

# Jevons's One Great Disciple: Wicksteed and the Jevonian Revolution in the Second Generation<sup>1</sup>

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**Abstract:** This paper evaluates Wicksteed's role in the propagation of Jevonian marginalism into the second generation against the backdrop of Wicksteed's explicit identification with the economics of Jevons and his avowed aim to explain and extend the Jevonian framework. The paper focuses primarily, but not solely, on Wicksteed's theory of distribution, which is arguably his most important contribution to economic theory, and answers the following questions: should Wicksteed's contributions be read as a simple extension of Jevons's work or did Wicksteed take the Jevonian revolution on new and different paths? If so, on what course did Wicksteed steer Jevonian economics?

## 1 Introduction

Phillip Wicksteed began his serious study of political economy towards the end of 1882, inspired by Henry George's *Progress and Poverty*.<sup>2</sup> At the time, he was sceptical of extant political economy theory, believing that 'some great fallacy or fallacies lay at the heart of the science' (Wicksteed 1882a).<sup>3</sup> But George's *Progress and Poverty* gave Wicksteed 'the light I vainly sought for myself' (Wicksteed 1882a).<sup>4</sup> Within a year of reading *Progress and Poverty*, however, Wicksteed had largely abandoned Henry George's economics.<sup>5</sup> He did so in favour of another revolutionary thinker, W.S. Jevons, of whose work and that of others of the marginalist revolution he had, by his own admission, been previously completely ignorant (Wicksteed 1883b, p. 390).<sup>6</sup>

For Wicksteed, Jevons's marginalist framework opened up new ways of thinking about economics and provided a method that could be applied to all economic problems. From mid-1883, Wicksteed devoted himself to the task of explaining, applying and extending the Jevonian framework. In this endeavour he was very much on his own. So much so, that among both his contemporaries and later historians of economic thought he was viewed as Jevons's 'one great disciple' (Hutchison 1953, p. 95).<sup>7</sup>

The primary aim of this paper is to evaluate Wicksteed's role in the propagation of Jevonian marginalism into the second generation against the backdrop of Wicksteed's explicit identification with the economics of Jevons and his avowed aim to explain and extend the Jevonian framework.<sup>8</sup> It is, therefore, concerned primarily with the theme of continuity and discontinuity. I shall focus primarily, but not solely, on Wicksteed's theory of distribution, which is arguably his most important contribution to economic theory. The question I shall seek to answer is: should Wicksteed's contributions be read as a simple extension of Jevons's work or did Wicksteed take the Jevonian revolution on new and different paths? If so, on what course did Wicksteed steer Jevonian economics? While the Jevons-Wicksteed link provides the focal point of the study, I shall also take the opportunity to address a number of additional themes. Most importantly, I shall refer to archival sources that shed light on the development of Wicksteed's theories

and have not previously been tapped. I shall also consider the question of the ambiguity in Wicksteed's position on socialism, and the relationship between Wicksteed's economic and non-economic works.

Wicksteed's adoption of the Jevonian framework is no more evident than in his first published works, namely, his critique of *Das Kapital* and *The Alphabet of Economic Science* (hereafter the *Alphabet*) where the focus of Wicksteed's attention is strictly on Jevonian utility, exchange and value themes. Wicksteed was to make important contributions to the development of the Jevonian form of marginalism through his detailed exposition of how the fundamental Jevonian theorems of exchange in mathematical form connect to the everyday experiences of life. As Wicksteed says in the *Alphabet*: 'my object is to bring Economics down from the clouds' (Wicksteed 1888, p. x). I shall argue, however, that Wicksteed's explicit identification with Jevons in these (and later) works masked certain methodological differences between Wicksteed and Jevons and that these differences had significant implications for the framing of Wicksteed's economic theory.

Wicksteed followed Jevons in viewing economics as a mathematical science. However, I shall argue in the paper that Wicksteed held a conception of economics as a mathematical science which was far narrower than Jevons's richer reading, based as it was on stronger grounding in the methodology and philosophy of science. Wicksteed's almost casual lack of interest in the role of data and statistical analyses in theory generation and appraisal stands in sharp contrast with Jevons's strong empiricist leanings set out in his *Principles of Science* and reinforced in the *Theory of Political Economy (TPE)*. In this context, I shall make reference to Wicksteed's frequent use of explicit mathematical functions to represent economic phenomena. In this respect he was very much a leader in his and in following generations. The important feature of Wicksteed's practice, for our purposes, however, is that Wicksteed adopted functional forms which produced economic patterns that conformed to his prior beliefs. Whether these functional forms could be shown to be consistent with the data did not appear to be of concern to Wicksteed.

The crucial point here is that Wicksteed over-emphasised the role of *a priori*, self-evidential theorising built on first-hand observation and commonsense foundations. The use of commonsense foundations is, of course, most evident in Wicksteed's two-volume book *The Common Sense of Political Economy* (referred to as the *Common Sense*) published in 1910 but is also apparent in all of Wicksteed's work. In *Common Sense*, marginalist theorems on distributional questions, as well as on production, utility and exchange issues, are generated and validated on the basis of commonsense foundations. In placing emphasis on a commonsense grounding, Wicksteed had, of course, an ulterior motive in that he hoped to broaden the level of popular support for the doctrines he espoused.

Finally, Wicksteed differed from Jevons on methodological grounds in that he adopted a hyper-universalist methodological stance—all economic phenomena can be understood in terms of a universal marginalist framework.<sup>9</sup> Although Jevons gave the appearance of being strongly universalist in his economics, White (1994) has shown that he was in fact more qualified in his espousal of universalism in that he placed clear restrictions on the appropriate domain of economics.

Wicksteed is perhaps most famous for his contributions to distribution theory. Here, I shall argue that the direct link from Jevons to Wicksteed is, in fact, stronger than many commentators have suggested. Jevons is sometimes portrayed as remaining within a classical tradition in terms of distribution theory, and yet Wicksteed's marginal productivity-based theory of distribution clearly had its

genesis in Jevons's treatment of rent, capital and interest in the *TPE*. The marginal productivity theory of distribution is typically viewed as a second-generation development in terms of the marginal revolution. And there is some truth in this. However, Wicksteed's contribution to the development of neoclassical distribution theory owed a great deal to the foundation laid by Jevons's nascent marginal productivity doctrines in his theory of capital and interest in *TPE*. Wicksteed's marginal productivity-based theory of distribution was developed in the tract *An Essay on the Co-ordination of the Laws of Distribution* ('*Essay*') and published for a specialist audience in 1894. It contained (arguably), together with Wicksell's *Value, Capital and Rent*, the first detailed complete mathematical statement of a marginal productivity distribution theory applied across *all* factors of production.<sup>10</sup> As compared with his first economic works (the 1884 critique of Marx's *Das Kapital* and his 1888 *Alphabet of Economic Science*), Wicksteed in the *Essay* was much less explicit in pointing to the Jevonian connection and it is important that we understand the role that Jevons's theory of capital and interest played in the development of Wicksteed's theory. In so doing, we should be in a better position to judge how Wicksteed's marginal productivity distribution theory built on Jevonian foundations and determine what was novel in Wicksteed's theory.

Our examination of Wicksteed's role as Jevons's successor requires us to consider one further relevant issue. How important are Wicksteed's non-economic interests and sources of inspiration in the development of Wicksteed's economic works relative to the influence of Jevons? Wicksteed published more outside the field of economics than he did within it. His catalogue of works extends from popular religious, political and sociological papers to the fields of modernist theology and medieval literary studies. His Dante and Aquinas studies, in particular, represent major contributions to medieval scholarship. Contributions to these areas of scholarship occurred before, during, and after Wicksteed's own stated conversion to Jevonian economics in early 1883 and his first published economic work in 1884 (Wicksteed 1884b).

The connections between Wicksteed's economic works and his non-economic studies and influences present a potentially rich source of inquiry for the historian of economic thought. Indeed, it is relatively easy to find, in Wicksteed's more popular religious and sociological works of the 1880s and 1890s, extravagant claims of the integration of the religious, the sociological and the economic in one grand, all-embracing methodological framework and doctrine. Evidence to support a position that Wicksteed's religious, philosophical, and ethical beliefs *determined*, in a precise manner, the parameters of *his* theory of distribution, however, simply cannot be found in the relevant economic texts themselves. And it certainly cannot be argued, more dramatically, that Wicksteed's religious, philosophical and ethical beliefs are fully *integrated* with the economic, notwithstanding the undeveloped protestations of Wicksteed to the contrary.<sup>11</sup>

We are perhaps on more fertile ground if we hypothesise that Wicksteed's philosophical, religious, and political background, positions and beliefs, leading into the vital early 1880s period, predisposed him towards the work of Jevons and that he began his economic studies carrying baggage from the past, which both partially conditioned his method of analysis and influenced the content of his subsequent statement of distribution theory. An examination of the conjecture that Wicksteed's 'belief system' (if we can call it that) determined his subsequent statement of economic principles represents one major point of focus of the present paper.

The paper focuses on the crucial ten-year period from 1884 and the publication of Wicksteed's *Das Kapital* critique to 1894, when the *Essay* was published. Section 2 of the paper provides a sketch of Wicksteed's work and influences to the point of his transition to the serious study of political economy. This period does not include any published works in economics but holds some interest in assessing the question of the importance of non-economic influences on Wicksteed's conversion to the Jevonian programme and on the later development of his economic theories. Section 3 of the paper deals with Wicksteed's entry into the economic field and examines his rapid conversion in the space of a year first to Henry George and then to Jevons. It also considers Wicksteed's earliest economic publication, his famous piece on Marx and exchange with Shaw (Wicksteed [1884b] 1933). In section 4 I refer to the Wicksteed-Pearson correspondence, held in the Pearson archives at University College London, and use this correspondence as a platform to consider how Wicksteed used mathematics in his first attempts to apply Jevons's economic framework. The Wicksteed-Pearson correspondence has not, to my knowledge, been utilised previously in studies of Wicksteed. I examine aspects of Wicksteed's *The Alphabet of Economic Science* (Wicksteed 1888a) in section 5. The *Alphabet* represents Wicksteed's first detailed economic study. Section 6 considers the development of Wicksteed's theory of distribution through to the *Essay*, examining carefully the Jevons-Wicksteed link, while the following section undertakes a parallel analysis of Wicksteed's non-economic studies of the same period. Section 8 then examines his *Common Sense of Political Economy* and also surveys contemporaneous material from his non-economic studies to test the hypothesis of a close integration of the two sets of studies.

## 2 Early Life and Influences

Wicksteed was born in 1844 into a Unitarian Church family.<sup>12</sup> He attended University College London from 1861, the year Jevons (also a Unitarian) graduated. However, despite this circumstantial evidence, it appears that Wicksteed did not know Jevons personally during the time he was at University College London (or so we assume, or surely he would have mentioned the fact in one of the many references to Jevons scattered through his work).<sup>13</sup> He moved on to Manchester New College in 1864, where he prepared for ministry in the Unitarian Church. While at University College London he came under the influence of Edward Beesly, a leader of the Positivist movement in Britain at the time. As we shall shortly see, there are plausible connections between Comtean positivism on the one hand and Wicksteed's emphasis on all-embracing economic laws, the rationalist basis of science and the role of mathematics.

His began his first ministry at Taunton in 1867. From that point, he began publishing articles and translations of works connected with the modernist theology movement, working closely with an important figure (Abraham Kuenen) in that movement in Holland. In 1874 Wicksteed settled in London, taking up a position at the Little Portland Street Chapel. He remained in London until the turn of the century, when he retired from the Unitarian ministry to the country. He maintained, however, his Extension Lecturer position, which he had taken up in 1887 and which resulted in him lecturing on a large range of subjects (primarily economics and sociology) in various towns around England for the next 30 years.

Wicksteed's early theological output (1871 to 1883) is largely concerned with an examination of the work of Kuenen and other Dutch leaders of the Modernist

theological movement, together with his own contributions to New Testament scholarship. As one would expect, there is no direct reference in these theological works to issues relevant to political economy. But what these early works do reveal is an interest in the importance of historical, psychological, philosophical and scientific studies in Biblical critical analysis and, even more significantly, in the importance of non-Biblical sources of inspiration and revelation. Moreover, there is a clear emphasis on the role of reason and critical judgement in moving us to the truth. Such an approach contrasts strongly with one based on the literal interpretation of the Bible. However, the important point to make is that Wicksteed, in rejecting the literal interpretation of the Bible, does not move to a position of uncertainty and scepticism. Rather he holds the new position with certainty and appeals to reason as the foundation of his knowledge (see, for example, Wicksteed 1881).

In accepting a non-literalist, modernist stance, Wicksteed reveals a strong appetite to take on the 'new' in theology, perhaps in an all-accepting naïve way, and to reject established orthodoxy. His Unitarian (non-conformist) background provided a fertile background for the adoption of new ideas, particularly those founded on a rationalist base. These tendencies—the adoption of views that were not accepted orthodoxy, the adherence to rationality—are to be seen again in Wicksteed's preparedness to take on the revolutionary and the thorough-going rationalism in Jevons when he moved to economics.

Wicksteed's first major work on Dante, a series of six sermons delivered initially in 1878 at Little Portland Street Chapel, again reveals little by way of direct reference to economic and distributional issues (Wicksteed [1879] 1892b). One can draw links between his analysis of the role of *justice*, *free will* and *deserts* and his later development of a marginal productivity theory of distribution, but little weight can surely rest on these connections. Wicksteed suggests, for example, that 'free will is the supreme gift of God, and that by which the creature most closely partakes of the nature of the Creator' (Wicksteed [1879] 1892b, p. 111). Later he suggests that the 'award of God rests upon the free choice of man, and registers his merit or demerit ... placed as we are on earth amidst the mysterious possibilities of good and evil, we are endowed with a genuine power of self-directed choice between them'. This emphasis on free will and deserts perhaps suggests that he was later receptive to economic ideas that stressed the role of rational choice and the balancing of opportunities and was ripe for the utility and exchange-based system of Jevons, but that is as far as one can stretch the connection between Wicksteed's early works and his later adoption of Jevonian economics.

The last published work of interest from Wicksteed's pre-economic phase is his 1875 *Inquirer* review of Bridges's translation of the first volume of Comte's *System of Positive Polity*. Wicksteed's review is taken up as much with side issues (for example, the propensity of those like Huxley and Spencer who condemn Comte not actually to read him in detail, and the poor quality of Martineau's English-language condensed version of Comte's *Cours de Philosophie Positive*) as it is with a review of Comte's theories. This leaves us without a firm idea of Wicksteed's own philosophical and methodological leanings in the mid-1870s or of how Comte may have influenced Wicksteed's methodological system. There is also no detailed discussion of political economy in Wicksteed's review. Nevertheless, there are suggestive elements in the review in regard to possible Comtean influences on Wicksteed's economics.

It is apparent from Wicksteed's comments that he approved of Comte's aim to establish sociology on a scientific base. Just as importantly, he writes in

positive terms of Comte's attempt to apply scientific sociology 'to life and society'. As Wicksteed nicely puts it, the goal of Comte's *Philosophy* 'must ever be a *Polity*' (Wicksteed 1875, p. 328; italics in the original). Exactly which elements of Comte's system influenced Wicksteed is, however, difficult to determine. One obvious possible influence is Comte's adherence to grand all-embracing laws. Wicksteed's predilection also to follow such an approach in his economic works may well have found its inspiration in Comte. The best example of Comte's universalist stance was his well-known 'fundamental law' of human progress, in which all knowledge proceeds in three stages: the theological or fictitious, the metaphysical or abstract, and the scientific or abstract. Not only is there a fundamental law concerning the development of knowledge, but Comte also expresses the hope that all phenomena could be expressed as particular aspects of a single general law or fact. For Comte, the aim of positive philosophy was in fact to reduce the 'natural invariable laws' to the smallest possible number. The emphasis on *unifying* theory is paramount in Comte's work, as it was later in Wicksteed's.

Wicksteed may also have been influenced by Comte's emphasis on mathematics as the foundation stone of scientific endeavour. Not recognising that Comte was in fact, at best, neutral in regard to the role of mathematics in sociology (and was antagonistic towards a separate role for political economy), this early emphasis on mathematics may well have led him to be predisposed to the Jevonian position that 'Economics to be science at all must be a mathematical science' (Jevons 1888, p. 3). (Jevons, it must be emphasised, was no supporter of Comte.) Wicksteed was to accept the assertion that economics was a mathematical science whole-heartedly throughout his economic works, and it was Jevons's use of mathematical tools that appealed to him so much. In his 1905 *Economic Journal* review of the posthumous publication of Jevons's *The Principles of Economics*, Wicksteed suggests that Jevons was right 'in declaring that certain fundamental relations and conceptions in the theory of political economy are essentially mathematical, and that the only question is whether they are to be treated by sound or unsound mathematics' (Wicksteed 1905, p. 434).

One revealing aspect of Wicksteed's review was his rejection of the Comtean position that only objective observation had a role to play in scientific endeavour and that there was no role for '*observation interieure*' (Wicksteed 1875, p. 328). For Wicksteed this was a fallacy. Knowledge gained from self-observation was crucial in the field of sociology. As I shall argue, Wicksteed was to follow this principle in his economic work.

### **3 Henry George and Wicksteed's Move into Economics**

The boundary line between Wicksteed's pre-economic period and his enthusiastic take-up of Jevons's economics can be dated to late 1882. The key event is Wicksteed's reading of George's *Progress and Poverty* and subsequent promotion of the ideas and policy programme of Henry George in England. These early reviews and Wicksteed's first correspondence with George shed light on the status of Wicksteed's economic knowledge and interest in the subject immediately prior to his conversion to Jevonian economics. His letter of 29 October 1882 to George begins by noting that he had only just finished reading *Progress and Poverty*. What Wicksteed's letter displays most is a keen interest in distributional questions, a fact evident in his subsequent review of George's book in the *Inquirer* (the Unitarian magazine) in December 1882. Here Wicksteed admonishes political economy for

not providing an answer to the question of the source of the maldistribution of income that exists in society, and expresses moral outrage at the existing distribution of income in England. He ridicules both the wages fund doctrine and the Malthusian population doctrine. He refers, in Keynesian overtones, to the inability of political economy to explain a state of chronic and long-lasting economic depression. Indeed, he specifically refers to the lack of 'effective demand' as a prime cause of economic depressions.

Wicksteed argued that it was in George's theory of rent that the answer to the puzzles that afflicted political economy could be found. *Progress and Poverty* represented 'by far the most important work in its social consequences that our generation or century has seen' (Wicksteed 1882, p. 839). George's theory of rent had extracted and expanded on the one element of political economy that retained some truth (Wicksteed 1882).

Within the short space of three months, Wicksteed was standing at the forefront of the band of English apologists for George. He put his support for George into practice by inviting Arnold Toynbee to deliver a set of lectures on *Progress and Poverty*. Wicksteed's stated aim was to put George's theories to the public test: to determine whether an 'eminent economist' could find some radical defect in George's work. Despite supporting particular aspects of George's *Progress and Poverty*, Toynbee adopted a generally negative stance on the work. Wicksteed, on the other hand, remained largely loyal to George's programme (Wicksteed 1883a, 1883b, 1884a). First, he dismisses the two-pronged view advanced by Toynbee that (i) George exaggerates the amount of rent in the system and hence the extent to which landlords receive an unfair return and (ii) George grossly underestimates the degree to which employees are overpaid. Wicksteed suggests that there are, using the competitive market model, strong grounds for believing that employees are not generally overpaid:

As the system of credit is perfected, competition amongst employers of labour will become more and more perfect, and it is difficult to see how the 'earnings of supervision and direction', or, in other words, the remuneration of employers, can be permanently maintained at an exorbitant rate. They must be great enough to call forth the requisite supply of business power, and if they are at present largely increased by the monopolising power of great capitals the progressive perfecting of the credit system must tend to reduce them by making it comparatively easy for outsiders who possess business talent to cut them down by free competition. (Wicksteed 1883a, p. 276)

Second, Wicksteed, while noting slips and inconsistencies in George's arguments, defends the general proposition advanced by George that rent presses down wages. Finally, Wicksteed retains support for a land tax: 'economic rent stands wholly apart from all other revenue as a ..... subject for taxation and for gradual and ultimate absorption in the revenues of the State for the benefit of the community which creates it' (Wicksteed 1883a, p. 244). Wicksteed argues for a land nationalisation programme because 'the value of land is made by the people and is taken from them without compensation' (Wicksteed 1884a, p. 69). It is useful at this point to summarise Wicksteed's position as support for the nationalisation of land but not the nationalisation of the instruments of production (see also Wicksteed 1895b, p. 40). Wicksteed remains a difficult person to classify in terms of his socialist leanings.

By the beginning of 1883, Wicksteed could be said to be fully absorbed in promoting Henry George's *Poverty and Progress* and the Land Reform campaign, in delving into questions relating to the distribution of income and in 'swotting up' on political economy. It is in the latter context that Wicksteed first reads Jevons. The first Wicksteed reference to Jevons is in Wicksteed's April review of Toynbee's lectures (Wicksteed 1883a). Wicksteed writes in the June *Inquirer* of 1883:

Anyone who desires to make a real contribution to the controversy raised by 'Progress and Poverty' must begin by realising the fact—of which I confess that I was myself totally ignorant nine months ago—that quite independently of Mr Henry George the science of Economics has undergone a revolution within the last ten or fifteen years which makes it worse than useless to restate the positions of the old school (even if the restatement be correct and adequate, which is far from being the fact *in casu*) without reference to recent investigations. (Wicksteed 1883b, p. 390)

Wicksteed's reading of Jevons produces profound effects. His interest in George, as an economist, comes to a halt (although his support for land reform remains very strong). He simply takes up the Jevonian programme *holus bolus*. The conversion to Jevons is, however, not unexpected. Jevons is a revolutionary. He is fighting against prevailing orthodoxy. He contends that he holds the all-embracing truth of political economy and states that truth with certainty. Finally, the truth is presented in advanced mathematical form, lending itself to high scientific credibility. All these characteristics would appeal to Wicksteed.

Wicksteed's first application of Jevonian theory was a critique of Marx's *Das Kapital* published in the socialist *To-Day* magazine.<sup>14</sup> It is an ambitious paper. Rather than attacking particular features of Marx's framework, Wicksteed argues for its complete dismantling and replacement by its substitute, Jevons's utility-based theory of value. Wicksteed's *Das Kapital* critique also displays clearly a theme evident in all his subsequent economic works: that there exist universal and true principles of economics, which can be applied in all circumstances and in all conditions (see Flatau 2001). He suggests that Jevons's theory of value is 'equally applicable to things that can, and things that can not, be multiplied by labour, [and]... is equally applicable to market and to normal values, ...and fits all the complicated phenomena of our commercial societies like a glove' (Wicksteed [1884b] 1933, p. 722).

The essential terms of Wicksteed's critique can easily be explained. When we exchange goods we are exchanging objects that are different in terms of their make-up and quality. But they must have something in common—or how could exchange take place? The common denominator or measure of heterogeneous goods, in the marketplace, is utility. The utility value of the goods, to the parties to the exchange, determines exchange value. In making this argument, Wicksteed rejects Marx's labour input term as the required common property. But how does labour input enter into the equation? Labour input plays the part of a response variable in Wicksteed's system. Labour goes to where it proves most useful in the satisfaction of consumer wants. It is through this route that we can begin to understand Marx's schema—there is a coincidence of the units, *labour time* and *exchange value*, because labour goes to goods that are valued in exchange.

The impact that Wicksteed's critique had on socialist commentators appears to have been very significant. Bernard Shaw was later to remark: 'A Roman Catholic impugning the infallibility of the Pope could have created no greater scandal. Sentence of excommunication was pronounced by *Justice*: the



*Inquirer* and other papers well affected to the cause demanded impatiently why the heretic remained unanswered' (Ellis 1930, pp. 69-70). Shaw's remark is revealing in highlighting the fact that Wicksteed was seen, prior to his intervention, as clearly in the socialist fold. Wicksteed himself, almost a decade later, moved to some point of rapprochement in his review of the *Fabian Essays in Socialism* for the *Inquirer* when he remarked that 'Socialists of the "Fabian" stamp must be recognised as fellow-workers by the Economists of the new school' (Wicksteed 1890, p. 531). The reason Wicksteed provides for this is that:

The 'Fabians' have been at work on political economy, and the result is the distinct and definitive abandonment of the system of Karl Marx. 'Das Kapital' is no longer the Socialist's Bible. ...In fact the Fabians appear to be frankly 'Jevonian' on the crucial point of the theory of value.' (Wicksteed 1890, p. 530)

#### 4 The Pearson-Wicksteed Correspondence

Having settled on utility as the common property between goods, Wicksteed proceeded to flesh out the Jevonian edifice in the period immediately following the publication of the *To-Day* critique. *The Alphabet of Economic Science* was the product of this effort. It is a work that is almost wholly focused on the utility theory of value and is characterised by an attempt to present that theory in the form of a mathematical text. Wicksteed provides an exhaustive outline of the basic mathematical tools relevant to study of a marginalist theory of value and exchange and proceeds to a detailed exposition of the utility theory of value in mathematical form. In doing so, Wicksteed was being true to the designs of Jevons to develop economics as a mathematical science. However, there are important nuances in Wicksteed's treatment which we shall emphasise.

Wicksteed was not a specialist mathematician and yet he took his cue from Jevons that economic problems had a quantitative dimension and that the application of mathematics to economic problems was not only necessary but also revealed the nature of those problems more clearly than a non-mathematical treatment could do. The Wicksteed archives at the London School of Economics and the Pearson Papers at University College London reveal that Wicksteed had a sound understanding of mathematical methods, but that he was significantly assisted from before the *Alphabet* through to the *Essay* by at least three figures: his daughter, Rebecca; the University College Professor of Applied Mathematics, Karl Pearson, famous for his contributions to theoretical statistics and for his applied (and often controversial) statistical analyses of biological, social, hereditary, evolutionary and eugenic questions; and a mathematical tutor by the name of John Bridge (whose contributions are acknowledged in the *Alphabet*, in Wicksteed's *Quarterly Journal of Economics* piece on Jevons, and in the *Essay*, and whose significant contribution to the *Essay*—which we will discuss in the following section—is evident in the London School of Economics Wicksteed archives).<sup>15</sup>

The first correspondence between Wicksteed and Pearson in the Pearson archive at University College is a letter from Wicksteed to Pearson dated May 18 1885, in which Wicksteed expresses his admiration for William Clifford's *Common Sense of the Exact Sciences*. Pearson had edited the work from an incomplete manuscript left by Clifford. (Wicksteed may well have been inspired in small part by Pearson's edited work to use the 'common sense' label in his own *Common Sense of Political Economy* published some 25 years later.)<sup>16</sup> He makes the

following reference at the end of the letter: ‘when our “May Meetings” are over I shall hope you will give me an hour or two some afternoon or evening and look at my curves and give me some advice about carrying the matter forward’. The reference clearly suggests that there had been some sort of meeting prior to this point. It also suggests that Wicksteed had begun serious work on the mathematics of Jevons’s economics by early 1885. The *Alphabet* was published in 1888.

The next item (a postcard), dated July 3 1885, begins ‘Very many thanks for curve. I can see much light in it already and shall see more when I study it.’ From a later letter from Wicksteed to Pearson dated, 25 October 1885, it is probable that the function in question was  $y = (a - bx)/(x^2 + c^2)$ , as this curve was cited in that 25 October letter. No mention is made in the letter of the use to which the curve is to be put. However, for positive  $a$ ,  $b$ , and  $c$ , the curve has a positive  $y$  intercept ( $a/c^2$ ) and a diminishing (in absolute value form) negative slope to the  $x$  intercept of ( $a/b$ ). This functional form, of course, conforms to a marginal utility function (Wicksteed used ‘marginal utility’ and ‘marginal usefulness’ interchangeably throughout the *Alphabet*) whose value begins at some positive number (the  $y$  intercept), then falls a long way with the first unit consumed, falls less with the next unit and less with the next until eventually we reach a position of zero utility (the  $x$  intercept).

Wicksteed suggests in the 25 October letter that the curve  $y = (a - bx)/(x^2 + c^2)$  had served him well. Well it might! It fits his prior beliefs in regard to the shape of the marginal utility function. We have no clues as to the values of the function that Wicksteed was working with, but Figure 1 below reproduces the function for the case where  $a = 40$ ,  $b = 6$  and  $c = 4$ . As is evident, the curve goes into the negative region. Some three years later, the *Alphabet* was published with a simpler representation of the marginal utility curve. The representation used by Wicksteed in the *Alphabet* was the marginal utility curve  $y = a/(x + b) - 1$  (sometimes represented as  $y = (c - x)/(x + b)$ , where  $c = (a - b)$ ) and a corresponding logarithmic total utility curve of the general form  $y = a \ln(x + b) - \ln b - x$ .<sup>17</sup> Figure 2 reproduces one of Wicksteed’s *Alphabet* total utility curves,  $y = 11 \ln(x + 1) - x$  and its corresponding marginal utility curve  $y = 11/(x + 1) - 1$ .

**Figure 1**

**Pearson’s Function  $y = (a - bx)/(x^2 + c^2)$ , for  $a = 40$ ,  $b = 6$  and  $c = 4$**

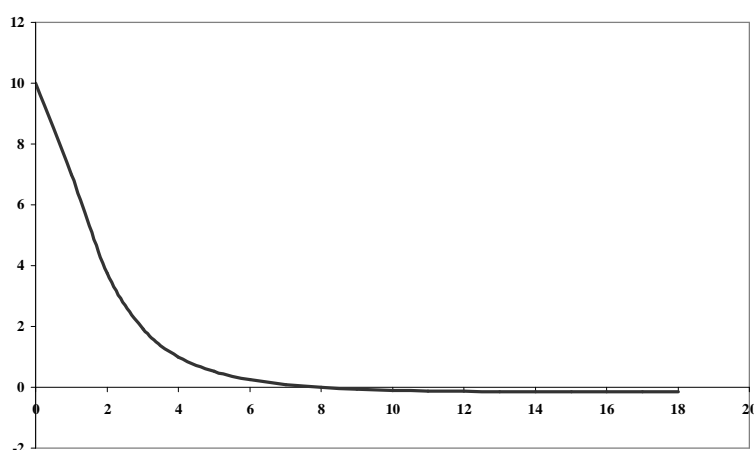


Figure 2a

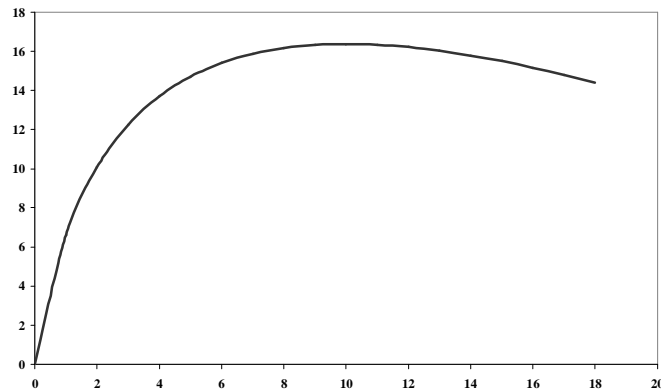
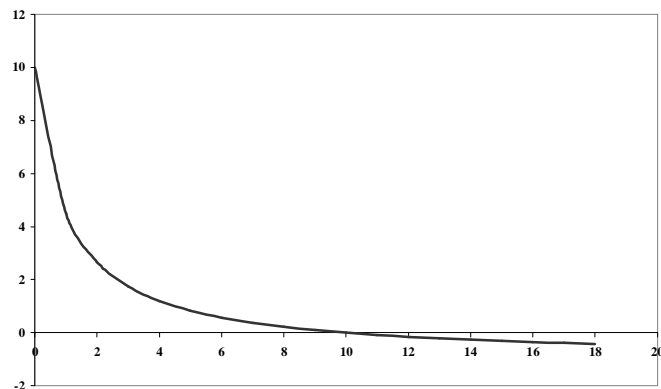
Wicksteed's *Alphabet Function*, Total Utility,  $y = 11 \ln(x + 1) - x$ 

Figure 2b

Wicksteed's *Alphabet Function*, Marginal Utility,  $y = 11/(x + 1) - 1$ 

Pearson appears to have provided Wicksteed with nothing more than an equation for a curve and minor assistance with general mathematical problems. However, the request from Wicksteed is, nonetheless, revealing. First, it shows Wicksteed departing from Jevons's practice in the *Theory of Political Economy* to keep the mathematics at the general level and the limitations of moving to exact forms without clear statistical evidence to back such an exercise. Second, it shows that Wicksteed is after functional forms that conform to his prior beliefs as to the likely economic relationships involved.

What Wicksteed's use of mathematics amounts to is this. We know the economic principle with certainty; we believe that this principle corresponds to the workings of the differential calculus; let us now illustrate these principles diagrammatically and in a form that best represents our ideas. What does not enter Wicksteed's methodological structure are the following types of questions. What statistical evidence is there for the relationships specified? Does the evidence corroborate the model? Do people's actions follow the predictions of the model? These are the types of questions that Wicksteed's mathematical confessor, Pearson,

one of the foremost statisticians of the 1890s and early 1900s, became one of the best people to answer. The timing was unfortunate. And yet, while Pearson's statistical breakthroughs came after Wicksteed's first contacts with him in the mid-1880s, his *Grammar of Science*, which Wicksteed read in 1892, contains a detailed statement of a scientific method based around the testing of scientific models. It is in the *Grammar of Science* that Pearson argues for the importance of probability theory for science and it is from this time that he begins to make fundamental advances in statistical theory. None of this was to make a mark on Wicksteed in any of his future writings. Perhaps the reason why Wicksteed did not consider the role of statistical evidence (and later of the emerging statistical theory) was that when one holds with *certainty* to the view that one's principles and models are *true* and conform to commonsense strictures, then the testing of them seems simply a wasteful use of resources.

In failing to place any emphasis at all on the role of supporting evidence (other than that of common sense), Wicksteed was departing from Jevons's emphasis on the gathering and sifting through of supporting evidence and the attempt to move to precise mathematical forms on the basis of the evidence (see Peart 1996; Schabas 1990). Jevons himself had contributed directly to advances in the methodology of science, undertaken his own statistical analyses and experiments (for example, Jevons 1888, p. 207), made constant reference, where he could, to relevant statistical evidence and, if that evidence was not forthcoming, kept the discussion largely at the general level. Jevons's methodological strictures are set out succinctly in the *TPE* as follows:

Possessing certain facts of observation, we frame an hypothesis as to the laws governing those facts; we reason from the hypothesis deductively to the results to be expected; and we then examine these results in connection with the facts in question; coincidence confirms the whole reasoning; conflict obliges us either to seek for disturbing causes, or else to abandon our hypothesis. (Jevons 1888, pp. 18-19)

It would be hard to believe that Jevons would have made nothing of Pearson's statistical work from the 1890s, as Wicksteed did.

Wicksteed simply took too narrow an interpretation of Jevons's call to develop a mathematical science. Notwithstanding these points, it must be remembered that the extensive use of specific functional forms in the *Alphabet* (and later in the *Essay*) to represent utility and marginal utility functions (or their standard unit equivalents) represented a major shift from Jevons's practice of utilising general functions in his *Principles* and had a potentially significant impact on the direction of later neoclassical economics.

Before continuing our review of the development of Wicksteed's economics, we shall deviate briefly and return, once again, to the Pearson-Wicksteed correspondence. In addition to his statistical contributions, Pearson was also a multi-faceted free-thinker and writer (on the law, German history and philosophy, and on women's rights) and was an important socialist apologist in the 1880s. In 1888 he published a selection of essays and lectures that had been completed in the previous five years under the title *The Ethic of Freethought*, which ranged over these many areas. One of those essays was 'The moral basis of socialism', which, Pearson indicates in a footnote to the paper, was written as a lecture and was subsequently published as a pamphlet in June 1887. The paper provides a defence of socialism and includes a section on Wicksteed's 1884 *To-Day* critique of *Das Kapital*. Pearson rightly points out that Wicksteed utilises, to use Pearson's own interesting phrase, a 'jelly theory of utility', which stands in contrast to Marx's 'jelly theory of labour'. In

other words, he recognises the inherent malleability assumption adopted by Wicksteed (of utility) and Marx (labour). Pearson goes on to acknowledge the key point that Wicksteed is making, namely that of commensurability of goods in terms of utility, but suggests that Wicksteed ultimately accepts a key conclusion of Marx, despite their obvious differences over method. The basis of Pearson's argument is that Wicksteed accepts both the coincidence, in the case of ordinary manufactured goods, between exchange value and the amount of labour contained in the good, and that labour power can be purchased at subsistence levels. On this basis, Pearson suggests that Wicksteed accepts the ultimate conclusion (with Marx) that, for manufactured goods, the results of surplus labour go to the capitalist. Pearson suggests that he is not concerned with questioning the logic of Wicksteed's method if 'it leads our opponents to a truth we were already on other grounds convinced of' (Pearson 1888, p. 342).

The preserved correspondence between Wicksteed and Pearson provides few clues on the nature and strength of any debate between the two on Wicksteed's article and Pearson's rejoinder. There is, for example, a reference to a faulty translation of Marx's *Arbeitskraft* in Wicksteed's *To-Day* article (Wicksteed used 'labour-force' rather than 'labour-power'); Wicksteed places the blame at Bax's feet.<sup>18</sup> He suggests that he adopted 'labour-force' rather than 'labour-power' 'against my own judgement', 'in deference' to what Bax told him was Marx's 'own desire and practice'.<sup>19</sup> At a more general level, Wicksteed suggests that he 'did not see the philosophical and scientific objections you [Pearson] put, but felt them instinctively and wish I had obeyed my instincts'.<sup>20</sup> Is Wicksteed here suggesting that he may have focused too much on the differences in *method* between Marx and Jevons and not enough on the underlying points of agreement on substance he may have had with Marx in terms of, say, the existence of exploitation? Was he concerned that by acting as the destructive critic of Marx, from a position of 'orthodoxy' as his critics saw it, he was, in fact, working against his own socialist leanings and ideals?<sup>21</sup> Quite possibly so, but not for the last time does it appear that a demarcation line is drawn between Wicksteed's 'economic' works (the *Alphabet*, the *Essay* and so on) on the one hand, and his non-economic works and his involvement in various movements (for example, the Labour Church) on the other hand. In this second world, Wicksteed espouses a stronger political position, one that is more clearly focused on a more equal distribution of income and wealth. Why does Wicksteed appear to draw this demarcation line between these two worlds, especially given his assertion, at various points, that there exist universal methods and laws that apply to all disciplines and to their subject matter? One possible reason is that Wicksteed may have felt that the espousal of too radical a position in his economic analyses may have undermined the acceptance of his work among economists. Wicksteed may have also felt that the inclusion of more political material may have detracted from the scientific nature of his economic work. But, just as likely, Wicksteed may simply have been absorbed in the task of working through Jevons's framework, and the lack of focus on political messages may have simply reflected this other focus.

## 5 The *Alphabet*

Wicksteed's *To-Day* critique was followed in 1888 by the publication of the *Alphabet of Economic Science*. Wicksteed suggests in his introduction that the *Alphabet* is an elementary treatise and remarks of the work that 'I lay no claim to originality of any

kind' (Wicksteed 1888a, p. xii). However, it would be wrong to accept Wicksteed's advice at face value. At its most basic level the *Alphabet* provides an extended exposition of Jevons's marginalist utility and exchange theory and enables the reader without the necessary mathematical toolbox the wherewithal better to understand the Jevonian framework. The *Alphabet*, however, goes beyond this objective. First, it shows Wicksteed's determination to connect Jevons's marginalist framework with day-to-day decision-making, a theme which is evident in the *To-Day* critique and continues more obviously in the *Common Sense*. Second, the *Alphabet* introduces a number of applications and extensions of the Jevonian framework.

In terms of Wicksteed's applications and extensions I shall focus on his treatment of labour supply decisions. There is an extensive discussion of labour supply in Wicksteed's *Alphabet* despite the fact that the *Alphabet* does not directly address Jevons's Theory of Labour, Theory of Rent, and Theory of Capital contained in chapters 5-8 of his *Theory of Political Economy*.<sup>22</sup> Beyond the space given to labour supply decisions in the *Alphabet*, an emphasis on this issue is warranted for three other reasons. First, Wicksteed's exposition of labour supply decisions is framed in a different form from Jevons's model, and so the model generated contains important differences from Jevons's model. Second, Wicksteed's discussion reveals his strong interest both in connecting underlying unobservable utility to observable standards of measurement (for example, labour effort or labour time) and in placing the alternative use of labour time at the centre of a model of labour supply. It is not, however, until we get to the *Common Sense* that Wicksteed really pushes the theme of forgone opportunities and so extends the model to one centred on leisure (the alternative to work). Third, Wicksteed's analysis in the *Alphabet* has received no attention in the literature on the development of neoclassical labour supply theory, and yet it remains an important intermediate step between Jevons's model, Wicksteed's own extensions in the *Common Sense* and later developments that ran off Hick's indifference curve model in *Value and Capital*.<sup>23</sup>

The first third of the *Alphabet* is taken up with an introduction to the calculus to enable readers without such a background to understand the mathematics of the marginalist programme. Wicksteed also clears away confusion in Jevons's terminology, and it is in this context that Wicksteed uses, perhaps for the first time in economics, the term 'marginal utility'. Wicksteed suggests that Jevons's use of the term 'final degree of utility'

hardly admits of sufficient distinction between 'marginal effectiveness', *i.e.* the *rate* per unit at which the commodity is satisfying desire [if  $u$  represents utility and  $x$  the commodity, then marginal effectiveness is the differential coefficient  $du/dx$ ], and the 'marginal effect' [Wicksteed consistently uses the term marginal utility for the marginal effect] of a unit of the commodity, *i.e.* the actual result which it produces when applied at the margin [ $(du/dx)\Delta x$ ]. I think that this has sometimes confused his readers, and I hope that my attempt to preserve the distinction will not be found to be vexatious. Note that the curves are always curves of quantity-and-marginal-usefulness, but that we can read them with more or less accuracy according to the smallness of the supposed increment into curves of quantity-and-marginal-utility for small increments. (Wicksteed 1888a, p. 46)

As noted by Blaug (1996, p. 294), Marshall made the same point on the mathematical and economic distinction between the concepts marginal effectiveness (or marginal usefulness)  $(du/dx)$  and marginal utility  $((du/dx)\Delta x)$  in

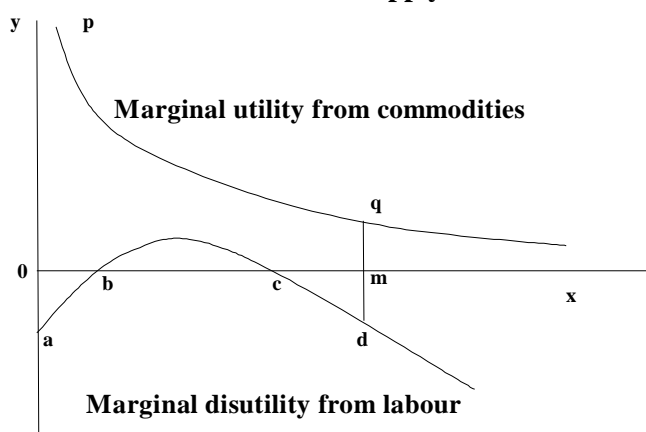
his *Principles of Economics*. But, given the later publishing date of the *Principles*, Wicksteed can claim to have made this point first in published form and should also be acknowledged as the prime source for introducing the term ‘marginal utility’ into economics. Wicksteed often used the terms ‘marginal usefulness’ and ‘marginal utility’ interchangeably without always making it clear, when using the term ‘marginal utility’, that he was referring to a small change in the independent variable. I shall adopt the same approach below.

After completing his long mathematical introduction, Wicksteed moves on to discuss the consumer problem of allocating expenditure between goods. Via both a mathematical exposition and through examples, Wicksteed demonstrates the principle that the consumer continues to substitute between goods until they reach the point where marginal utilities (for small increments in  $x$ ), are equalised. It is at this point in the *Alphabet* that Wicksteed introduces an extended discussion of the question of how individuals allocate their labour time, in a Robinson Crusoe-type economy, between the production of different commodities.

Before outlining Wicksteed’s model I shall briefly outline the bare bones of Jevons’s labour supply analysis in the *TPE*. Jevons’s model is presented in diagrammatic form in Figure 3 below. This model has been presented and discussed on a number of occasions by historians of economic thought and is rightly given a prominent position in the development of neoclassical labour supply theory (for example, Schabas 1993; White 1994; Peart 1996; Blaug 1996; Derobert 2001; Spencer 2003a, 2003b). Jevons’s model contains three components. The first component of the model is the ‘marginal utility’ on the  $x$ -axis from goods produced from labour.<sup>24</sup> The curve  $p-q$  in Figure 3 represents the marginal utility curve. The second, the marginal disutility (generally) from the labour input that goes into the production of goods (the curve  $a-d$ ). Jevons assumes that the marginal disutility from work falls to begin with but then a point is reached from which disutility rises (or marginal utility falls, as in the diagram). The third assumption, implicit in the diagrammatic model with goods on the horizontal axis, is that of a one-to-one relationship between hours and goods (the marginal product of labour is constant). Equilibrium labour supply is that number of hours which produces  $m$  goods. At this point, the marginal utility from goods just equals the marginal disutility from the labour that produces the goods.

Figure 3

**Jevons’s Labour Supply Model**



Jevons's theory of labour supply was included in the third part of the *TPE* and followed a detailed examination of utility and exchange theory. It is important to remember that it was Jevons's theory of utility and exchange that provided the focus of Wicksteed's *Alphabet* analysis and not Jevons's theory of labour supply or production. So it is perhaps no wonder that commentators on neoclassical labour supply theory have missed the labour supply model embedded in Wicksteed's *Alphabet* exposition, as Wicksteed does not directly refer to Jevons's model in the *Alphabet*.

Wicksteed's labour supply model is introduced in the context of finding a standard or common observable measure of unobservable utility (see Wicksteed 1888a, pp. 53-5). His introductory discussion of a common measure is important for illustrating the vital importance that he placed on the range of *alternative* uses of time (or resources more generally) in understanding human action. His discussion moves us closer to the placement of *opportunity cost* at the very centre of a marginalist framework. Wicksteed's exposition in the *Common Sense* is often taken as the example of such a method, but a careful reading of the *Alphabet* suggests that the elements of this approach were firmly in place much earlier. Wicksteed writes that:

we may even regard space and time as commodities each with its varying marginal usefulness. This year I eagerly accept a present of books which will occupy a great deal of space in my house, but will save me an occasional journey to the library; for the marginal usefulness of my space and of my time are such that I find an advantage in losing space and gaining time under given conditions of exchange. Next year my space is more concentrated and its marginal usefulness is therefore higher; so I decline a similar present, preferring the occasional loss of half an hour to the permanent cramping of my movements in my own study.

Thus we see that the most absolutely heterogenous satisfactions are capable of being practically equated against one another, and therefore may be regarded as theoretically reducible to a common measure.... We might, for instance, take the effort of doing a given amount of work as the standard unit by which to estimate the magnitude of satisfaction. (Wicksteed 1888a, pp. 52-3)

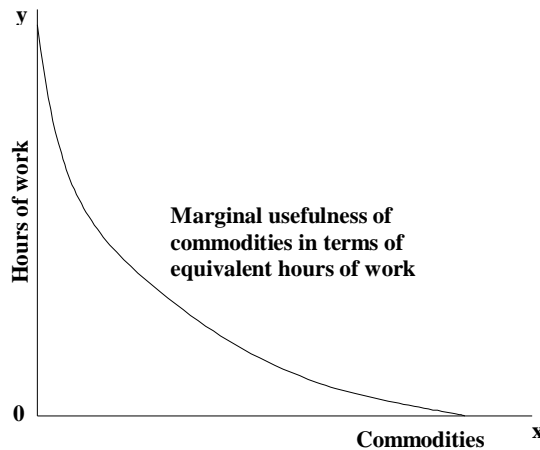
Wicksteed begins his common-measure labour supply exposition in the context of a single good. To determine the marginal usefulness of a commodity we can ask what level of work effort (Wicksteed often simplifies down to labour time) a person is prepared to supply in order to obtain successive units of the commodity. To illustrate Wicksteed's transformation algorithm from utility to labour time and show the connections from it to a labour supply curve (but not the canonical modern labour supply curve), consider coffee consumption per period of time, say cups per day. The first cup of coffee produces a certain level of satisfaction—the marginal usefulness of the cup to an individual. To transform the marginal usefulness of the first cup into an equivalent labour value, determine the number of hours of labour the individual would be willing to supply on the market to obtain that first cup of coffee. The resulting hours of labour then represent an observable measure of the unobservable marginal usefulness of the first cup of coffee for that individual. Now move to the second cup of coffee. An assessment is again made of its marginal usefulness, followed by a determination of the number of hours of labour the individual would be prepared to supply in order to obtain that second



cup. This process can then be repeated as many times as is necessary (until, say, satiation). To draw a labour supply curve, we can mark the resulting schedule of cups of coffee and hours of labour on a graph. Figure 4 presents such a graph. This is a labour supply curve of sorts in which the  $y$ -axis is measured in terms of hours of work and the  $x$ -axis measures cups of coffee (per period of time).<sup>25</sup> There are, of course, as many labour supply curves as there are goods that the individual has an interest in.

**Figure 4**

**Wicksteed's Labour Supply Curve**



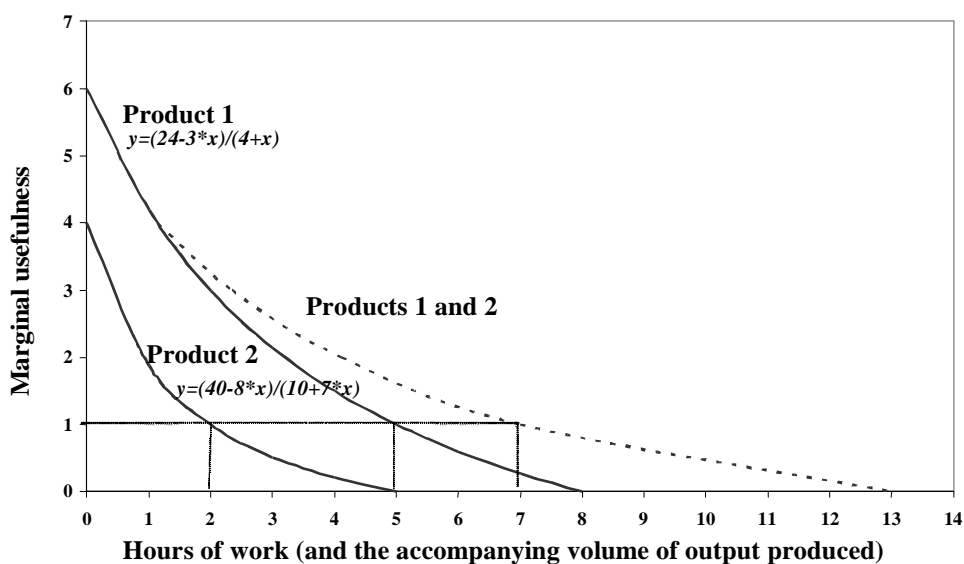
Wicksteed's representation is different from Jevons's labour supply model in two important respects. While these differences may in part reflect the fact that Wicksteed was focused on utility and exchange theory and not on production theory, they are worth noting. First, Wicksteed's model explicitly includes labour time (on the  $y$ -axis) whereas Jevons's model incorporates labour time but in an indirect form. In Jevons's model, marginal utility is on the  $y$ -axis and commodities on the  $x$ -axis. Wicksteed's direct and explicit inclusion of labour time puts him closer to the standard neoclassical treatment. However, as both Derobert (2001) and Spencer (2003a, 2003b) note, the standard neoclassical labour supply analysis refers to leisure time and not labour time. The neoclassical labour supply curve is, to use Spencer's phrase, a 'labour-less' labour supply curve and Wicksteed's *Alphabet* analysis does not adopt this approach. Second, in sharp contrast with Jevons, Wicksteed's model makes no explicit reference to the disutility from work. Wicksteed certainly prefaces his discussion with a brief mention of the issue of the disutility from work ('400 foot-tons of work, for instance, would generally be more than twice as irksome as 200 foot-tons': Wicksteed 1888a, p. 54) but then proceeds to assume constancy in the hedonistic value of labour effort. The painfulness of work is a core component of Jevons's model but not of the standard neoclassical treatment.

In the second part of his discussion of individual labour supply, Wicksteed extends his analysis by considering the distribution of work effort between the production of more than one good, again in a Robinson Crusoe environment (Wicksteed 1888a, pp. 55-61). In this exposition, Wicksteed demonstrates (again) the important role played in a marginalist analysis of the labour supply of

alternative uses of labour time. As such, Wicksteed is moving towards the *Common Sense of Political Economy* position of the absolute central position of forgone opportunities or opportunity costs in economic theory, relative to the Marshallian real cost position. Wicksteed obtains a neoclassical solution that hours should be distributed across the production of competing goods in such a way that marginal usefulness values be equalised. He constructs a neat, simple diagram to represent this principle. Wicksteed's diagram is reproduced in Figure 5. First, he transforms his product-based labour supply curves (of the cups of coffee type specified above) into labour supply curves specifying hours devoted to producing goods on the  $x$ -axis and the associated marginal usefulness values on the  $y$ -axis. Then Wicksteed sums these labour supply curves (now of the marginal usefulness variety) horizontally so that the resulting labour supply curve is an all-products labour supply curve (against marginal usefulness values). Finally, to determine the utility-maximising allocation of labour between competing goods to be produced, we first determine the chosen number of hours available for production (a point on the  $x$ -axis). In Wicksteed's example he chooses seven hours (see Figure 5 below). We then find the corresponding marginal usefulness point on the all-products labour supply curve and draw a line parallel to the  $x$ -axis and cutting through the goods' individual marginal utility curves (a line parallel to the  $x$ -axis ensures that marginal usefulness values are equalised). Extend the parallel line through to each product's labour supply curve (written in terms of marginal utilities). The points of intersection of the parallel line with individual product labour supply curves then give the corresponding time allocations to each product. In the example, of the seven hours available for work, five would go to product 1 and two to product 2.

**Figure 5**

**Wicksteed's All-products Supply of Labour Curve**



One further remark is in order at this point. Wicksteed closes the first part of his discussion of the derivation of a labour supply curve with the remark that, if a

reader were to conduct a thought-experiment of the above kind and did not arrive at a curve that conforms to the diminishing marginal utility postulate, then 'his imagination is not sufficiently vivid and accurate to enable him to realise approximately what he would be willing to do under varying circumstances' (Wicksteed 1888a, p. 55). Moreover, if a person could not, for whatever reason, trace out their marginal labour supply curve for a given product, Wicksteed says that '*there is a given amount, which, as a matter of fact, he would be willing to do under any given circumstances. Thus the curve really exists, whether he is able to trace it or not*' (Wicksteed 1888a, p. 55). Wicksteed's faith in the absolute correctness and primacy of the marginalist principles knows no bounds.

Wicksteed moves from the individual level to the community level in the second half of the *Alphabet*. He suggests that the subject of production decisions at the community level lies outside the scope of his present work, but nevertheless undertakes a brief analysis of the issue. Wicksteed again puts the principle of the equalisation of marginal utilities at the forefront of his exposition, but now adopts the position that market forces will ensure that the 'productive forces of the community...like the labour of a self-sufficing industrial unit, will tend to distribute themselves in such a way that a given sum of productive force will produce equal utilities at the margin (measured externally by equivalents in "gold") wherever applied' (Wicksteed 1888a, p. 111). Using this principle, Wicksteed proceeds to examine the case of the application of productive forces across industries, and illustrates the argument that labour will move between competing industries according to the marginalist calculus to achieve a 'general equilibrium' position (to use his terminology).

The *Alphabet* contains a large number of applications and extensions of the Jevonian framework beyond the labour supply example. We shall mention two further cases that have a distributional or labour angle. The first concerns Wicksteed's marginal utility analysis of the effects of redistribution on our understanding of prices and the alignment of prices with marginal utility. Wicksteed accepts the argument, and defends it strongly, that interpersonal comparisons of welfare cannot be made. In accordance with this principle, Wicksteed says that it is strictly incorrect to say that 'a shilling is worth more to a poor man than to a rich one'. But nevertheless he argues that, in all probability, 'shillings either are or ought to be worth more to poor men than to rich' (Wicksteed 1888a, p. 88). He then goes on to argue that 'if wealth were more equally distributed, therefore, it would be nearer the truth than it now is to say that when we supply what we sell best we are supplying what is most wanted' (*ibid.*). Given that prices are the only practical guide as to what really is most wanted, a redistribution of wealth would better ensure that a 'moderate conformity existed ...between the price a thing would fetch and the intensity of the marginal want of it. This would be an "economic harmony" of inestimable importance' (*ibid.*).

The final point of interest in Wicksteed's *Alphabet* concerns his return to the subject matter of the *To-Day* article. Wicksteed remains unrepentant and is more forceful than ever in terms of his attack on Marx's doctrine (although now he does not name Marx and makes no direct reference to *Das Kapital*). He refers to the 'delusion' of those who believe that it is 'the amount of effort-and-sacrifice or "labour" needed to produce a commodity which *gives that commodity its value in exchange*' (Wicksteed 1888a, p. 117, original italics). The argument presented is as before: 'One thing is not worth twice as much as another because it has twice as much "labour" in it, but producers have been willing to put twice as much "labour"

into it because they know that when produced it will be worth twice as much, because it will be twice as “useful” or twice as much desired’ (Wicksteed 1888a, p. 117).

## 6 Wicksteed’s *Essay*

As noted above, Wicksteed had taken Jevons to task in the *Alphabet* for creating possible confusion in the minds of his readers with his careless use of the terms ‘total utility’ and ‘final degree of utility’ (Wicksteed 1888a, p. 46). In a paper published in the *Quarterly Journal of Economics* in 1889, the year following the publication of the *Alphabet*, Wicksteed addressed the question of another source of confusion in Jevons’s work, namely, his specification of the dimensions of economic quantities in his treatment of capital and interest. The actual source of confusion in Jevons’s analysis does not interest us here; what does is that Wicksteed develops a marginal productivity theory of capital and interest (‘capital’ for Wicksteed is a commodity, a physical thing) in the pages which follow. The theory of capital and interest presented, however, is nothing more nor less than that derived from the use of the now (for Wicksteed) familiar marginalist techniques. The discussion of the marginal productivity doctrine is quite mechanical, given the focus of the paper on the dimensions of variables with very little discussion of the issues involved.

Wicksteed assumes a short-run production environment with a fixed amount of labour being applied to a perfectly divisible capital stock. Defining the yield from capital as the output produced from the capital stock *per period of time*, we can then draw a yield from capital (or gross productivity of capital) curve which shows output produced, per period of time, at different levels of the capital stock. The yield from capital curve is assumed first to increase rapidly and then to increase at a decreasing rate, before finally reaching a limit. (Unlike the *Alphabet*, the precise functional forms of Wicksteed’s curves are not presented.) Depreciation must be deducted from the gross productivity curve to derive the net productivity curve.

At this point Wicksteed calls on the marginalist thesis that the rate of hire of anything follows the ordinary laws of final degree of utility, and is determined by the rate of productiveness (in satisfaction or commodity) of the *last increment* of the thing hired. That is to say if  $c$  is the quantity of capital, and  $f(c)$  ...the net periodical productiveness of  $c$ , then  $f'(c)$  ...will be the rate of *hire* of capital; *i.e.* the *rate of interest* (Wicksteed 1889, pp. 751-2).

Wicksteed italicises the terms ‘hire’ and ‘rate of interest’ to link back to the main point of his discussion concerning the dimensions of economic quantities (the relevant variable, the interest rate, being the rate at which increments of capital increase the per-period return). Notwithstanding the point that his interest in the article lies elsewhere, it is important to recognise that Wicksteed was here making a statement that was to prove the starting-point of the *Essay*, namely that the marginal utility doctrine, applied to the consumption of goods and the exchange value of goods, applies equally to the case of the payment of the factors of production (marginal utility then plays the same role as marginal productivity). To obtain the value of the period’s interest payments, given the interest rate, we must multiply capital by the interest rate. Hence the per-period interest payment is  $f'(c).c$ .

Jevons had made it clear in the preface to the second edition of *TPE* that a complete theory of distribution, based on marginalist principles, had yet to be written. And this was the task that Wicksteed was to set himself in the *Essay*. The *Quarterly Journal of Economics* article marked the beginning of a phase of work on distributional questions which culminated in the *Essay*. The fact that Wicksteed did not name the *Essay* as the second volume of the *Alphabet* perhaps suggests just how much he thought he may have extended the Jevonian framework. We have seen from the *Alphabet* that Wicksteed had mastered the marginalist theory of value and exchange and that he had already presented, in his 1889 *Quarterly Journal of Economics* article, the basics of a marginal productivity-based theory of the interest rate and interest payments.

The *Essay* represents the natural but ambitious progression from the work of the *Alphabet* and skeleton marginal productivity theory of interest: to recast the whole of distribution theory in terms of the new marginalist doctrine (and not just one or two parts taken separately) and, moreover, to do so in a mathematical form. (Steedman (1992) and Stigler (1941) provide an exhaustive overview of the *Essay*, and I shall try not to go over the same ground covered again here.) On the latter, Wicksteed suggests that use of the ‘specialised logic and language of mathematics’ allows the economist to eliminate sources of error, and he is true to his word. The *Essay* represents one of the key early works in advanced mathematical economics.

The starting point for the *Essay* is that previous expositions of the distribution of the product have treated each factor separately, so that there are theories of rent, interest and wages. However, what Wicksteed suggests we search for is an approach to the theory of distribution akin to Jevons’s theory of exchange value, which relies on universal principles applied across all products. He states the aggregate exchange value law in the following terms. The total satisfaction of the community is a function of commodities and services ( $S = F(A, B, C\dots)$ ). The exchange value of each commodity is equal to the effect on satisfaction that the addition of a small increment to the commodity brings ( $dS/dK$ ). The exchange value of the whole stock of the commodity is then given by  $(dS/dK).K$ .

In his 1889 *Quarterly Journal of Economics* article, Wicksteed had argued (but only in very brief terms) that the marginalist analysis of value and exchange applied equally to the case of production and earnings. In the *Essay* he presents this argument in much greater detail. He suggests that the formula for aggregate exchange value provides the basis for a general theory of distribution. And so he states the general law of distribution as such. Just as the exchange value of each commodity or service is determined by the effect on total satisfaction which the addition or the withdrawal of a small increment of it would have, all other variables remaining constant, so that the remuneration of each factor is given by the effect on the product of a small increment of that factor, all other factors remaining constant (Wicksteed [1894] 1992, pp. 56-8). If the product  $P$  is a function of different factors of production ( $P = F(A, B, C\dots)$ ) then we can refer to the marginal significance of the factor as  $dP/dK$  and the share of the product as  $(dP/dK).K$ . Wicksteed therefore asserts that there exists one theory of distribution applicable across all the various factors. In the case of the theory of distribution, however, as compared to the theory of exchange value, he suggests that we have an even more compelling doctrine, for while satisfaction is internal to the person and cannot be externally identified, in the case of ‘the product’ we do have something *external* to individuals, something that allows for third-party measurement. Of course, there is some hyperbole here (and not for the first or last time) because, as noted earlier, Wicksteed was at pains in the

*Alphabet* to convert marginal utility values into corresponding observable values (witness his discussion of the transformation of marginal utility values into labour-time values).

The statement of the law of distribution in terms of each factor receiving a share equal to  $(dP/dK) \cdot K$  provides the starting-point for an elaborate analysis in the *Essay*. Wicksteed set himself three tasks. The first was to show that the payment of each factor according to such a law is consistent with experience. This he had not done in the 1889 *Quarterly Journal of Economics* article. The second was to determine the relationship between this law and previous doctrine (for example, the theory of rent, Walker's theory of wages, but interestingly little is made of Jevons's work on distribution theory in the *Principles*). The third and most onerous task was to determine, mathematically, that the total product is exhausted if each factor is paid according to its marginal significance.

The first task set was very much in the order of what Wicksteed had done previously in minute detail in the *Alphabet* by giving an account of how the law met common sense reference points. However, Wicksteed's treatment is sparse relative to the *Alphabet*, and an extended treatment is left to his later work, the *Common Sense*. However, as with the marginal utility and exchange value analysis of the *Alphabet*, 'experience' does not imply an examination of how the law of distribution fits the data. Unlike Jevons, Wicksteed makes very little recourse to data. Rather, for Wicksteed, experience means casual observation, introspection and common sense thinking.

What takes up most space in the *Essay* is Wicksteed's examination of the second and third tasks. For Wicksteed, the analysis of how the payment of each factor according to marginal products exhausts the product is not only undertaken to meet obvious internal consistency criteria but also to overcome a key deficiency in previous theories of distribution, namely that they were residualist in character, by which we mean that one (or more) part(s) of the distribution of income is being explained (for example, wages), while the remaining elements are treated as 'leftovers'.

The Wicksteed archives at the London School Economics indicate that much of the background mathematical work that went into the extended proof of the product exhaustion thesis presented in the *Essay* was the result of a huge effort undertaken by his mathematical assistant John Bridge, with a clear indication that his daughter Rebecca also provided assistance. Preserved in the London School Economics archives are copious notes made by John Bridge, from late 1893, providing the cannon fodder for the demonstration of the product exhaustion thesis. The Pearson papers also reveal that Pearson provided Wicksteed with additional equations for curves in much the same way that he had provided equations in the lead-up to the *Essay*. There is no indication from these papers that Wicksteed was aware that Euler's theorem could be drawn on to radically shorten the proof of the product exhaustion thesis, and so Wicksteed was left with the arduous mathematical task of proving the exhaustion of the product without the aid of a simple theorem. Wicksteed's fears that his mathematics would be proved inadequate are expressed in his letter to Pearson of 12 May 1894 on the publication of the *Essay*: 'I send you a copy of my essay on Distribution into which I have put a great deal of work but more likely than not my ignorance of the real nature of the tools with which I am working has led me into wasteful and futile methods – possibly into positive error, but against *this* I have taken extremely careful & I can not but hope adequate precautions'.

Wicksteed's *Essay* attracted very little immediate interest in British academic circles, but it certainly had a major impact across the Channel.<sup>26</sup> Evidence for this is provided by Walras's extraordinary refutation of Wicksteed's *Essay* in the 1896 edition of the *Elements of Pure Economics*. Walras's 'Wicksteed Note' included the assertion that Wicksteed ignored the contribution of previous writers on the subject, principally (though not stated as such) himself, Barone and Pareto.<sup>27</sup> The veracity of Wicksteed's product exhaustion theorem, under which the payment of all factors according to their marginal products exhausts total production, also provided a source of interest among economic theorists through into the 1930s and beyond (see Flux 1894; Wicksell [1902] 1969; Hicks 1932; Robinson 1933, 1934; Stigler 1941; and Steedman 1992).

## 7 More on Wicksteed's Non-Economic Studies

Economics clearly absorbed a great deal of Wicksteed's time up to the publication of the *Essay*. However, during the decade to the publication of the *Essay* and beyond, Wicksteed continued to publish in fields other than economics. In particular, he produced works on the relationship between religion and sociology, published a series of literary studies (most importantly on Ibsen but also on Browning and Wordsworth) and translated a number of Dante's works. One clear point of interest in these works is the extent to which a reading of Wicksteed's contemporaneous non-economic texts allows us to gain some perspective on his economic works and the degree of integration between the two. Do these publications, written for a non-economist audience, provide us with clues as to influences on Wicksteed beyond that of Jevons? How well do these works flesh out Wicksteed's views on the distribution of income, the workings of the market, policy prescriptions and so on? I shall focus on Wicksteed's 'popular' sociological/religious works in this regard. In particular, I examine these works for the light they throw on Wicksteed's methodology and the tension, evident in many of the early statements of neoclassical distribution theory, between the 'fairness' of the marginalist equation that each factor receives a return based on its marginal efficiency, and the 'injustice' of low wages and poverty. While the influence of physics on the development of neoclassical thought has been emphasised in recent work (for example, Mirowski 1989), the relationship between social sciences, theology and the humanities and the development of the neoclassical research programme remains undeveloped. It is here that Wicksteed's popular sociological/religious output in the economic period holds some interest.

We have already stressed the fact that Wicksteed in his economic theories adhered to an avowedly universalist stance, arguing that there is one relevant doctrine, that of marginalism, which could be applied to all economic problems. However, the question remains as to whether he took universalism one step further. As a Unitarian minister the obvious starting-point is whether Wicksteed believed that theology and political economy would be best examined from one common perspective so that unity might prevail across all social disciplines. A good starting-point to examine this question is his address to students of Manchester New College in 1888, entitled *The Place of Sociology in the Circle of Theological Studies*.

In his Manchester New College address Wicksteed defines sociology as 'the study and analysis of Human Society' (Wicksteed 1888b, p. 285). Sociology is then the broad discipline group that encapsulates political economy. The first issue

addressed by Wicksteed is the question of how theology is to view sociology. For Wicksteed, the Christian minister must study sociology and must engage with social issues. The Christian minister must 'direct his thoughts, words, and works to the establishment of God's kingdom on earth' (Wicksteed 1888b, p. 285). In other words, Wicksteed argues, as he did throughout all his theological writings, for Christian engagement with social issues, for a concern with the here and now rather than simply with the promise of things to come. Beyond the general call for Christians to be involved in world affairs, Wicksteed advances a view of the integrated nature of theology and sociology/economics. In other words, he claims a place for economics 'as part of the subject matter of theology itself....Sociology, then, bereft of religion, is without a goal, and the blight of perpetual sterility is upon it. Theology, bereft of Sociology, is remote from the actual life of men, and is smitten with unreality. On the union of these two depends the future of humanity' (Wicksteed 1888b, p. 299). The paper, however, does not spell out the terms of this union between sociology and religion, and it remains very uncertain that Wicksteed really had a clear programme for generating a grand all-embracing universal method when he made these statements. There is often a sense of the theatrical and elements of hyperbole in Wicksteed's writing, and this is one of many examples of it.

We are given a stronger clue as to how Wicksteed understood the relationship between sociology and religion in his sermon *The Battle with Materialism* given in 1891 (Wicksteed 1891). In *The Battle with Materialism*, he argues that the role of religion is not to interfere with the normal course of scientific endeavour and prescribe particular methods and truths, but to 'penetrate and spiritualise science' (Wicksteed 1891, p. 702). He argues that both science and the labour movement are too imbued with a materialistic ethic and that both need to integrate moral, ethical, and social justice concerns into their thinking and practices. In Wicksteed's own case, he brought together these two perspectives by working within the Jevonian scientific paradigm to generate economic truths but placing checks on the results where his religious beliefs demanded it. And in Wicksteed's own mystical Unitarian schema, ideal humanity and the ethical are bound up with the very conception of God, so that in a real sense the ethical is the religious (see Wicksteed 1892a).

Wicksteed overlaid the economic with the religious in his commentary on the fairness of market outcomes and the market-based distribution of income. Wicksteed's non-economic works provide insights into how his deep ethical concerns impacted on his normative base and his policy prescriptions. One of the clearest and earliest statements of how Wicksteed overlaid his economic studies with an ethical approach is his 1884 work, *Is Christianity Practical?*, published in the same year as his *To-Day* critique. *Is Christianity Practical?* is concerned with the question of how we are to perceive, from a Christian point of view, the role of the market mechanism, the division of labour and the fairness of market outcomes. Wicksteed provides biblical support for the division of labour and for the social benefits to be derived from free exchange. He even cites Paul's letter to the Corinthians (*I Corinthinans 12*). As for the role of individual action in the market mechanism, Wicksteed suggests that while each person appears to be 'endeavouring to satisfy his own wants ..... if we look deeper we see that he has been placed where he is by the unconscious influence of great collective social forces which have set him there to satisfy the wants of others' (Wicksteed 1884c, p. 21). For Wicksteed, the 'essence of trade and industry ...[is to be] found in our



mutual supplying of one another's wants by means of the division of labour' (Wicksteed 1884c, p. 22).

This is both a classic defence of the free market and an assertion that the greater good is the satisfaction of the wants of others rather than individual wants. It is important to note, however, that Wicksteed's advocacy of the free market is very much balanced by an extended discussion, throughout *Is Christianity Practical?*, of the fact that some workers are at a bargaining disadvantage in the market. In such a case there is a need for a replacement of the 'religion of trade' by the 'religion of Jesus'. He argues in this context that 'Christianity resents and condemns this, declaring that our purpose, however difficult to carry out, ought to be to relieve these people from their terrible disadvantage in bargaining, instead of availing ourselves of it to thrust them yet further back' (Wicksteed 1888c, p. 25). Wicksteed provides support in these circumstances for the implementation of Christian principles in legislative programmes to overcome the particular difficulties of the disadvantaged.

Wicksteed was a Unitarian minister but he moved in wide circles insofar as his ministry was concerned. His most interesting involvement, for our purposes, was with the Labour Church, founded in 1891 by John Trevor, a former Unitarian minister and friend of Wicksteed. As set out in Trevor's tract, *An Independent Labour Party* (published in 1892, prior to the formation of the Independent Labour Party itself in 1893), the Labour Church was based on the principle that the broad labour movement was itself a religious movement. The religion of the labour movement was neither sectarian nor dogmatic but based on what Trevor termed 'free religion', by which he meant that each individual was free to develop his or her own relations with 'the Power that brought him into being' (Trevor 1892, p. 2). The Labour Church movement was short-lived and was never influential outside the North of England, with its strong non-conformist tradition. Bevir (1997, p. 50) argues that 'although British socialism owes a debt to Marxism and Fabianism, its leading characteristics derive from ethical socialism exemplified by the Labour Churches' (see also Inglis 1958).

Wicksteed appears to have played an active role in the Labour Church movement, visiting and speaking at meetings, defending the Labour Church in Unitarian forums such as the *Inquirer* journal, and contributing to Labour Church publications. The first edition of the *Labour Prophet*, the organ of the Labour Church, for example, contains as its lead article a short paper by Wicksteed, *Is the Labour Church a Class Church?* In this article, Wicksteed takes the position that the 'workers' are the basic organism of society. Other classes, such as intellectuals, managers and professionals, occupy a valid role only if they serve the organism (the workers) that supports them. 'If, however, workers exist for their sake then there is slavery' (Wicksteed 1892b). His most extensive written piece on the Labour Church is his *Labour Prophet* (the journal of the Labour Church) tract published in 1892, *What Does the Labour Church Stand For?* (see also Wicksteed 1898). Wicksteed suggests that the Labour Movement 'aims at organising society in the interests of the unprivileged producer' (Wicksteed 1892c, p. 4). Elsewhere Wicksteed (1908) defines the social ideals of socialism in exactly the same form, and it is these social ideals (rather than the economic doctrines of socialism) that he approves of. He suggests that existing churches are not primarily based on achieving this goal of organising society in the interests of the unprivileged producer. Rather they 'accept the existing organisation of society'. At the same time the 'only' weakness of the Labour Movement is the 'absence of a consciously

religious and spiritual character'. Hence the need for the Labour Church: 'The rise of the Labour Church is the recognition of the fact that the Labour Movement has a spiritual and a religious as well as a material and physical aspect' (Wicksteed 1892c, p. 10).

The importance of these articles and references is that they coincide with the publication of Wicksteed's major work on distribution theory, the *Essay*. In reading them, one is struck by his adherence to a position of support for the labour movement, the potential for injustice (which is so sharp that it can be seen as slavery) and the need to ensure a much fairer distribution of income. We have previously noted that these were precisely the concerns that Wicksteed espoused in the early 1880s, prior to his Jevons conversion. What is interesting, however, is that while we see references to justice and equality in his economic studies (see, for example, his discussion in the *Alphabet*, noted above), these concerns were not stated with nearly the same force in his economic studies as they were in his non-economic studies of the period. This leads us to surmise that Wicksteed in practice engaged in a degree of *quarantining* in his economic studies, as if such strong statements with regard to injustice would water down the scientific credibility of his economic contributions.

A large number of direct references to distributional issues can also be found in his 'non-economic' works immediately following the publication of the *Essay* in 1894. In the following year, Wicksteed, in his short paper, *The Advent of the People*, again provides strong support for a more equal distribution of wealth.<sup>28</sup> (It must be remembered as well that Wicksteed continued over a long period of time, in political circles, to support land nationalisation campaigns; see Wicksteed 1901). In so doing, he returns to a theme first canvassed in the *Alphabet*, namely, the effect of a redistribution of income and wealth on community welfare. He presents in *The Advent of the People* a classic (marginal) utilitarian defence of greater equality. Unlike the *Alphabet*, where the discussion is driven more by positive concerns (a redistribution of income and wealth would mean that prices of goods would be more closely aligned to underlying real marginal utility values and not be distorted by inequality of income effects), the interest of the analysis in *The Advent of the People* is more of a strongly normative nature:

a more even distribution of wealth would obviously relieve misery so intense that it would be more than a compensation for the loss of enjoyment at the other end by which it would have to be purchased. By a well-known law that lies at the basis of all sound consideration of social phenomena, each successive application of wealth to the supply of the wants of the same individual becomes less and less effective as a producer of satisfaction. (Wicksteed 1895, p. 234)

## 8 **The Common Sense and Beyond**

Following the publication of the *Essay*, Wicksteed left the development of the economic framework to one side as he began work on an extended set of studies of Dante and Aquinas translations and studies. He returned a decade later to economic concerns in the writing of *The Common Sense of Political Economy*. Here he emphasised once more his view of the universality of marginalist doctrine in terms both of the administration of resources and of the distribution of income:

The principle laid down by Jevons is not exclusively applicable to industrial or commercial affairs, but runs as a universal and vital force through the administration of all resources. (Wicksteed [1910] 1933 p. 3)

There can be but one theory of distribution, and that the theory of the market (p. 6).

The underlying considerations that affect the terms on which effort is remunerated are identical with those that determine the price of commodities. (p. 332)

However, while he maintained the emphasis on the universality of the marginalist doctrine, he moved away from the mathematical focus of the *Essay*. For one thing, the *Common Sense* was meant to be a more popular work and to be used as a text (indeed it was very popular as such); hence the removal of calculus and functional forms in the *Common Sense* as compared to the *Alphabet*. For another, Wicksteed appears to have been affected by Walras's attack, Flux's mathematical critique, and the concerns that the product exhaustion theorem had limited scope.

The *Common Sense* has been extensively reviewed by Robbins (1933) in the introduction to the well-known 1933 reprint of the work, by Stigler (1941) and Hutchison (1953), and more recently by Steedman (1989a, 1999) and Blaug (1996) (see also critical contemporary reviews, prompted by the Robbins reprint, by Knight 1934, and Robinson 1933, 1934). We shall, therefore, only briefly allude to a series of extensions to the Jevonian (and at points Marshallian) framework developed in the *Common Sense*. The most important of these extensions is Wicksteed's thoroughgoing emphasis on opportunity costs as central to all decision-making (the doctrine of alternative costs). This meant that Wicksteed now could be truly said to be not only the 'one great disciple' of Jevons but also the one important representative of the Austrian as opposed to the Marshallian school in Britain in the prewar period. The *Common Sense* is also notable for a stronger emphasis on the importance of comparisons (always a key element in the *Alphabet*) to the point where an ordinal rather than cardinal utility framework becomes more evident. Wicksteed's *Common Sense* is also famous for Wicksteed's exposition of supply as reverse demand, and revisions to the laws of return which had stronger links to Marshall than to Jevons. Wicksteed also returned to themes from the *Essay*, but now without the mathematics, in his demonstration of the marginal productivity doctrine as applying to all factors of production and his discussion of rent theory. I shall focus here on four issues. First, the fundamental role 'common sense' plays in Wicksteed's marginalist schema. Second, his criticisms of the classical 'economic man' construct. Third, Wicksteed's restatement of labour supply theory. Fourth, his views on the way that labour market policy should be structured.

One of the key principles underlying Wicksteed's thought is that the marginalist principles find their support in plain old common sense. The term 'common sense' can be taken to represent a range of characteristics of Wicksteed's methodological framework. First, and most obviously, we can see it in terms of the fact that the principles of rational choice behaviour that guide factor remuneration are not complex in nature but reflect everyday common sense thinking and actions (the common sense principle). Second, common sense plays an integral part in Wicksteed's work in terms of theory corroboration and theory validation: we know that the principles of economics are true because they conform to common sense reasoning and experience. Third, Wicksteed emphasised utility as the common property against which exchange decisions over heterogeneous goods takes place. Fourth, just as he refers, in his study of Aristotle's *Physics*, to Aristotle's view that

a common 'sense' guides all sensory experience, so there exists a common (or universal) principle or co-ordinating force guiding all forms of economic decisions. For Wicksteed this principle is individual utility-maximising choice behaviour.

As a number of commentators have pointed out, in the *Common Sense* Wicksteed attacked the use made of the 'economic man' construct in classical economics (see in particular Steedman's (1989a) discussion). Wicksteed argued that the classical economists' conception of 'economic man' was too narrow because it was founded on the premise that the only admissible motive that could be assigned to economic actors was wealth accumulation. Wicksteed instead argued for the view that economics should not make an artificial distinction between 'economic' and 'non-economic' motives, that is, between wealth and non-wealth motives. All motives should be admissible in an economic analysis, including the altruistic. What is important is the distinction between economic and non-economic relations rather than the distinction between different types of motives (see also Wicksteed 1894e, Wicksteed 1914, pp. 8-9). And the distinction between economic and non-economic relations is made on the grounds of whether actions and decisions have or do not have a connection to the 'circle of exchange', as Wicksteed puts it in the *Common Sense*.

There are two important points to make in relation to Wicksteed's analysis of economic man. First, in attacking the 'economic man' construct of the classical period, we should not fall into the trap of thinking that Wicksteed was also at odds with the modern notion of the 'rational economic actor'. Wicksteed, along with Jevons, was, in fact, partly responsible for such a construct in that, in keeping with the modern treatment, he focused on optimising or rational choices made by individuals (irrespective, of course, of their motives). The older 'economic man' construct is seen as being simply too artificial and leading to too narrow a domain for economics. The second point is that Wicksteed's dismissal of the economic man concept in the *Common Sense* reads as being based on 'scientific' and not 'religious' grounds. In other words, the 'economic man' notion of the classical period, founded on wealth accumulation motives, is not dismissed because it runs counter to normative religious precepts that individuals *should* be driven by more noble motives, but rather because it is invalid scientifically. Wicksteed's call in *The Battle with Materialism* to 'penetrate and spiritualise science' may have led us to expect more of an ethical and moral tone in his discussion of the concept of the 'economic man' in his *Common Sense* discussion. But, as I have previously suggested, there are elements of quarantining between Wicksteed's economic works and his non-economic studies and this is one prime example.

In the *Common Sense* Wicksteed returns to the analysis of individual labour supply, but with one important change. He retains the *Alphabet's* marginal usefulness (or marginal significance, to use his new terminology) of commodities produced by work effort function, but reintroduces a role for Jevons's irksomeness of work effort function into his model. Having done so, however, he immediately reverses the perspective on this function in keeping with his *Common Sense* model of the supply curve as the reverse demand function. Now rather than the disutility of work we have the marginal significance of leisure function, which is a positive function. As Wicksteed ([1910] 1933, p. 524) suggests, 'the man who sells his labour is selling something for which he himself has a demand of some kind'. Leisure is defined as all things produced outside the 'circle of exchange' together with rest. To use Spenser's (2003a) terminology, we have the 'labour-less' labour supply curve.

Finally, the *Common Sense* provides little by way of major development of the marginalist theory of distribution. The contributions are largely at the margins of theory. The most important of these contributions concern the fact that Wicksteed introduces a role for imperfections in markets and allows for non-economic forces in determining factor remuneration outcomes. As argued elsewhere (Flatau 1997, 2001), Wicksteed, in common with other key neoclassical thinkers of his time (Marshall, Clark and Pigou), both protects a notion of fairness in remuneration according to marginal products, while allowing for the dual possibility of underpayment according to these principles in non-competitive markets *and* underpayment according to need. But he does not support a living wage policy (popular at the time) to offset these problems, but rather government action outside the labour market to improve the lot of low-income wage earners.

While he adopts a similar position to Marshall and Pigou on the living-wage question and exploitation, a number of important differences between Wicksteed and Marshall and Pigou are worth noting. In terms of method, he retains a largely abstract mode of presentation in his 'economic' works, with little emphasis on the description of economic events or analysis of policy initiatives. In this respect he appears very much unlike Marshall, whose *Principles* reveal a strong awareness of the policy issues and economic events of the day. For Wicksteed, economic truths are developed largely on the basis of extrapolation from general principles that are known to be true, if only via introspection. Moreover, as noted by Robbins in his introduction to Wicksteed's *Common Sense*, while Marshall at times adopts a marginalist framework, such a method of analysis does not dominate his work. In contrast, Wicksteed's analysis is centred wholly on the marginalist framework.<sup>29</sup>

Wicksteed's major economic works were completed between the mid-1880s and his 1914 Presidential Address to the British Association on the marginal theory of value and distribution. The *Common Sense* was published in 1910. Other than his six sermons on Dante published in 1879, his major publications on Aristotle, Aquinas and Dante were concentrated in the period from 1912 to the end of his life in 1926. The direct overlap between his economic works and those on Aristotle, Aquinas and Dante is slight, with little by way of cross-reference. It is therefore difficult to make any strong statements on whether and to what degree the influences of Aristotle, Aquinas and Dante are apparent in Wicksteed's economic works.

It is, however, worthwhile to draw two points of connection between these two bodies of work. The first is that, in the very brief cross-references Wicksteed makes between the two bodies of work, he suggests a conjuncture between the economic principles he espouses and the principles set out in Aristotle. In his Presidential Address of 1914 Wicksteed suggests that

Aristotle's system of ethics and our reconstructed system of economics are twin applications of one identical principle or law, and that our conduct in business is but a phase of our conduct in life, both being determined by our sense, such as it is, of differential significances and their changing weights as the integrals of which they are the differences expand or contract. (Wicksteed 1914, p. 8)

There also exist interesting direct parallels between Wicksteed's commentary on the *Physics* and his major economic work, the *Common Sense*. Wicksteed's (1929) *Physics* project, it appears (see the preface to the work by Cornford), was a long time in the making, being conceived apparently some thirty years prior to its

publication in the mid-1920s. In the *Physics* commentary, Wicksteed refers to Aristotle's theory of the 'common sense'. The common sense 'receives, adopts as its own, and assimilates the reports of all the special senses, and combines these reports, as well as distinguishing between them'. Wicksteed goes on to suggest that the 'common sense gives us a new kind of oneness, the oneness of an associated combination of different orders of sensation' (Wicksteed 1929, p. xxxv). It is possible to see Wicksteed's use of the phrase the 'common sense' of political economy in the title of his major work as indicating a belief on his part that, as with the senses, there is a common principle of political economy guiding economic decision-making.

The second point to make is a more general one. Wicksteed's economic work can be categorised as being clearly consistent with the Roman tradition of Aristotle and Aquinas. His extensive commentary on this tradition itself makes such a conclusion even more reasonable. Worland (1984) points to Robbins as the key writer who introduces the Aristotelian tradition into neoclassical economics. Focusing on Wicksteed's work suggests a much earlier connection. Robbins himself of course edited Wicksteed's work and listed him as a major source of inspiration. We are led to the obvious conjecture that, notwithstanding the fact that Wicksteed's most important work on the Roman tradition was published after his major economic works, the development of his own economic thought was influenced by this tradition; but his own reading of the work of Aristotle, Aquinas and Dante may have also been influenced by his economic analysis. The key elements of this tradition, outlined by Nelson (1991), which are consistent with Wicksteed's economic theories *and* emphasised in his own commentaries on this tradition, are: (1) individuals exercise free will in the determination of their ends and follow reasoned judgement to achieve those ends; (2) ends are chosen on the basis of achieving higher levels of happiness, while means are chosen rationally so as to achieve best outcomes; (3) outcomes reflect individual choice behaviour, while deserts line up with choices made; (4) there are common principles, rules and senses that guide decision-making processes. These common principles are accessible to all (and there is an essential equality across individuals on this scale) because they represent basic common sense.

## 9 Conclusions

Wicksteed presents himself as a thoroughgoing dogmatist, rationalist and optimist. Economic activity is the product of the interactions of people and businesses making rational decisions in the light of the information available to them. He attacks the notion of the 'economic man', not on the grounds of rationality but because the classical writers who used this construct adopted too narrow a conception of what can be accepted as 'economic' motives. The principles which guide economic activity can be known, are explicable, and can be written down and held with a high degree of certainty (hence the dogmatist tag). Wicksteed espouses a strong form of universalism. There are not separate laws of value and exchange, let alone separate laws of distribution for each factor, but one universal law based on the marginalist principle. Theories of wages, rent and interest are particulars of the universal principle.

By what criteria are we to know that the marginalist principle applies with such scope and force? We do so through a process of mathematical reasoning (in the *Essay* and preceding works) and through experience and common sense (in all

works, but principally in the *Common Sense*). We do not require, it would seem, detailed empirical investigations that may corroborate the universal statements providing the foundation of economic science and particular conjectures derived from these statements. In this respect Wicksteed departed from the ideals of Jevons. In addition, he espoused a belief in economic justice and fairness that stayed with him throughout his life, leading him into long-term support for liberalism, the Labour Church movement and a number of progressive causes.

Wicksteed's modernist theological leanings and his adherence to a positivist programme, together with his Unitarian background, provided an environment conducive to the development of an integrated world view, an emphasis on unity of thought and a 'scientific method', the willingness to adopt unpopular, revolutionary positions, and an emphasis on critical reasoning. These ingredients meant that he was predisposed to the work of Jevons and they clearly had an influence on his later developments in the theory of distribution. His adoption of a free will doctrine and the role of directed choice may also have led him to a more ready acceptance of the Jevonian programme. However, we must be careful not to read too much into these connections. It was Jevons's work itself that provided the greatest impetus to Wicksteed's further development of the theory of distribution.

In terms of his extension of the Jevonian framework, one can mention a range of important examples. He provided a very diverse set of illustrations of how the Jevonian framework applied across the administration of all resources. He took the Jevonian framework clearly down a more Austrian path in his analysis of forgone opportunities and through his reverse demand curve model. However, his key contribution remains his theory of distribution. The core component of Wicksteed's distribution theory is that it is not a separate branch of economics. Nor can we speak of individual theories of distribution related to the various factors of production. Rather, there is a universal theory of distribution that is based on the principles developed by Jevons with respect to the theory of exchange value. Just as the exchange value of each commodity or service is determined by the effect on total satisfaction which the addition or the withdrawal of a small increment of it would have, all other variables remaining constant, so the remuneration to each factor is given by the effect on the product of a small increment of that factor, all other factors remaining constant (Wicksteed [1894] 1992, pp. 56-8). The marginalist principle involved is applicable to all factors and is consistent with the experience of life in general (Wicksteed [1894] 1992, pp. 58-61). Moreover, under the conditions of a 'freely competing community', the shares to each factor would exhaust the product.

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## Notes

1 This paper has benefited from comments by John King, Ray Petridis, Ian Steedman and Herb Thompson, reports from two referees and comments from participants at the 2002 History of Economic Thought Society of Australia conference, where a previous version of this paper was given. The paper draws, at various points, on a broader paper on tendencies towards universalism in neoclassical distribution

theory (see Flatau 2001). I am grateful to the archivists at the Special Collections section of Library Services at University College London, the Manuscripts and Archives Section of the New York Public Library, and the London School of Economics Archives for providing access to the papers of Pearson, Henry George and Wicksteed.

2 Wicksteed was aged 38 and a Unitarian minister of some years standing when he entered political economy. He had published widely in the emerging and controversial field of modernist theology (for example, Wicksteed, 1872, 1874, 1880a, 1880b, 1881), and was also known for his work on Dante (Wicksteed [1879] 1892b), and reviews of Comte for the *Inquirer* magazine (Wicksteed 1875).

3 This quote is from a letter from Wicksteed to George, dated 29 October 1882. Wicksteed's letter to Henry George is held in the *Henry George Papers, 1840s-1950*, Manuscripts and Archives Section, New York Public Library. I would like to thank the Manuscripts and Archives Section of the New York Public Library for providing a copy of this letter for me.

4 Wicksteed viewed existing economic doctrine as being unable both to explain the causes and nature of commercial depressions and to provide a justification for the coexistence of wealth and poverty. Wicksteed expanded on his views of the fallacies of existing economic doctrines in his 30 December 1882 *Inquirer* review of *Progress and Poverty* (Wicksteed 1882). The review has modern resonance in its critique of macroeconomic co-ordination problems and the anomaly (for then existing doctrine) of the existence of depressions when there are 'wants to supply, power to supply them, and a prospect of remunerative employment of capital in bringing them together, and yet remain divorced' (Wicksteed 1882, p. 839).

5 Wicksteed's initial enthusiasm for *Progress and Poverty* was considerable, as reflected in his 30 December 1882 *Inquirer* review where he suggested that *Progress and Poverty* represented 'by far the most important work in its social consequences that our generation or our country has seen' (Wicksteed 1882b, p. 839). Despite abandoning George the economist, Wicksteed remained, throughout, committed to a Georgist-inspired land reform programme (see, for example, Wicksteed 1901a). His brother Charles Wicksteed was heavily engaged in the Georgist land campaign (see Wicksteed [1885] 1894).

6 While historians of economic thought have debated the question of whether the 'marginal revolution' was indeed a revolution, Wicksteed's references to Jevons and other marginalist writers clearly indicate that he at least believed that a revolution in economics had occurred.

7 Schabas (1990 p. 169) notes that the reference to Wicksteed as Jevons's disciple was made by both Schumpeter and Stigler. She herself uses the same phrase. In terms of Wicksteed's contemporaries, Nicholson was to remark to J.N. Keynes that 'Wicksteed's Alphabet, I know by experience with good men is repellent, and Jevons is worse' (J.N. Keynes Diaries, Add. 7839, 21 July 1890, Cambridge University Library). This quote suggests that at least some of Wicksteed's contemporary British economists recognised the close link between Jevons and Wicksteed *and* were hostile towards the economics espoused by both Jevons and Wicksteed.

8 Of all the major neoclassical writers of the late nineteenth century, Wicksteed can be said to have attracted the least interest from economic theorists and historians of economic thought. Steedman's recent explorations (1989, 1990, 1992, 1994) and his publication of the collected works of Wicksteed (Steedman 1999), however, have contributed to a marked increase in our understanding of Wicksteed's work and the forces that shaped it. Other contributions include Flux (1894), Wicksell [1902] (1969), Hicks (1932), Robbins (1930, 1933), Robinson (1933, 1934), Knight (1934), Stigler (1941), Hutchison (1953), Newton (1971), Davidson and Meiners (1976), Worland



(1984), Makowski and Ostroy (1992), and Blaug (1996). Other than Steedman's contributions, this list consists entirely of internalist readings of Wicksteed's economic texts. By an internalist reading, we mean that the analysis of a text takes into account only the text itself and other relevant texts. Reference to historical setting, biography and cross-disciplinary influences are scant in such a reading.

9 Another obvious methodological difference between the two is Wicksteed's continued failure to place his work in any sort of historical context. There is little by way of citation of other texts throughout all Wicksteed's work, which stands in sharp contrast to Jevons's practice.

10 Who should get the credit for first developing a comprehensive mathematical treatment of the marginal productivity theory of distribution is, of course, a matter of some controversy. Wicksteed's and Wicksell's names are those commonly mentioned. There were antecedents to Wicksteed and Wicksell, including Jevons himself, as we shall argue (and what of Marshall, Walras and Barone?), but it can well be argued that no author prior to Wicksell and Wicksteed provided anything like a complete mathematical statement of a marginal productivity theory. In section 5, we briefly review Walras's attack on the *Essay* in his famous note to the third edition of the *Elements*. Wicksell's book *Value, Capital and Rent* was published, quite independently of Wicksteed, in 1893 (but not translated into English until 1954) and there is simply no evidence that either knew about the other's work at the time.

11 Steedman's (1994) treatment of Wicksteed's views of the integration of the religious, the sociological and the economic in one all-embracing theory appears to me to take Wicksteed's stated views of the integration of economics, theology and sociology perhaps too much at face value.

12 Details of Wicksteed's life can be found in Herford (1931), which has been reproduced as volume 5 in Steedman's (1999) five-volume edited collection. It is difficult (wrong) to pin down Unitarianism to one set of beliefs. Indeed as Wicksteed (1892a, p. 93) himself suggested, 'Unitarian has come to cover a very wide area, and to stand rather for a loosely-defined set of principles and methods and an attitude of mind in approaching religious problems than for adhesion to a dogma of theology'. His own brand of Unitarianism can be summed up negatively as a non-fundamentalist/evangelistic view of Christianity. He believed there were multiple sources of avenues to gain an understanding of God and that the Bible was not the one true source of religious truth. In a positive sense, Wicksteed (1892a) argued for Unitarianism to be built on the *unification* of three conceptions of God in Unitarian thought, that is, God as idealised humanity, as the unknown source of all things, and as an ethical principle within us.

13 Black (cited by Schabas (1990, p. 169) indicates that J.M. Keynes was told by Clara Collet that Jevons had met Wicksteed.

14 Wicksteed's critique, the response to it by Shaw, and the counter-response by Wicksteed, have all been reviewed in detail by Steedman (1989b, 1990). The original pieces in the debate are bound together in a limited edition, *Bernard Shaw & Karl Marx. A Symposium 1884-1889* (Ellis 1930).

15 John Bridge appears not to have alerted Wicksteed to Euler's Theorem and its use in proving the product exhaustion theorem (see Flux 1894). Flux's response to Wicksteed on this may have been a major factor behind Wicksteed's not continuing down the mathematical track from that point on.

16 A search of the British Library's on-line catalogue reveals that books of the 'The Common Sense of ....' variety were very common at the turn of the century (e.g., *Common-sense Euclid*, *Common-Sense Theology* [published by the British & Foreign Unitarian Association], *Common Sense Currency. A Practical Treatise on Money*, *Common Sense in the Nursery*, *The Common Sense of Riding* etc., etc.).

17 This functional form had the advantage of being simpler, displaying similar attributes in the positive quadrant of marginal utility to Pearson's curve. One feature of Wicksteed's curves in the *Alphabet* is that they are not asymptotic to both axes as are Jevons's curves (see also Wicksteed 1889).

18 Presumably Ernest Bax, the Marxist writer, editor, journalist and co-founder with William Morris, Eleanor Marx and Edward Aveling of the Socialist League.

19 Interestingly, when Wicksteed was again to refer to labour power (in the *Alphabet*) he uses 'labour-power' rather than 'labour-force'.

20 In a subsequent letter to Pearson on 7 July 1885, Wicksteed says that he would be 'extremely glad if you would come and show me where you think my case against Marx breaks down'. But we hear no more of any further discussion between the two on this issue.

21 Indeed, there is a sense almost of self-betrayal in Wicksteed's letter to Pearson. In a later letter to Pearson (December 17 1888), he refers to the publication of the *Alphabet* and remarks: 'I wonder whether you will come across my "Alphabet of Economic Science". If you do I shall expect you vindicate Marx's metaphysics against its pseudo-mathematics. If you don't I shall cherish a deep conviction that no one can – so you further your responsibility for my soul'.

22 Wicksteed clearly planned to produce a volume on production and distribution issues at a later point; hence the use of the sub-title 'Part 1 Elements of the Theory of Value or Worth' for the *Alphabet*. Wicksteed's *Essay* appears to have been conceived as the second part of the work but clearly moved well beyond its original role.

23 Two recent explorations of the history of neoclassical labour supply theory (Derobert 2001 and Spencer 2003a, 2003b) both fail to mention the *Alphabet* (no doubt not deliberately) and only refer to Wicksteed's *Common Sense* analysis.

24 Here I use the terminology – marginal utility and marginal disutility – that most commentators adopt when discussing Jevons's model, and not Jevons's own terminology.

25 A total labour supply curve can be derived from the marginal labour supply curve in an analogous way to the drawing of the total utility curve from the marginal utility curve.

26 To put some context to the absence of strong interest in the *Essay* in British academic circles, one must remember that it had limited circulation. Moreover, Wicksteed did not hold down a formal academic post. More importantly, however, was the fact that there was hostility among many British economists towards Jevons and his most visible disciple, Wicksteed.

27 Jaffé (1964) shows that Walras, Barone and Pareto have some right to lay claim to be among the authors of the first comprehensive general mathematical statement of the marginal productivity doctrine, but the relevant evidence is derived from unpublished sources (see also Stigler 1941 and Dooley 1998). In writing the *Essay*, Wicksteed appears to have been unaware of the relevant unpublished work of Walras, Barone and Pareto. Other major contributors to a mathematical statement of a general form of marginal productivity theory include Marshall (Marshall 1961; Whitaker 1975) and Wicksell ([1893] 1954).

28 Wicksteed's paper is included amongst a collection of papers in the book, *The New Party*, edited by Andrew Reid. Reid advocates in the book the formation of 'The New Party and National Union of Socialists'. Another contributor to the book was Keir Hardie ('On the Independent Labour Party'). Inglis (1958) notes that a Labour Church service attended by 5,000 followed the conference in 1893 at which the Independent Labour Party was formed. Keir Hardie wrote for the *Labour Prophet*, the journal of the Labour Church.

29 As discussed in Flatau (2001), Wicksteed developed his position on the living wage and support for low-income earners in a paper delivered at the Inter-denominational Summer School in 1913 (see Wicksteed 1913).

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