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Sraffa, Wittgenstein and neoclassical economics

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Economics and philosophy at Cambridge University in the late 1920s and early 1930s each experienced the intellectual turmoil and enthusiasm associated with the abandonment of accepted doctrines and the adoption of new premises. In philosophy, preoccupation with formal language analysis and the logical atomist philosophy of Bertrand Russell and the young Ludwig Wittgenstein gave way to an interest in 'language games' and the examination of ordinary language—the approach dominant among English language philosophers in succeeding decades. In economics, the competitive value theory of neoclassical atomistic individualism was increasingly questioned in the investigation of returns to scale, monopolistic competition, and macroeconomic aggregative analysis, laying the foundations for later growth theory and the reconsideration of classical political economy. Yet, though these developments coincided in time and place, few historians of either discipline have much probed the interaction between Cambridge philosophers and economists, nor pursued their mutual influence in later developments of the respective disciplines. Extensive critical discussion and informal argument, however, did take place between two of the most important individuals involved, Ludwig Wittgenstein, generally held to to be the most influential English language philosopher of the twentieth century, and Pierro Sraffa, author of the 1926 'The Laws of Returns Under Competitive Conditions', editor of Ricardo's works, and author of *Production of Commodities by Means of Commodities*.

There is little record of the interchange between Wittgenstein and Sraffa, but what exists appears provocative. In George Henrik von Wright's 'Biographical Sketch' of Wittgenstein, Sraffa's influence on Wittgenstein at this crucial point in the latter's transition to his later philosophy is recalled on the basis of Wittgenstein's own testimony:

> Of great importance in the origination of Wittgenstein's new ideas was the criticism to which his earlier views were subjected by two of his friends. One was Ramsey, whose premature death in 1930 was a heavy loss to contemporary thought. The other was Pierro Sraffa, an Italian economist who had come to Cambridge shortly before Wittgenstein returned there. It was above all Sraffa's acute and forceful criticism that compelled Wittgenstein to abandon his earlier views and set out upon new roads. He said that his discussions with Sraffa made him feel like a tree from which all branches had been cut (Malcolm, 1958, p. 15).

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From the 'Preface' to Wittgenstein's *Philosophical Investigations* (1958), the culmination of his last sixteen years of work, Sraffa's impact is noted directly:

> I was helped to realize these mistakes—to a degree which I myself am hardly able to estimate—by the criticism which my ideas encountered from Frank Ramsey, with whom I discussed them in the last two years of his life. Even more than to this—always certain and forcible—criticism I am indebted to that which a teacher of this university, Mr. P. Sraffa, for many years unceasingly practiced on my thoughts. I am indebted to this stimulus for the most consequential ideas of this book (Wittgenstein, 1958, p. x).

Other students of Wittgenstein have also noted Sraffa's role in the development of the former's later philosophy. Norman Malcolm records an exchange between the two that precipitated Wittgenstein's abandonment of logical atomist philosophy for the views of the *Philosophical Investigations*. The content of this exchange will be considered below.

Sraffa, it should be noted, arrived at Cambridge several years in advance of Wittgenstein's return there after World War I. The 1926 'The Laws of Returns' article, as well as the 1925 'Sulle relazioni fra costo e quantità prodotta',[1] shows that he was already involved with fundamental questions of economic theory prior to his encounter with Wittgenstein. It is not unreasonable to infer, then, that Sraffa's criticism of Wittgenstein's early logical atomist philosophy was somehow related to theoretical reflections that originated in his own critique of the neoclassical theory of competitive value. Further, it might be argued that the development of ordinary language analysis in subsequent decades, as initiated in good part by Wittgenstein, is in some sense related to philosophical positions implicit in Sraffa's 1926 article. Relatedly, it might also be argued that mainstream English language philosophy since the 1930s contains an implicit critique of neoclassical atomistic individualism. In the first section below, the relation between Sraffa and Wittgenstein will be examined *via* consideration of questions raised by Sraffa about the latter's logical atomist philosophy, as suggested by Malcolm's account of Sraffa's criticism of Wittgenstein's early thinking. In the second section, a critique of neoclassical atomistic individualism, derived from Wittgenstein's later arguments against the possibility of a private language, will be briefly considered.

I

In order to demonstrate that much of recent English language philosophy is significantly related to the philosophical positions implicit in Sraffa's 1926 article, it is necessary to make brief mention of the principal tenets of logical atomism. While both Russell and Wittgenstein were instrumental in the formulation of this philosophy, since Wittgenstein alone carried out its critique, subjecting his first and only other published work, the *Tractatus Logico-Philosophicus* (Wittgenstein, 1961), to thorough examination, only his particular version of the theory will be considered here.

Arguably fundamental to Wittgenstein's *Tractatus* is a reliance on the correspondence theory of truth. The correspondence theory requires that statements or propositions be judged true or false according to their correspondence or lack of correspondence to non-linguistic states of affairs in the world. Should a proposition accurately reflect actual states of affairs in the world, then it is considered true; if not, then it is said to be false. The non-linguistic world thus functions as the anchor of statements made about it. The view

[1] See Maneschi (1986) for a comparative examination of these two works.

traditionally contrasted with the correspondence theory is the coherence theory of truth, whereby a statement or proposition is regarded true or false according to its consistency, compatibility, or coherence, not with something non-linguistic, but rather with other statements or propositions.

The correspondence theory of truth plays an important role in the history of epistemology. Since on the coherence theory the checking of statements for the determination of a particular statement's truth or falsity might proceed without limit, the correspondence theory provides a means of bringing this chain of comparisons to a conclusion by requiring that some set of observation statements be themselves ascertainably true or false in virtue of their correspondence to the non-linguistic world. The correspondence theory of truth thus permits a conception of knowledge as hierarchically ordered upon a foundation of factual claims about the world, in that the truths of our fact-stating discourse can never be modified by other statements or propositions not themselves derived from experience. Knowledge, then, assumes a determinate structure according to the preferential status of those statements that bear a certain and indubitable relation to the world beyond knowledge.

In the *Tractatus*, the correspondence theory of truth and the view that knowledge is hierarchically ordered upon a foundation of indubitable correspondence statements are both captured in the notion that there exists a set of elementary statements or propositions which are simple pictures of the world (Wittgenstein, 1961, sec. 4.10), such that in principle fact-stating language mirrors reality, and the logical examination of language is tantamount to the ontological investigation of reality. On this view, the logical structure of an elementary statement reflects the basic structure of reality, while determination of the truth or falsity of complex statements presupposes their logical analysis into sets of elementary statements—thus the origin of the familiar characterisation of early twentieth century British philosophy as analytic philosophy. Elementary statements themselves are combinations of names whose meanings are the actual objects in the world referred to by those names. Thus a particular combination of names in an elementary statement, or the logical form of that statement, corresponds to the actual configuration of objects named in the world, if indeed the statement is true. More specifically, elementary statements correspond to possible states of affairs in the world, and true statements correspond to actually obtaining states of affairs or simply facts.

Since on this view the ultimate objects of investigation are facts or actually obtaining arrangements of objects, facts are the atoms of the world's ontology or metaphysics upon which all knowledge is founded. Should all complex knowledge claims themselves be compounded of atomic statements corresponding to atomic facts, the crucial role of logical analysis in the determination of what can be known as well as what exists becomes evident. Though simple in its basic conception, the logical atomist philosophy of Wittgenstein and Russell permitted a sophisticated epistimological analysis of the world, especially in virtue of the extensive investigation of formal logic initiated by Russell and Alfred North Whitehead at the turn of the century. Indeed the development of the logical positivist verificationist criterion in the Vienna Circle in the 1930s was itself stimulated by this logical atomist conception of philosophy and analysis.

Russell and Wittgenstein's work together was interrupted by the outbeak of World War I when Wittgenstein left for his native Austria. Upon returning to Cambridge in 1929, Wittgenstein encountered Sraffa, and the two engaged in extensive discussion bearing upon the ideas of the *Tractatus*. Malcolm's account of a crucial exchange between the two is recorded in his memoir of Wittgenstein.

Wittgenstein and P. Sraffa, a lecturer in economics at Cambridge, argued a great deal over the ideas of the *Tractatus*. One day (they were riding, I think, on a train) when Wittgenstein was insisting that a proposition and that which it describes must have the same 'logical form', the same 'logical multiplicity', Sraffa made a gesture, familiar to Neapolitans as meaning something like disgust or contempt, of brushing the underneath of his chin with an outward sweep of the fingertips of one hand. And he asked: 'What is the logical form of that?' Sraffa's example produced in Wittgenstein the feeling that there was an absurdity in the insistence that a proposition and what it describes must have the same 'form'. This broke the hold on him of the conception that a proposition must literally be a 'picture' of the reality it describes (Malcolm, 1958, p. 69).

More or less from this point on, Wittgenstein carried out a profound critical examination of his earlier views, abandoning the doctrines of the *Tractatus*, and instilling in his students a conviction that all of philosophy had to be understood anew. The result of the years of work that followed was the *Philosophical Investigations*, often thought the most influential philosophical work of twentieth century English language philosophy. What, then, was the thrust of Sraffa's criticism?

In asking Wittgenstein for the logical form of a gesture, Sraffa drew attention to a dimension of language easily ignored in the focus of *Tractatus* upon simple fact-stating discourse. Since in the *Tractatus* Wittgenstein had concentrated upon conventional statements in which names seemed readily paired with the objects to which they referred, there appeared little reason to investigate the character and possible ambiguity of the relationship of correspondence between those names and designated objects.[1] When confronted with the odd sort of statement represented by a gesture, however, Wittgenstein was forced to recognise that this correspondence relation was neither simple nor transparent. Indeed, a gesture might well mean different things in different contexts, so that its single meaning on the model of the *Tractatus*, as that which was picked out in the world by the statement it represented, would unavoidably vary with conventions of usage. Meaning, therefore, could not easily be explained in terms of correspondence with the world, since it was evident that the very correspondence was at the very least mediated by practical conventions of every day language usage with which naming and meaning had to cohere.

Yet Sraffa's criticism was in fact deeper still. Not only was the correspondence of language with the world not independent of the social practices that dictated the sense of any meaning, but the very notion that meaning could be explained in fundamental fashion as correspondence was undermined by the considerable difficulty involved in characterising a non-linguistic world independently of the conventions of meaning. Like Kant's things-in-themselves (Kant, 1929, pp. 74, 87, 145), the objects of the world on this view lacked an intelligible status apart from the structure of human conceptualisation. In the final analysis, thus, neither the correspondence theory of meaning nor the correspondence theory of truth could be formulated unproblematically. Wittgenstein accepted these conclusions, and began developing his ordinary language view (in what ultimately became the *Philosophical Investigations*) that meaning is simply determined by use or by the 'language games' in which expressions occur. What connection, then, might Sraffa's critique have had to his 1926 'The Laws of Returns' article?

In this article (and in its Italian precursor), Sraffa attacks the partial equilibrium theory of competitive value by criticising the conception of diminishing and increasing returns underlying the neoclassical supply curve. The neoclassical theory of value, Sraffa argues, requires the merging of very different classical understandings of diminishing and

[1] Much discussion, nonetheless, surrounded the question of what a general name referred to in the world; for example, 'happiness' as opposed to 'Wittgenstein'.

increasing returns in a single 'law of nonproportional returns'. This permits a symmetrical treatment of demand and supply, since on this account,

> the conditions of production and the demand for a commodity can be considered, in respect to small variations, as being practically independent, both in regard to each other and in relation to the supply and demand of all other commodities (Sraffa, 1926, p. 538).

However, a more careful examination of diminishing and increasing returns, Sraffa argues, reveals that this independence cannot be sustained, such that the partial equilibrium framework for the determination of commodities' values must be judged inadequate to its task.

> If diminishing returns arising from a 'constant factor' are taken into consideration, it becomes necessary to extend the field of investigation so as to examine the conditions of simultaneous equilibrium in numerous industries: a well-known conception, whose complexity, however, prevents it from bearing fruit, at least in the present state of our knowledge . . . If we pass to external economies, we find ourselves confronted by the same obstacle, and there is also the impossibility of confining within statical conditions the circumstances from which they originate (Sraffa, 1926, p. 541).

That the characterisation of a simultaneous equilibrium went beyond the existing state of knowledge (a situation Sraffa was to do much to remedy in his *Production of Commodities by Means of Commodities*) of course does not dispel the criticism of partial equilibrium value determination.

Recall, then, that in the discussion related by Malcolm, Sraffa had suggested that Wittgenstein's understanding of logical form was mistaken in its reliance upon the autonomous statement as a unit of meaning. A gesture, as a special sort of statement, was not meaningful apart from the social conventions dictating its usage. Similarly, then, in the 1926 article, conventions of usage are mirrored by forms of industry interaction under varying returns, such that just as a statement's meaning is dependent upon social context, so the summary measure of an industry, namely, the commodity value of that industry, cannot be established independently of that industry's interaction with other industries in the presence of varying returns. More strongly, just as on Wittgenstein's correspondence view the meaning of a statement in one context might be contradicted by the meaning of that seemingly identical statement in another context, so the partial equilibrium determination of a commodity's value under one set of assumptions about returns might well be contradicted by its determination under another set of such assumptions.

Again, in the same manner that Sraffa's critique of Wittgenstein's treatment of meaning involved more than a demonstration that the proposed correspondence relation was neither simple nor transparent, so in his 1926 article he intended more than the simple demonstration that a partial equilibrium determination of competitive value was often inconsistent, or that a simultaneous equilibrium framework was more comprehensive. Indeed, against Wittgenstein Sraffa displayed the incoherence of a correspondence relation between statements and non-linguistic states of affairs inherently outside of conceptualisation, while against neoclassical value theory he demonstrated that a commodity's value did not correspond to an alleged 'symmetry existing between the forces of demand and those of supply' (Sraffa, 1926, p. 535), claimed to be the underlying causal basis of the industry. Relatedly, since supply and demand schedules were conventionally thought to result from the decisions of atomistic economic agents, overturning partial equilibrium analysis with its attendant correspondence assumptions also permitted the abandonment of the view that atomistic individuals were necessary to the explanation of competitive value. That simultaneous equilibria characterised

competitive value determination thus meant that social relationships in production were more complex than the neoclassical tradition of atomistic individualism allowed.

It is interesting to note in this connection that the sort of critique Sraffa advanced in both his discussions with Wittgenstein and his 1926 article can be generalised to the neoclassical treatment of demand. That is, just as the neoclassical supply curve depends upon atomistic price-taking firms (summed to respective industries), so the neoclassical demand curve depends upon atomistic consumers with non-interdependent preferences (summed by respective markets). Strictly speaking, then, an exhaustive presentation of Sraffa's critique would include an examination of interdependent utility functions, parallel to the treatment of interdependent production functions under varying returns, in order to demonstrate that from the vantage point of each side of the market the alleged correspondence of commodity value and underlying supply and demand forces was illegitimate. Sraffa, of course, devoted little attention to demand either in his 1926 article or in his later work. In contrast, Wittgenstein's own later work, especially his critical treatment of the notion of a private language, has considerable importance for the understanding of consumer preferences. Accordingly, since this thinking was influenced in its direction by discussions with Sraffa, a brief examination of Wittgenstein's handling of the notion of a private language will be suggestive for final consideration of the logic of neoclassical value theory.

II

While the points in the last section should be of interest chiefly to philosophers, since the general nature of Sraffa's critique of atomistic individualism has long been recognised by economists, the points in this section are primarily of interest to economists. That is, just as Sraffa's influence on Wittgenstein has been little appreciated, so the implications of Wittgenstein's later philosophy for the foundations of neoclassical consumer theory are largely unrecognised.

One of the key contributions of Wittgenstein's *Philosophical Investigations* is its formulation of an argument against the very possibility of a truly private language. Without pursuing the complexities of the argument and subsequent philosophical discussion of it,[1] its general character can be set forth as follows. Upon concluding that objects in the 'external' world could not be identified apart from the conventions of language, Wittgenstein realised that the same conclusion applied analogically to objects of our 'internal' worlds, namely, mental experiences. These latter objects, it should be noted, were of special interest to philosophers, since mental entities (for example, an individual's pain) were often thought to be fully private, unlike objects in the intersubjective, 'external' world, so that an individual could never be said to be wrong about the private experience of a given mental event. Indeed, traditional empiricism rested squarely upon this foundation of indubitability, in that sense perception was rooted in an individual's private mental experience. However, if mental entities were no more accessible to the individual, apart from the conventions of intersubjective language, than objects in the 'external' world, then they lacked the special status that would justify erecting a structure of knowledge upon them.

In his *Investigations*, Wittgenstein concluded that fully private access to such experiences, whereby a particular experience was associated with a name known only to the individual involved, was impossible, and that any sort of seemingly private language-

[1] For a representative collection of essays, see Morick (1967).

naming of mental experiences was in fact mediated by intersubjectively established language conventions concerning the picking out of those experiences. The correspondence between the words used to identify mental events and those events themselves was certainly neither simple nor transparent. More strongly, the very notion that such mental events possessed a characterisable status apart from general language usage itself represented a misguided attempt to resurrect the Kantian thing-in-itself in the domain of mental experience. Generally, then, that any proposed correspondence relation was always mediated by intersubjective concepts, meant that knowledge could not be hierarchically structured upon a privileged foundation of private sense experience (any more—in the framework of the *Tractatus*—than upon a set of factual claims about the 'external' world). This important result—familiar in other formulations to many philosophers of science—depends for Wittgenstein on the self-contradictory character of the notion of a private language of mental experience. Quite simply, experience in any form is meaningful only in intersubjective terms, and thus it is unreasonable to attempt the demarcation of an individual's mental experience by only referring to that individual's experiential autonomy.

While the precise interpretation of this argument has been debated extensively among philosophers, its general result has been widely accepted. Indeed, the turn in recent philosophy of science from empiricism could well be said to be predicated upon this critique of the privileged status of sense experience reports, although many outside the discipline of philosophy are unaware of this connection.[1] How, then, is the argument applicable to neoclassical economic theory?

In neoclassical theory, the consumer is represented atomistically in that the formation of a given consumer's preferences is assumed to occur in complete independence of other consumers' tastes and choices. Indeed, as has long been understood, unless bandwagon effects, snob appeal, and other Pigovian and Veblenesque behaviour are excluded by assumption, consumer preference formation does not guarantee the down-sloping demand necessary to a supply-and-demand determination of competitive value. Neoclassical theory thus duplicates on the demand-side of the economy the atomicity assumptions of the competitive price-taking firm on the supply-side, in that the quantity decisions of the agent are carried out in full independence of the corresponding behaviour of other agents.

While it has not been uncommon for critics as well as advocates of neoclassical theory to regard this notion of the consumer as artificial,[2] reflection upon Wittgenstein's private language analysis suggests that it is in fact self-contradictory. Thus, just as any language is necessarily intersubjective and non-private, so the formation of an individual's preferences is necessarily an intersubjective, non-private activity. To say that preference formation is exogenous to price determination, or that from the vantage point of individual optimising behaviour preferences can be taken as 'given', at best begs the question at issue. If preferences are formed intersubjectively, they cannot simply be re-labelled as private for the purpose of a price determination that seeks to demonstrate an essential role for atomistic agents. Indeed, claiming that preference formation is exogenous or that preferences are simply 'given' only serves to expunge the intersubjective character of consumer preferences that on Wittgenstein's private language argument cannot without contradiction be separated from a characterisation of those preferences.

[1] A philosopher who early studied Wittgenstein and then developed interests in the philosophy of science is P. K. Feyerabend. See his review of the *Philosophical Investigations* (Feyerabend, 1955), as well as more recent work.

[2] See the discussions of Graaf (1957, pp. 43–44) and Pigou (1903).

Note that none of this implies that individuals fail independently to exercise intersubjectively-established preferences. Rather, just as for Wittgenstein individuals of course have their own mental experiences, yet gain access to them *via* intersubjective conceptualisation, so consumers also act on their own preferences independently of one another, though those preferences depend in good part upon social standards of desirability. The neoclassical notion of non-interdependent preferences, then, rests on a failure to distinguish the intersubjective character of what is preferred by each individual from each individual's independent act of choice. Specifically, the standard treatment of external effects in consumption requires that the arguments of individuals' utility functions be non-interdependent,[1] when on Wittgenstein's view the simple existence of individual utility functions should be sufficient to establish the independence of agents, given the interdependent arguments of their utility functions.

Developed in this fashion, then, Wittgenstein's argument against private language, in part inspired by Sraffa's critique of his earlier thinking, can be used to cast doubt on the neoclassical treatment of the demand side of the economy, as Sraffa's 1926 article did for the supply side. Overall, both treatments bear important similarities to Sraffa's original critique of Wittgenstein's early correspondence relationship thinking. That fundamental critique, moreover, takes its impetus from Sraffa's attack upon a questionable metaphysics of underlying, inherently inaccessible entities and forces that are purportedly conceptualised in philosophy and economics. Given the general discrediting that empiricism and other correspondence philosophies have suffered in recent decades, Sraffa's insights in the 1920s appear prescient and profound. Thus, it is not unreasonable to conclude that Sraffa's thinking significantly influenced subsequent English language philosophy *via* Wittgenstein, and that that philosophy itself continues to carry an implicit critique of neoclassical value theory.

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[1] See, for example, the treatment of consumption externalities by Henderson and Quandt (1980, p. 297).