weltauffassung: Der Wiener Kreis' in 1929.)
- Hammond, J.D. (1991), 'Frank Knight's Antipositivism', *History of Political Economy*, **23**, pp. 359–81.
- Hands, D.W. (1993a), *Testing, Rationality, and Progress: Essays on the Popperian Tradition in Economic Methodology*, Laham, MD: Rowman & Littlefield.
- Hands, D.W. (1993b), 'Frank Knight's Review of Alexander Rosenberg's *Economics: Mathematical Politics or Science of Diminishing Returns?*', University of Puget Sound Department of Economics Working Paper 93–4.
- Kasper, S.D. (1993), 'Frank Knight's Case for Laissez Faire: The Patrimony of the Social Philosophy of the Chicago School', *History of Political Economy*, **25**, pp. 413–33.
- Klamer, A., McCloskey, D. and Solow, R.M. (eds) (1988), *The Consequences of Economic Rhetoric*, Cambridge: Cambridge University Press.
- Klamer, A. and McCloskey, D. (1989), 'The Rhetoric of Disagreement', *Rethinking Marxism*, **2**, pp. 140–61.
- Knight, F. (1922), 'Ethics and the Economic Interpretation', *Quarterly Journal of Economics*, **36**, pp. 454–81.
- Knight, F. (1925), 'Fact and Metaphysics in Economic Psychology', *American Economic Review*, **15**, pp. 247–66.
- Knight, F. (1931), 'Relation of Utility Theory to Economic Method in the Work of William Stanley Jevons and Others', in Stuart A. Rice (ed.), *Methods in Social Science*, Chicago: University of Chicago Press, pp. 59–69.
- Knight, F. (1935a), 'The Limitations of Scientific Method in Economics', in *The Ethics of Competition and Other Essays*, New York: Harper & Brothers, pp. 105–47.
- Knight, F. (1935b), 'Economic Psychology and the Value Problem', in *The Ethics of Competition and Other Essays*, New York: Harper & Brothers, pp. 76–104. (Originally published in *The Quarterly Journal of Economics*, **39**, 1925.)
- Knight, F. (1935c), 'Social Science and Social Action', *The International Journal of Ethics*, **46**, pp. 1–33.
- Knight, F. (1935d), 'Economic Theory and Nationalism', in *The Ethics of Competition and Other Essays*, New York: Harper & Brothers, pp. 277–335.
- Knight, F. (1944), 'Realism and Relevance in the Theory of Demand', *Journal of Political Economy*, **52**, pp. 289–318.
- Knight, F. (1946), 'Immutable Law in Economics: Its Reality and Limitations', *American Economic Review*, **36**, pp. 93–111.
- Knight, F. (1956), "'What Is Truth" in Economics?', in *On The History and Method of Economics*, Chicago: University of Chicago Press, pp. 151–78. (Originally published in *Journal of Political Economy*, **48**, 1940.)
- Knight, F. (1961), 'Methodology in Economics – Part I', *Southern Economic Journal*, **27**, pp. 185–95.
- Knight, F. (1982), 'Fact and Value in Social Science', in *Freedom and Reform: Essays in Economics and Social Philosophy*, Indianapolis, IN: Liberty Press, pp. 268–92. (Originally published in 1942.)
- McCloskey, D. (1985), *The Rhetoric of Economics*, Madison: University of Wisconsin Press.
- McCloskey, D. (1994), *Knowledge and Persuasion in Economics*, Cambridge: Cambridge University Press.
- MacIver, R.M. (1942), *Social Causation*, Boston: Ginn & Co.
- McKinney, J. (1977), 'Frank H. Knight on Uncertainty and Rational Action', *Southern Economic Journal*, **43**, pp. 1438–52.
- Mirrowski, P. (1987), 'Shall I Compare Thee to a Minkowski–Ricardo–Leontief–Metzler Matrix of the Mosak–Hicks Type?', *Economics and Philosophy*, **3**, pp. 67–96.
- Mirrowski, P. (1992), 'Three Vignettes on the State of Economic Rhetoric', in N. De Marchi (ed.), *Post-Popperian Methodology of Economics: Recovering Practice*, Boston: Kluwer Academic, pp. 235–59.
- Rescher, N. (1993), *Pluralism: Against the Demand for Consensus*, Oxford: Clarendon Press.

- Resnick, S. and Wolff, R.D. (1987), *Knowledge and Class: A Marxian Critique of Political Economy*, Chicago: University of Chicago Press.
- Rorty, R. (1979), *Philosophy and the Mirror of Nature*, Princeton, NJ: Princeton University Press.
- Rosenberg, A. (1992), *Economics – Mathematical Politics or Science of Diminishing Returns?*, Chicago: University of Chicago Press.
- Samuels, W.J. (1977), 'The Knight–Ayres Correspondence: The Grounds of Knowledge and Social Action', *Journal of Economic Issues*, 11, pp. 485–525.
- Weintraub, E.R. (1991), *Stabilizing Dynamics: Constructing Economic Knowledge*, Cambridge: Cambridge University Press.