In his review of Frank Ramsey's Foundations of Mathematics, Keynes points approximately to Ramsey's distinction between formal and "human" logic. "Formal logic," Keynes writes, "is concerned with nothing but the rules of consistent thought (N 338)." Human logic, on the other hand, is concerned with the analysis of something in addition to these rules—"with the analysis of 'certain' useful mental habits for handling the material with which we are supplied by our perceptions and by our memory and perhaps in other ways, and so arriving at or towards truth (ibid.)." Keynes appears to use the term "mental habits" to refer, among other things, to what I shall call metaphysical premises. This paper examines the possibility that Keynes's own use of human logic led to the adoption of metaphysical premises very different from those underpinning orthodox economics, in particular, that it led to his rejection of an "atomist" in favour of an "organicist" metaphysical description. I shall argue that this was an important aspect of the "escape from habitual modes of thought and expression" associated with the composition of the General Theory.

The paper has two parts. The first provides a brief summary of the main philosophical ideas used in the rest of the paper and then examines the metaphysical foundations of Keynes's economics, particularly those of the General Theory. The second section attempts to establish that this interpretation of the philosophical foundations of Keynes's economics is consistent with the changes in his philosophical views reported in his explicit discussions of metaphysical questions following the publication of the Treatise on Probability in 1921.

THE METHAPHYSICAL FOUNDATIONS OF THE GENERAL THEORY

I will use the term "metaphysical description" to mean a set of interconnected assumptions about the ultimate character of reality. The elaboration and grounding of such assumptions is the task of what Alfred North Whitehead, an exponent of organismic with direct connections to Keynes, calls speculative philosophy. Whitehead defines speculative philosophy as...
Two metaphysical descriptions, atomism and organismism, are relevant to a discussion of Keynes's metaphysical views. The tradition in philosophy with which Keynes's own views are usually associated embodies atomist metaphysical premises. The most important Cambridge representatives of this tradition from the perspective of direct influence on Keynes are G.E. Moore, Bertrand Russell, and W.E. Johnson (VIII 1). Keynes, however, also had access at Cambridge to organismist views. To begin with, Marshall's economic views, as Keynes himself points out (Keynes 1925, pp. 10-11, 19, and 33-34), was significantly influenced by such views, views which Marshall derived in part from his study of Hegel (Millar 1965, Chap. 2 and Appendix B). Keynes was also connected to the two most important early twentieth century Cambridge exponents of organismism, J. McTaggart and A.E. Whitehead. There is a set of lecture notes among the Keynes Papers at King's taken by Keynes, in what appear to have been McTaggart's lectures on Hegel in 1903 (Keynes, 1903). Keynes is known to have recommended McTaggart's lectures to his friends (Harrod 1951, p. 67). In 1904 Keynes was invited to attend a set of lectures given by Whitehead (Harrod 1951, pp. 96-97). Harrod says that Whitehead once mentioned Keynes and Russell to his as among his best pupils (Harrod 1951, p. 97). McTaggart and Whitehead were also fellow members with Keynes of the Apostles.

Whitehead once said of Cambridge that "incisant conversations, with our friends, undergraduates, or members of the staff, supplied the portions of the education left missing by the lectures" (Whitehead, 1904, p. 10). He attributes a great deal of importance to these conversations, particularly to those which took place at meetings of the Apostles. As Keynes was with stretcher, who became a member after Keynes, claims that, during his undergraduate period of membership, "angels" such as Keynes and Whitehead were often present at the society's meetings, that philosophical topics were often discussed, and that the "internal relations" was one of these topics (Stretcher, as cited in Holroyd 1958, vol. 1, p. 207).

Whitehead played an important role in Keynes's fellowship research. He and W.E. Johnson were appointed by King's as assessors of Keynes's dissertation when it was first submitted in 1908. In part at least because of Whitehead's criticisms of its philosophical foundations, this first version failed to win Keynes's election. Johnson and Whitehead were reappointed members of the second version, submitted the following year, which won him his fellowship. Whitehead's response to Keynes's fellowship research and to his 1921 Treatise on Probability will be examined more fully below.

I turn now to a brief examination of the main philosophical ideas I intend to make use of in the rest of the paper. Because of Whitehead's connection to Keynes and the close correspondence between Keynes's final views and Whitehead's, the discussion is based largely on Whitehead's "philosophy of organism."

The main difference between atomism and organismism is found in their differing conceptions of the nature of the final real entities making up the universe. Atomist descriptions conceive these as "substances" in the following two senses: each possesses properties without being itself a property; and each requires nothing but itself in order to exist. Its essential properties are independent of its relations with all other entities. This is what is meant by turning such relations "external". In some versions of atomism, atoms are assumed to be of two fundamental kinds—mental and material. Keynes refers to this assumption as "habitual" (VIII 278). In others they are assumed to be of only one kind—material. However, all atomist descriptions share one essential feature: the ultimate components of reality are assumed to be elements whose existence and essence are independent of their relations with all other entities. They are assumed to be "substances" in the two senses given above.

Organicist descriptions, on the other hand, do not conceive the final real entities as substance in either of these senses. Instead, each entity is an "adjective" of its situation, and each depends for its essential properties on its relations with the rest of totality. These relations are therefore "internal" rather than external. In atomism interaction depends on the non-essential properties of ultimate entities; in organismism, in contrast, the existence and essence of an ultimate entity depend upon its relations with other entities.

In what Keynes calls the moral sciences, atomism takes the form primarily of the assumption that individual character and motivation are finite and consequently independent of economic, social and other relations; organismic of the assumption that they are variable and dependent on these relations. Though there are economic theories which treat character as variable while retaining atomist metaphysical foundations, in the main atomism has been associated with the assumption of a fixed human nature. In orthodox economics, for example, atomism is embodied in the premises which define the "rational economic man." In contrast, Keynes's psychological premises, as I shall attempt to show, embody organismic assumptions.

Internal relations can be conceived to allow for the possibility of what Whitehead calls "abstraction". This is the possibility of disregarding or abstracting from certain aspects of interdependence. The possibility results in part from the assumption that the internal relations within which a particular entity is embedded form what Whitehead calls a "nested" hierarchy of societies (Whitehead 1978, p. 34 and pp. 89-91). A "society" in this context refers to a set of entities in which each member has the common characteristic which makes it a member of the set as a result of its internal relations to other members. An entity belongs to more than one society. These societies are assumed to form a nested hierarchy in the sense that the more inclusive the society, the more stable the internal relations which define the society and, therefore, the more stable the characteristics to which these relations give rise. This means that some factors can be treated as "givens" because the internal relations on which they depend are relatively stable. In the absence of the possibility of abstraction, internal relations would rule out the possibility of knowledge since they would require that we know everything before we can know anything.

For Whitehead, the grounding and elaboration of the claims that (1) reality is a system of internal relations and (2) these internal relations
are consistent with the possibility of abstraction, form the main part of his answer to Keynes’s dismissal of the possibility of rational induction in an organic world. If these claims can be grounded it follows that internal interdependence is such that we can begin with some limited aspect of reality and slowly build up knowledge of a hierarchical structure of interdependence.

Once it is granted that alternative metaphysical descriptions are logically possible, the question arises as to how to rationally choose between them. Whitehead provides a basis for Keynes’s claim that the method of speculative metaphysics must be “human” rather than formal logic. Deduction cannot be the main method of metaphysical description. Deduction presumes knowledge, namely, knowledge of the premises from which the deductive argument begins. Whitehead makes this point repeatedly.

It must be clearly understood that we are not arguing from well-defined premises. Philosophy is the search for premises. It is not deduction. ... We thus dismiss deductive logic as a major instrument for metaphysical discussion. Such discussions are concerned with eliciting self-evidence. Apart from such self-evidence, deduction fails. Thus logic presupposes metaphysics. (Whitehead 1968, pp. 106-7; see also pp. 48-9)

Whitehead also repeatedly argued that metaphysical descriptions can be grounded in experience. “All knowledge is derived from and verified by direct intuitive observation. I accept this axiom of empiricism as stated in this general form (Whitehead 1968, p. 117; see also 1968, p. 99 and 1968, p. 112).” No also claims, however, that “empiricism” is not itself sufficiently empirical. He complains that the exponents of a particular and ungrounded ontology, the “a priori doctrine of sensationalism,” have arrogated to themselves the title of empiricists (Whitehead, 1978, p. 145). Sensationalism embodies atomic metaphysical premises. Keynes, having uncritically adopted a version of sensationalism in the Treatise on Probability, case eventually to reject it on grounds very like Whitehead’s.

As we shall see, in the Treatise on Probability, Keynes, while admitting that he is unable to provide adequate grounds for doing so, argues for the adoption of atomist metaphysical premises in both the physical and the moral sciences primarily on the ground that only atomism is compatible with the possibility of rational induction. As we shall also see, however, he eventually in favour of organismics as the metaphysical description appropriate for the moral sciences. Specifically, one of the main grounds he gives for rejecting utilitarianism as the foundation for economics is its embodiment of atomist metaphysical premises. In economics, the “atomic hypothesis” breaks down because we are faced at every turn with the problems of organic Unity, of Discreteness, of Discontinuity—the whole is not equal to the sum of the parts, comparisons of quantity fail us, small changes produce large effects, the assumptions of a uniform and homogeneous continuum are not satisfied. (X 362)

As I shall now attempt to demonstrate, this rejection of the atomic hypothesis led Keynes to underpin his economics with an organismic view of interdependence.

In Chapter 18 of the General Theory Keynes provides an account of the nature of social interdependence and of its implications for the treatment of psychological premises. This account is consistent not only with the assumption that social relations are internal relations so that individual character and motivation are conditioned by the circumstances within which individuals develop and live, but also with Whitehead’s notion of such relations as forming a nested hierarchy of societies such that the higher in this hierarchy is the society on which a particular characteristic depends the greater will be the characteristic’s stability. As I pointed out above, this last notion is an important part of Whitehead’s answer to Keynes’s claim in the Treatise on Probability that internal relations place us under the necessity of knowing everything at once and therefore rule out the possibility of rational induction.

Keynes divides the elements in the economic system into “givens”, on the one hand, and “independent” and “dependent” variables on the other. The “givens” are those things for which the possibility of change is ignored. Keynes emphasizes, however, that they are not constants; they are those features of the environment which display the greatest stability.

We take as given the existing skill and quantity of available labour, the existing quality and quantity of available equipment, the existing techniques, the degree of competition, the tastes and habits of the consumer, the diversity of different intensities of labour and of the relations of the producer to the consumer, as well as the social structure including the forces, other than our variables set forth below, which determine the distribution of income. This does not mean that we assume these factors to be constant; but merely that, in this place and context, we are not considering or taking into account the effects and consequences of changes in them. (VII 343)

The independent variables are independent of the other independent and dependent variables. They are, dependent on, though not completely determined by, the givens. The most important independent variable is made up of the three fundamental psychological factors: namely, the psychological propensity to consume, the psychological attitude to liquidity and the psychological expectation of future yield from capital-assets (VII 240-247). Keynes’s discussion of these factors in relation to business motivation portrays them as expressions of a character type—the typical business personality. This personality is the outcome of a specific set of social relations that are relatively stable: they are given in Keynes’s sense. Hence, the factors can be treated as independent variables. As we shall see, however, this does not rule out a great deal of variation in business motivation. Keynes’s psychological premises allow for discontinuous changes in the motivation and rationality of individuals with no change in character type, that is to say, with no change in those psychological characteristics which give the nature of social interdependence.
can be treated as givens. Such discontinuous changes are in fact an expression of the given character type. Keynes claims that the independent variables, like the givens, are not "atomic" elements. "These again would be capable of further analysis, and are not, so to speak, our ultimate atomic independent elements (VII 247)." The givens and the independent variables, taken together, determine the dependent variables—the volume of employment and the national income (or national dividend) measured in wage-units (VII 247)." As we shall see, Keynes repeats the main elements of this account of the nature of social interdependence and its implications for methodology in his 1936 correspondence with Harrod respecting Tinbergen's early work in econometrics.

The main implication of organic interdependence is that the "material" of economics—the character of the human agents upon whom economic forces act—will not be constant and homogeneous through time, but will change with changes in the environment. Whitehead himself emphasizes this implication in criticizing conventional economic and business theories for their failure to take account of organic interdependence. In treating economic motives as constant these theories overlook both the internal relations of the motives to "conditions" and the rapidity of change in the conditions and, hence, in the motives. Whitehead claims that "our sociological theories, our political philosophy, our practical maxims of business, our political economy, and our doctrines of education" are based on a tradition in thought which "is warped by the vicious assumption that each generation will substantially live amid the conditions governing the lives of its fathers and will transmit those conditions to mould with equal force the lives of its children (Whitehead 1967, p. 92). "We are living," he then goes on to claim, "in the first period of human history for which this assumption is false (Ibid.)." Yet "this assumption subtly pervades the premises of political economy, and has permitted it to confine attention to a simplified edition of human nature (Ibid., p. 93)."

Unfortunately for this approach "the element of novelty which life affords is too prominent to be omitted from our calculations" (Ibid.). A deeper knowledge of the varieties of human nature is required to determine the reaction, in its character and strength, to those elements of novelty which each decade of years introduces into social life (Ibid.)."

Alfred Marshall also pointed to this implication of organic interdependence for economics. "If the subject-matter of a science passes through different stages of development, the laws which apply to one stage will seldom apply without modification to others; the laws of the science must have a development corresponding to that of the things of which they treat (Marshall 1931, vol. 1, p. 764)."

Keynes's treatment of character and motivation therefore provides an excellent illustration of the role played by organisational metaphysical premises in his economics. Keynes treats character as variable in response to variations in the circumstances in which individuals develop and live. Moreover, even where character is "given," the nature and operation of the motives behind economic behaviour can change discontinuously in response to changes in circumstances other than those upon which character depends. Keynes's account of each of the "three fundamental psychological factors" is organisist in this sense.

In the General Theory, he says of the "subjective factors" underlying the "psychological propensity to consume" that the subjective factors ... include those psychological characteristics of human nature and those social practices and institutions which, though not unalterable, are unlikely to undergo a material change over a short period of time except in abnormal or revolutionary circumstances. In an historical inquiry or in comparing one social system with another of a different type, it is necessary to take account of the manner in which changes in the subjective factors may affect the propensity to consume. But, in general, we shall in what follows take the subjective factors as given; and we shall assume that the propensity to consume depends only on changes in the objective factors. (VII 81; see also VII 109)

Note that this assumes the possibility of the sort of "abstraction" from internal relations made possible by Whitehead's notion of a nested hierarchy of societies. Keynes intends to treat the "main background of subjective motives" as "given".

Keynes also assumes that the motivation behind consumption is capable of discontinuous short-run changes. An example of this is the influence on consumption of an irrational feeling which he calls "psychological" poverty (VII 176-7; VII 83). This is a psychological state brought on by a collapse in the paper values of bonds and shares. Keynes claims it "should be classified amongst the major factors capable of causing short-period changes in the propensity to consume (VII 83)."

Another example of the use of organisist premises is found in Keynes's discussion of historical, national and class differences in attitudes toward gold and money. He says that "the conception of what constitutes 'liquidity' is partly vague one, changing from time to time and depending on social practices and institutions (VII 260)." In illustration of this, he claims that at one time the high liquidity premium new attaching to money was attached to land (VII 261). A similar claim about attitudes to gold and money is made in the Treatise on Money. Keynes points first to a stable element in attitudes toward gold.

Dr. Froude relates that there are peculiar reasons deep in our subconsciousness why gold in particular should attract strong instincts and serve as a symbol. The magical properties, with which Egyptian priestcraft anciently imbued the metal, it has never altogether lost. (VI 258)

Over time, however, gold has ceased to be a coin, a hoard, a tangible claim to wealth, of which the value cannot slip away so long as the hand of the individual clutches the material stuff. It has become a much more abstract thing. (VI 260)

Attitudes also differ between countries.
The history of India at all times has provided an example of a country impoverished by a preference for liquidity amounting to a strong passion that even an ingenuity and chaotic influx of the and precious metals has been insufficient to bring down the rate of interest to a level which was compatible with the growth of real wealth. (VII 337)

A third example of Keynes's organicist treatment of character and motivation is provided by the well-known discussion in Keynes's 1937 Quarterly Journal of Economics article of short-run changes in liquidity-preference. This also provides another illustration of the point made above that short-run changes in motivation are possible even though it is assumed that character remains stable. Keynes claims that a particular feeling about money, which operates at a 'deeper level of our motivation' than other attitudes, 'takes charge' when these other attitudes break down. "Why, Keynes asks, "should anyone outside a lunatic asylum wish to use money as a store of wealth?"

Because, partly on reasonable and partly on instinctive grounds, our desire to hold money as a store of wealth is a barometer of the degree of our distrust of our own calculations and conventions concerning the future. Even though this feeling about money is itself conventional or instinctive, it operates, so it speaks, at a deeper level of our motivation. It takes charge at the moment when the higher, more precarious conventions have weakened. The possession of actual money tells our disquietude; and the premium we require to make us part with money is a measure of the degree of our disquietude. (XIV 115-6)

This passage also points to Keynes's assumption that discontinuous short-run changes in "the psychological expectation of future yield from capital assets" are possible. But such expectations are "subject to sudden and violent changes" (XIV 115-5). Note that Keynes claims that the association between the desire to hold money and distrust of calculations and conventions concerning the future is based on both rational and instinctive grounds.

This consistency with organicist rather than atomistic metaphysical premises is not the only significant difference between Keynes's psychological assumptions and orthodox ones. Keynes attributes to human nature a systematic irrationality to economic behaviour. R.B. Braithwaite has said of "My Early Beliefs" that "the genuine volte-face reported in the essay is the abandonment of the belief that 'human nature is reasonable' (Braithwaite 1975, p. 245). In the memoir Keynes claims this belief "was flimsily based ... on an original view of what human nature is like, both other people's and our own, which was diametrically mistaken." In particular, it ignored the "deeper and blinder passions", the "vulgar passions" (X 449-450). Rejecting this early belief, he now claims that "human and irrational springs of wickedness in most men (X 447)."

The most significant impact of this change in his psychological views on his economics is found in his claim that it is the love of money, of money-making and of power, rather than consumption, which is the ultimate motivation behind business behaviour (IX 263 and VII 974). Keynes makes it very clear that, in his view, this compulsion of money motives is pathological (IX 268-9 and 330). I have attempted to show elsewhere that all these characterisations of Keynes's psychological premises—their consistency with an organicist metaphysics, their attribution of a significant degree of irrationality to thought and behaviour, and their emphasis on the role of a pathological love of money, money-making and power in business motivation—are consistent with a particular psychological theory—psychanalysis (Winslow 1965, Part II).

Keynes's organicist treatment of character and motivation is only one example of the important effects of organicist metaphysical premises on his economics. I believe it can be shown, for example, that organicism also underpins his treatment of business expectations (as might be expected by the implications of organicism for rational induction) and his critical treatment of the role of mathematical and statistical methods in economics (see Winslow 1965, Chap. 5).

This implicit use of organicist premises in the General Theory is consistent with the change in Keynes's metaphysical views recorded in his explicit discussions of philosophical questions following the publication of the Treatise on Probability in 1921. In these discussions Keynes explicitly abandons atomism in favour of organicism as the metaphysical description appropriate in the moral sciences generally and in economics particularly.

THE EVOLUTION OF KEYNES'S METAPHYSICAL VIEWS

Keynes examined organicism and atomism in the Treatise on Probability in the context of attempting to establish the assumptions about the character of the actual world which are required for the validity of induction and analogy (VII 276-278). One of the assumptions which Keynes claims was required is what he calls "the atomic character of natural laws" or "human nature is reasonable". He claims that, for natural law to have this character, "the system of the material universe must consist of bodies which we may term 'legal atoms' such that each of them exercises its own separate, independent, and invariable effect, a change in the total state being compounded of a number of separate changes each of which is uniquely due to a separate portion of the preceding state. ... Each atom can, according to this theory, be treated as a separate cause and does not enter into different organic combinations in each of which it is regulated by different laws (VII 276-277)."

Keynes also claims that we "habitually assume that the size of the atom unit is for mental events an individual consciousness, and for material events an object small in relation to our perceptions (VII 277: see also 468)."

Natural law need not be atomic, however. If there were "quite different laws for wholes of different degrees of complexity, and laws of connection between complexes which could not be stated in terms of 'laws connecting individual parts', then 'natural law would be organic and not, as it is generally supposed, atomic (VII 277).' Keynes claims that, if this were the character of the actual world, rational induction would be
possible because it would require, as he puts it, "an exhaustive knowledge of all the constituent, to suppose that it held great prospects. When the young Edgeworth chose it, he may have looked to find secrets as wonderful as those which the physicists had found since those days. But, as I remarked in writing about Alfred Marshall's gradual change of attitude towards mathematical economics ... this has not happened, but quite the opposite. The atomic hypothesis which has worked so splendidly in Physics breaks down in Psychics. We are faced at every turn with the problems of organic Unity, of Discreteness, of discontinuity—the whole is not equal to the sum of the parts, comparisons of quantity fail us, small changes produce large effects, the assumptions of a uniform and homogenous continuums are not satisfied (X 262).

Keynes returned to the question of the metaphysical description which is appropriate in economics in his examination over the period from 1938 to 1940 of Tinbergen's early work in econometrics and in some correspondence with Barrow about this (XIV 289-300). At issue in both the examination and the correspondence is the "habit of mind" which is appropriate in economics. As we have seen, Keynes had, by this time, designated human logic as the field concerned with the analysis of the "useful mental habits" we have for "handling the material with which we are supplied by our perceptions and by our memories and perhaps in other ways." In his correspondence with Barrow, he describes economics as "a branch of logic, a way of thinking" in which the appropriate "habit of mind" is "directly counter" to that appropriate in the natural sciences (XIV 296 & 300). In the moral sciences, Keynes appears to be saying, human logic leads to the adoption of mental habits very different from those of the natural sciences. The specific habits to which Keynes points are those characteristic of an organism with a metaphorical description. Thus he claims the main distinguishing characteristic of economics (and the main obstacle to the use in economics of conventional mathematical and statistical methods) is the "habit of mind" which is appropriate in economic theory and in the regularities observable in behaviour will, since they depend on these motives, also change. Moreover, these changes may occur discontinuously.

In addition to its consistency with the general notion of internal relations, Keynes's discussion here of the habits of mind appropriate in economics is also consistent with Whitehead's description of such relations as a nested hierarchy of societies, a description which makes abstraction possible and which is a central component of Whitehead's answer to Keynes's claim that internal relations make it necessary for us to know everything before we can know anything. In one of his letters to Barrow, Keynes makes a claim which implicitly assumes that abstraction in this sense is possible: "the object of a model is to segregate the semi-permanent or relatively constant factors from those which are transitory or fluctuating so as to develop a logical way of thinking about the latter, and of
understanding the time sequences to which they give rise in particular cases (KIV 296-7). As we have seen, the General Theory provides a more detailed account of this method and of Keynes's use of it in his own analysis (VII 245-247).

Keynes claimed in the Treatise on Probability that internal relations would rule out the possibility of rational induction. There is evidence that he subsequently changed his mind about this as well. Though he abandoned the atomic hypothesis, he continued to believe that rational induction was possible in "psychics". In his review of Ramsey's Foundations of Mathematics, he continues to assert, in opposition to Ramsey's claim that human logic cannot provide an objective or rational ground for probability and induction, his belief in this possibility and points to human logic as potentially containing the solution to the problem of induction (K 339). In addition, Keynes's own work subsequent to his adoption of organismic metaphysical premises implicitly presumes that rational induction is possible. He continues to construct "general" theories and to make inductive judgments based on these. He also argues that, in certain limited conditions (the limitations now resulting in part from organismic independence, business and the uncertainty of the future), he also argues that even in those circumstances where rationality is possible, expectations are often not formed in a rational way. His rejection of the atomic hypothesis did not lead, therefore, to a rejection of the possibility of rational induction. Moreover, Keynes provides discussions of aspects of induction which are consistent with an organismic solution to the problem of rational induction—specifically, with the organismic solution set out in Whitehead's philosophy of organism.

As I pointed out above, Whitehead played a role in Keynes's work on probability and induction beginning at least as far back as Keynes's 1908 fellowship dissertation and indeed, some of the key ideas appearing in the dissertation. Whitehead was very critical of what he called the "philosophical" aspects of Keynes's argument, meaning by philosophical what Keynes in the dissertation and in the Treatise on Probability calls the difficult problem of grounding the assumptions upon which the formal part of probability, the calculus of probabilities, is to be based (Whitehead 1908, 1908a & 1909 with Keynes VII 66). The focus of his criticism was Keynes's attempt to find such grounds in atomism. Whitehead was of the view that atomism could not provide an adequate foundation for either probability or induction; organismic, however, could. Keynes's account was defective because it overlooked the problems created by atomism while unjustifiably claiming that organismic presuppositions allowed for rational induction. Whitehead was also of the view that a defensible frequency theory of probability could be constructed on the basis of organismic. Without using its connection with organismics, Keynes discusses Whitehead's version of the frequency theory in both is 1909 fellowship dissertation and in the Treatise on Probability (VII 109-30). In contrast to his treatment of Veena's frequency theory, Keynes does not reject Whitehead's version outright. His criticism takes the form of a series of questions which he claims explains this model must answer before the theory can be accepted.

Following the publication of Keynes's Treatise in 1921, Whitehead, in direct response, it appears, to Keynes (Whitehead 1929, p. 111; 1978, p. 290), set out to demonstrate that atomism could not provide an adequate foundation for probability and induction, that organismic could solve the problems created by atomism while avoiding the problems which Keynes had attributed to it in the Treatise, and that the questions Keynes raised in the Treatise respecting Whitehead's version of the frequency theory could be adequately answered (Whitehead 1929; 1949, pp. 101-13; 1997, chap. 4; 1976, pp. 260-6). Keynes's discussions of probability and induction following his rejection of the atomic hypothesis express views consistent with the solution Whitehead offered (Winsem 1985, pp. 110-14 and Chap. 5).

In explaining his inability to provide adequate grounds for his adoption of the atomic hypothesis in the Treatise on Probability, Keynes pointed to the disordered state of epistemology, particularly with respect to the question of what sorts of things are we capable of direct knowledge. In moving to what appears to be an organismic view of induction and probability and of the habits of mind appropriate to psychics, Keynes also moved to an understanding of direct acquaintance capable of solving this problem of grounding metaphysical beliefs. The change in his view of the nature of experience is recorded in his criticisms, in "My Early Beliefs", of his early beliefs about experience—criticisms which, as we shall see, are very like Whitehead's criticisms of these same beliefs.

One of the criticisms which Keynes makes of his early beliefs (beliefs which he associates with Bloomsbury and G.E. Moore) is that they involved "a dogmatic treatment as to the nature of experience (K 436)." He appears to associate this with moral adherence to a variant of sensationalism in which all experience was treated as having the same precise character as sensory experience. (In the Treatise on Probability, as we have seen, Keynes identified experience with sense experience.) In particular, experience of what is vague as if it were precise and trying to fit it into an exact logical category (Ramsey, as cited by Keynes, K 336).

Ramsey uses this term to critically describe Moore's approach to ordinary language (ibid.). Moore held that fundamental issues in philosophy could be resolved by means of an analysis of the precise meaning of ordinary language. There could be no appeal against the meanings we revealed. Ramsey argued, in agreement with Whitehead, that meaning was vague rather than precise and that philosophy could change meaning (ibid.; see also Ramsey 1965, pp. 116. 117 and 130-7). Keynes makes the same criticism of this aspect of Moore's method. According to this method, Keynes writes, you could hope to make essentially vague notions clear by using precise language about them and asking exact questions. It was the method of discovery by the instrument of impeccable grammar and an unambiguous dictionary. What exactly do you mean? was the phrase most frequently on our lips. It appeared under cross-examination that you did not mean exactly anything, you lay under a strong suspicion of meaning nothing whatever. It was a
stringent education in dialectic but in practice it was a kind of
combat in which strength of character was really much more
valuable than subtlety of mind. (X 640)

In his Cambridge lectures of 1930, Keynes associates scholasticism in eco-
nomics with excessive precision, over generalization and mechanical logic—
problems which can be shown to result in part from a failure to take
account of internal relations (Keynes, as cited in Yorshis, 1959, Notes for
Nov. 6).

Whitehead makes essentially the same criticism of conventional philos-
ophic methods. He claims they involve "dogmatic" attachment to "the pre-
supposition that all knowledge starts from the consciousness of
spatio-temporal patterns of sense" (Whitehead 1969, p. 74).1 This presup-
position imports a false sense of "clarity" into our conception of our
experience (ibid., pp. 111-2). The sensationalist doctrine is excessively
scholastic in Ramsey's sense. In opposition to this doctrine, Whitehead
claims that "the study of human knowledge should start with a survey of the
various varieties, discernible in the transitions of human experience (ibid.,
p. 75)." Whitehead also makes the same criticism as Keynes and Ramsey of
the conventional treatment of meaning and language. When he calls the
"Dogmatic Fallacy" is "the belief that philosophical arguments are clear, obvious,
and irresistible" (Whitehead 1967, p. 104; see also p. 233). This ignores the fact that 'except perhaps for the simpler notions
of arithmetic, even our more familiar ideas, seemingly obvious, are
infected with this inessential vagueness" (Whitehead 1967, p. 145).

He also expresses the belief that philosophy can reveal but cannot change the meanings
explicit in ordinary language "The Fallacy of the Perfect Dictionary."

There is an inessential presupposition continually distilling phil-
osophic thought. It is the belief, the very natural, human belief
that mankind has consciously entertained all the fundamental ideas
which are applicable to its experience. Further it is held that
human language, in single words or in phrases, explicitly
expresses these ideas. I will term this presupposition, "The
Fallacy of the Perfect Dictionary." (Whitehead 1960, p. 173)

He also associates both this fallacy and the Dogmatic Fallacy with

What is required in place of these methods is what Keynes calls human
logic. "Our task is to understand the human mind. It will not be success-
fully set to work for the gradual definition of its habitual ideas
(Whitehead 1967, p. 145; see also 1905A, p. 106)." Human logic involves
appeal to "direct insight" rather than deduction or "analytical analysis within
the limits of the dictionary" (Whitehead 1968, p. 173). It is possible, by
means of such an appeal, to change meaning and thereby "enlarge the dic-
tionary" (ibid.). In fact, "the great difficulty of philosophy is the
failure of language... Language halts behind intuition. The difficulty
of philosophy is the expression of what is self-evident. Our understanding
outstrips the ordinary usages of words (ibid., p. 49)."

We have found Keynes adopting Ramsey's notion of human logic as the
method appropriate to the analysis of the habits of mind we have for
"handling the material with which we are supplied by our perceptions and
by our memories and perhaps in other ways" while dissenting from Ramsey's
claim that human logic cannot provide rational or objective grounds for the
adoption of particular habits of mind. Whitehead provided an alternative
account of such methods, an account which, like Ramsey's, disconnected them
from formal logic but, unlike Ramsey's, pointed to "direct intuitive obser-
vation" as a method of human logic alternative to formal logic which could
provide objective and rational grounds for the adoption of particular
habits. Whitehead also claimed that it only becomes evident that
experience can be used for this purpose when it is recognized that the con-
ventional sensationalist account of experience is not an account of uninter-
rupted direct experience but contains ungrounded atomic habits of mind.

Keynes, as we have seen, makes a similar criticism of the conventional
account of experience on which his own work in probability had initially
been based. This suggests that Keynes, having accepted Ramsey's disclaim-
ition of human from formal logic, adopted something like Whitehead's
rather than Ramsey's account of the actual methods and potential results
of human logic.

CONCLUSION

In summary, there is evidence that Keynes moved over time from an at-
omist to an organismist metaphysical description. He appears to have ini-
tially accepted atomism as the description valid for both the natural
and the moral sciences. As his discussion in the Treatise on Probability
shows, this initial acceptance of atomism was based primarily on his belief
that it was the only description compatible with the possibility of
rational induction. He subsequently abandoned atomism in favour of organi-
ismist description valid for the moral sciences. The conception of
internal relations to which he moved allowed for "abstraction" and for the
mutual interplay of efficient causation, final causation and freedom. His
treatment of internal relations as compatible with the possibility of
abstraction is consistent with Whitehead's notion of a nested hierarchy of
societies and points to a way out of the difficulty which he had claimed
internal relations create for induction—the apparent necessity they place
us under of knowing everything at once. The removal of this difficulty
explains his continued acceptance of the possibility of rational induction
following his rejection of atomism. These changes in Keynes's metaphysical
beliefs were accompanied by changes in his methodological views. He came
to reject formal logic and analysis of ordinary language as adequate
methods for grounding metaphysical premises, and replaced them with human
logic. He was also very critical of his early conception of experience.
His treatment of these questions has much in common with Whitehead's.

The changes in Keynes's metaphysical and epistemological beliefs had
important effects on his economics. They underpin his treatment of human
character and motivation, his treatment of business expectations, and his
criticism of conventional uses of mathematical and statistical methods.
His treatment of character and motivation, for example, allows for environ-
mentally conditioned long-period and short-period changes in the motivation
behind economic behaviour. It also appears to employ Whitehead's notion of a nested hierarchy of societies. In this and other areas, Keynes's economics appears to be based on metaphysical premises very different from orthodox ones.

References

1 References to the Collected Writings of John Maynard Keynes take the form of the volume number followed by page numbers eg. (X 338) indicates page 338 of volume X.

2 Note that what Whitehead calls speculative philosophy is very like what Keynes calls human logic.

3 It should be noted that the meaning of *cæteris paribus* alters when we move from an atomist to an organismist conception of interdependence. As Keynes notes in this *Treatise on Probability* discussion, atomic premises do not rule out changed behaviour of ultimate entities under changed conditions. Amidst such changes the nature of the entities themselves, however, remains unchanged. This is not so under organismic premises. Marshall makes the same point in contrasting mechanical and biological analogies in economics. Because mechanical premises do not rule out the changed behaviour of atoms under changed conditions, "mechanical analogies ought ... not to be abandoned hastily on the ground that economic events react upon the conditions by which they were produced, so that future events cannot happen under exactly the same conditions as they did (Marshall 1905, p. 517)." In mechanics, however, it is quantitative change in the forces at work to which all results can be traced. In contrast, in life their character changes also. "Progress" or "evolution," industrial and social, is not mere increase and decrease. It is organic growth, chartered and confined and occasionally reversed by the decay of innumerable factors, each of which influences and is influenced by those around it; and every such mutual influence varies with the stages which the respective factors have already reached in their growth.

4 Moore claimed, for example, that the conception of relations as internal was unacceptable because it was in conflict with the conception embodied in ordinary language (Moore 1903, p. 33). Ramsey says of any attempt to ground atomism in the analysis of ordinary language that it mistakes "for a fundamental characteristic of reality what is merely a characteristic of language (Ramsey 1903, p. 117; see also Whitehead 1918, p. 15 and 1918, p. 254)."


Eastern Economic Journal, Volume XII, No. 4, October-December 1986

THE MACROECONOMICS OF THE TREATISE ON MONEY

Robert W. Dimand

John Maynard Keynes revolutionized the way that economists think about macroeconomics - on his second try. The great success of Keynes’ General Theory (1936) discouraged economists from reading his Treatise on Money (1930), a work twice as long, written in terminology that is no longer familiar. Later economists have generally assumed that studying the Treatise would be unprofitable, since its lasting contributions would have been incorporated in the General Theory. This attitude fulfills Keynes’ prediction in the preface of the General Theory that:

The relation between this book and my Treatise on Money, which I published five years ago, is probably clearer to myself than it will be to others; and what is in my own mind is a natural evolution in a line of thought which I have been pursuing for several years. My sometimes strike the reader as a confusing change of view. This difficulty is not made less by certain changes in terminology which I have felt compelled to make. (1936, xxi-xxii)

Keynes wrote the General Theory for an audience already familiar with the Treatise, so his account of the liquidity preference theory of the interest rate and his treatment of investment in the latter book take as given the much longer discussion of the portfolio balance approach to money demand and the pricing of capital goods in the earlier book. Keynes felt no need for extended restatement of aspects of monetary theory on which his views were well-known and basically unchanged. When the General Theory is read in isolation from Keynes’ early work, there is a risk of underestimating the extent to which money matters in Keynes’ theory.

The General Theory would have been a different book had Keynes not written the Treatise first. The working out of the General Theory was a process of making good the gaps and omissions of the Treatise, especially the lack of a theory of the level of output and employment. To a large extent, this involved developing insights which had already been stated in the Treatise but which had not been integrated into the theoretical framework of that book. To understand the process of working out the General

*Department of Economics, Carleton University, Ottawa, Ontario, Canada K1S 5E6. I am grateful to James Tobin for his advice and encouragement. An earlier version of this paper shared first prize in the Royal Economic Society’s essay competition on Keynes for members of the Society under the age of Thirty.