

# WORKING PAPERS IN ECONOMICS

**Keynes and Marshall:  
Methodology, Society and Politics**

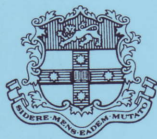
by

**P.D. Groenewegen**

**No. 197**

**March 1994**

DEPARTMENT OF ECONOMICS



The University of Sydney  
Australia 2006

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**National Library of Australia Card Number and ISBN 0 86758 823 3**

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## KEYNES AND MARSHALL: METHODOLOGY, SOCIETY AND POLITICS

### Introduction

The importance of Keynes's Marshall heritage is increasingly being acknowledged in the discussion and interpretation of his economics, youthful and mature, that is, from the early monetary writings to the *General Theory of Employment, Interest and Money*. In some ways this is not surprising. Keynes, after all, was a product of, and early participator in, the Cambridge school which Marshall had created, and had the distinction of being one of the few personal students of Marshall among the many teachers who made that school so important in the period between the two world wars. As editor of the *Economic Journal* (Moggridge, 1990), Keynes operated initially during a period when many of the problems raised in the journal were thrown up by discussions, both direct and indirect, of the Marshallian research program. This had been spelled out in the oral tradition of his teaching (for a brief definition, see Groenewegen, 1988, esp. p. 650) to be interpreted by his appointed successor to the Cambridge chair, by his indirect pupils (that is, the pupils taught by pupils) in the pre-First World War I period, and by the later, post-1918 generation which taught economics at Cambridge until the end of the 1920s (cf. Austin Robinson, 1990). The major economic links between Marshall and Keynes have been long understood, despite the introduction of occasional biases (Robinson, 1962, p. 79), even though the details will continue to be elaborated (for example, Clower, 1989; Leijonhufvud, 1994).

It may be helpful at the outset to clarify the subject matter of this paper. For a start, it does not deal with Marshall's possible influence on aspects of Keynes's economics in a technical sense. Instead, it explores aspects of the implications of a closeness in the relationship between these two major Cambridge economists based on

my recent research for a biography of Alfred Marshall (Groenewegen, 1994). This was sparked off by a reading in draft of O'Donnell's discussion of Keynes's projected works which were never written (O'Donnell, 1992). The latter provide fruit for interesting speculation given my evaluation and judgements on Marshall's political, social and methodological views, and from what Keynes could have learned of them from his familiarity with the Marshall papers preserved at Cambridge. Educated guesses of what Keynes may have read of them in the months following Marshall's death may be made, based partly on the reading of his famous *Marshall Memoir*.

My perspective in this paper is therefore that of the biographer, and more specifically, the biographer of Marshall. A previous paper (Groenewegen, 1993) contrasted this perspective with that of two recent Keynes biographers (Moggridge, 1992; Skidelsky, 1983, 1992) to find them wanting in fathoming what I presume to have been the depth of the Keynes-Marshall relationship. To set the stage for the present paper, its first section presents a brief account of the essentials of its findings slanted towards matters of special relevance to the potential connection between the two on methodology, society and politics. These topics form the subject for the subsequent three parts respectively. A final paragraph attempts some conclusions.

A *caveat* is therefore warranted at the outset. My stance is that of one who has poured over the writings of Marshall but rather innocent of the far more voluminous Keynes papers. My Marshallian insights from that comparative advantage of familiarity with the Marshall papers, may nevertheless be useful in shedding some light on aspects of Keynes's thinking, thereby modifying and perhaps even adding to the rich interpretations already available. In this way, a Marshallian intruder in a gathering of Keynes scholars may serve a useful purpose or at worst, may learn from his audacity in trespassing on the field of study devoted to Marshall's greatest and most influential pupil.

### 1. Marshall and Keynes: the biographical record.<sup>1</sup>

When Keynes first met Alfred Marshall can only be guessed at. Joan Robinson's comment that "Keynes .... drank Marshall with his mother's milk" (Robinson, 1953, p.6) is metaphorical (he was one and a half years old when his mother Florence attended Marshall's lectures in early 1885) but points to the fact that Keynes would have met Marshall as a visitor to Harvey Road at an early age. Keynes (1972, pp. 213-14) himself mentioned dinner parties he attended at Balliol Croft, in particular remembering meeting Pierson (probably in 1904) and Wagner (probably in 1913) on these occasions. Individual social meetings between the two therefore commenced not long after Keynes had turned 21 in June 1904.

From the time Maynard Keynes graduated as twelfth wrangler in 1905 until Marshall's death in July 1924, there seem to have been three phases of especially close contact between the two men. The first covers the period of twelve months from June 1905 to mid-1906 when Marshall initially lured Keynes to attempt the second part of the Economics Tripos which, in the end, proved unsuccessful. It nevertheless brought Keynes under Marshall's spell for virtually the whole of Michaelmas term 1905. The second period of close contact covers the period after Marshall's retirement in June 1908 to the outbreak of war in 1914, when Keynes was lecturing in economics at Cambridge. This period coincides with Keynes's substantial book writing programme covered in what O'Donnell (1992, pp. 771-8, 805-6) calls the first document of such plans. The third period covers the years of the First World War when contact seems to have been largely by Marshall initiated correspondence, and during which he proffered advice to his pupil now ensconced in the Treasury on aspects of the war and its finance. Much of this occurred during the early years of the war when Marshall can be said to have still been reasonably mentally alert.<sup>2</sup> The contact was therefore one-sided, though this picture is perhaps exaggerated from the fact that Keynes's responses, if any, have not been preserved among Marshall's papers.

There is also a fourth period, largely of posthumous "contact", during which Keynes once again immersed himself in Marshall as "pupil" of the "master". This started in May 1924 when Keynes visited Marshall at the start of his "final illness", a visit so tenderly described in a letter to Lydia (Hill and Keynes, 1989, p. 195) and when Keynes may also have pumped the old man for reminiscences about his early years (Keynes, 1972, p. 172 n.2). It can be said to have lasted for two years thereafter. These cover the period when Keynes first wrote his *Memoir of Marshall* (Keynes, 1972)<sup>3</sup>; then assisted Pigou in editing the *Memorials* (Pigou, 1925, p. v) and finally when he himself edited Marshall's *Official Papers* for the Royal Economic Society, a task completed by June 1926, the date given in its preface (Marshall, 1926, p.v). This posthumous contact between Keynes and Marshall's work is particularly important since it largely coincides with documents 2-4 of Keynes's writing program, as described by O'Donnell (1992, pp. 778-93, 306-12) and with some of the *Essays in Persuasion* on social and political matters (Keynes, 1931), which these writing plans may have helped to assist. Marshall's death, it may be noted here, had given Keynes privileged access to the Marshall papers, including their thoughts on economic progress and ideas for that final volume of which only draft outlines and scraps of notes are extant. As pure speculative hypothesis, it may be suggested, that some of Keynes's writing projects for the early 1920s may well have been produced as a conscious or unconscious desire to explicitly complete some of the "master's" unfinished work which had been placed before him during the months after his death.

The first phase in the chronology of the Marshall-Keynes relationship as summarised here was quite intense, an intensity in my view, perhaps best captured by Harrod's account (Harrod, 1951, pp. 105-21). This provided a brief period of very concentrated economics training by Marshall. In an as yet rather barren Economics Tripos, it is not surprising that Marshall used this contact with Keynes to put enormous pressure on what he saw as his potentially most gifted pupil, to win him for professional

economics. Keynes's solid economics reading over the summer of 1905 is reflected in the list of books he claimed to have read on enrolling for Marshall's classes in 1905 (reproduced facsimile in Groenewegen, 1988, p. 667). He attended Marshall's 1905 Michaelmas lectures on Advanced Political Economy, including the special difficulties class held on Saturdays and wrote a substantial number of essays for Marshall which Marshall vigorously corrected, and praised, in red ink (Keynes, 1972, pp. 215-6 and n.). Layton's lecture notes<sup>4</sup> for these classes indicate that the lectures were ostensibly devoted to international trade and government action, that they commenced with a brief discussion of the history of the subject and introduced encouraging auto-biographical fragments of how the lecturer himself had come to economics.<sup>5</sup> The lectures also discussed methodological issues, including the view that flexible definitions were the most useful and that definitions in any case should be treated as a "matter of convenience"; issues in capital theory; economic progress, with special reference to Britain; aspects of coal and steel production and their importance for that progress; taxation and rent; the association between religious ideas and the durability of primitive socialist societies (probably illustrated from Marshall's 1875 experience with the Shakers in the United States) and the effect of permanent peace on the level of the rate of interest. Marshall's second term (Lent) lectures for 1906 elaborated the quantity theory of money, the heading used by Layton in his notes. This is presumably the reason why Keynes (1972, pp. 190 n.1, 191 n.2, 216) later recalled having attended them, even though by then he had already dropped any plan of taking Tripos examinations, instead of recalling the 1905 Michaelmas Term lectures of which some of his brief notes are extant. Both sets of lectures stressed the association of economics with ethics, the practical nature of economics and its relevance to human improvement, a lesson, which Austin Robinson (1947, p. 25) suggested, Keynes never really forgot.<sup>6</sup> For the purpose of this paper, the point to be made of Keynes's attendance at these lectures is on the broad moral and social context and problem solving to which Marshall introduced his Advanced Economics

pupils. The practice sharply contrasted with Pigou, whose lectures emphasised the analytic rather than the practical.<sup>7</sup>

The second period contact between the two is of greater interest. Before retiring from the chair, Marshall had arranged the appointment of Keynes to the economics teaching staff as a lecturer and in the years immediately afterwards assisted his young protégé in a variety of ways. Marshall gave Keynes easy access to his personal library by offering him material on virtually permanent loan. In addition, when Keynes was appointed as official custodian of the economics books for students in the Tripos (most of them at this stage effectively donated by Marshall), Keynes was necessarily placed in some contact over their treatment with their previous owner.<sup>8</sup> Given Keynes's interest in writing papers on topics such as "the 'long run' in economics" with reference to "the element of doubt in the determination of value", "commercial fluctuations", "English gold reserves", "official index numbers of prices", "proposals for an international currency"<sup>9</sup>, "the riskless rate of interest", "mathematical notes on the median", as well as texts on money and the "mathematical organon of economics" (O'Donnell, 1992, pp. 805-6), these forays into the Balliol Croft bookstacks would have been quite helpful. Preserved correspondence shows the nature of some of that assistance. On 20 November 1906 (therefore outside the period under consideration) Marshall wrote Keynes to persuade him to enter the Cobden Prize, inviting him to call on either 24 or 26 December to glance at a meagre bibliography on the history of interest he had prepared and of which, nevertheless, he had several items to show Keynes. In December 1910, Marshall informed Keynes that he had found his copy of Rau, with its curves of supply and demand in the fifth edition, informing him he was in no hurry for its return. The letter also gave Keynes some "gossip" about Marshall's acquaintance with Fleeming Jenkin's work in the 1870s and the demonstration of Henry Cunynghame's "very original" machine for drawing rectangular hyperbolas which had been demonstrated at an 1873 meeting of the Cambridge Philosophical Society.<sup>10</sup>

The degree of closeness the Marshall-Keynes relationship could reach at this time is neatly illustrated in the well-documented Pearson controversy, an event probably closely associated with Keynes's intention to write on "the logical basis for correlation" (O'Donnell, 1992, p. 805).<sup>11</sup> The episode itself is described in some detail in Skidelsky (1983, pp. 223-7) and Moggridge (1992, pp. 205-07) in a way that fails to do full justice to Marshall's role in the affair. Marshall had entered the fray by writing to the *Times* on 7 July 1910, since the matter of parental alcoholism and its effects on their offspring was an issue which greatly interested him. This was before he realised that Keynes had replied to Pearson on the subject at article length for the *Journal of the Royal Statistical Society*, as Keynes indicated in a letter dated 11 July. This letter informed Marshall that Keynes himself had been unsuccessful in reaching the *Times*' readership and sent Marshall a copy of the proofs of his article attacking Pearson, intended for the July issue of the *Statistical Journal*. From then on, the two economists acted as comrades-in-arms intent on verbally thrashing the "insolent" Pearson, until the controversy concluded in early 1911. During the battle, Marshall fed Keynes recollections of his talks with Todhunter, possibly going back to 1866, about what Marshall took to be his opinion on the inapplicability of the method of least squares to *all* types of statistical data (Marshall to Keynes, 14 September 1910). He also referred Keynes to new material coming from the enemy, sending him his copy of Pearson's specific reply in pamphlet form to the two Cambridge economists<sup>12</sup>; asking him whether he wished to reply to a letter from Galton to the *Times* in support of Pearson, and urging Keynes to finish the controversy on his behalf since he had foolishly told the *Times* in his third letter that this would be his last word on the subject.<sup>13</sup> However, as late as 31 January 1911, a letter from Marshall alerted Keynes to Pearson's abusive letter in the December issue of the *Journal of the Statistical Society*, offering Keynes, if he wished to reply, his own copy of the letter with critical notes thereon. As Skidelsky (1983, p. 226n\*) briefly notes, the debate shows the close affinity between Keynes's and Marshall's medical views on the potential for

heredity from alcoholic parents to their offspring, an affinity which can be widened to embrace support for the Eugenics movement but not, as Skidelsky (1983, p. 225) wrongly surmises, encouragement of a "selfish" abstention from children to enable intellectual married couples to lead the good life.<sup>14</sup> It also suggests a methodological kinship in scepticism about the worthwhileness of certain statistical techniques in the social sciences. Reading this and their other correspondence of the pre-war period made me realise how strong was the rapport as this stage between the two, making it all the easier to understand Keynes's critical perspective on Marshall in his obituary assessment and his criticism of the sentimental and maudlin approach of Pigou to the subject.<sup>15</sup>

The First World War phase of the Marshall-Keynes relationship, is largely irrelevant to the purpose of this paper. This cannot be said for the fourth, mainly posthumous phase, which started with Keynes's final visit to Marshall on 16 May 1924.<sup>16</sup> On 20 July, Keynes spent three and a half hours with Mary Paley gathering material from her for his *Memoir* while on 12 October, long after the *Memoir* had been completed, Keynes spent "two or three hours with her working through papers and things" (Hill and Keynes, 1989, pp. 227-8, 233, 234). In between, Mary Paley Marshall had bombarded Keynes with letters about her husband, both before and after completion of the *Memoir* by early September.<sup>17</sup> The *Memoir* itself expressly thanked Mary Paley Marshall for her assistance (Keynes, 1972, p. 161 n.1) which included a set of detailed notes she had prepared for Keynes, and from which Keynes quoted freely in the *Memoir*.<sup>18</sup>

The *Memoir* also obviously owed much to his parents (including especially his father's extensive diaries), to Edgeworth (Keynes, 1972, pp. 205, 207 n.2), while the version printed in the *Memorials* (Pigou, 1925, pp. 1-65) corrected errors which had been pointed out to him by former Marshall acquaintances who had read the *Memoir*, (Keynes, 1972, p. 161). Last, but not least, Marshall's own papers were used on a number of occasions (Keynes, 1972, pp. 192 n.1, 201, 202-3 and 231 for some of the more

important references to them), but the evidence is ambiguous on what Keynes gleaned for himself from this source or what, as evidently rather frequently the case, Mary Paley had selected for him. This makes an important aspect of the potential Marshall heritage rather difficult to ascertain.

Apart from writing the *Memoir*, this posthumous phase in the relationship involved compilation of Marshall's bibliography for publication in the December 1924 issue of the *Economic Journal*<sup>19</sup>, assisting Pigou in his editorial task on Marshall's literary remains for the *Memorials* and editing Marshall's *Official Papers* for publication. Work on Marshall's bibliography would have reinforced the impression Keynes so clearly gave in his *Memoir* that Marshall was a person of wide and diverse interests, and that the *Principles of Economics* to which he had devoted so much time, only presented a very incomplete picture of the range of his thought. No details has survived about the nature of Keynes's task in assisting Pigou's editorial work on the *Memorials*. His October visit to Mary Paley may have been partly undertaken to assist in this matter, though other objectives for the visit are equally plausible.<sup>20</sup> To what extent this editing involved a thorough search of Marshall's manuscripts housed in "the nests of drawers" of his study (Keynes, 1972, p. 213) is also not known. Editing Marshall's official papers likewise provided an opportunity to revisit a wide array of Marshall's economics. This provided a useful reminder that Marshall's government evidence went beyond the famous testimony on trade depressions, monetary theory and the fiscal policy of international trade, to reflect on the aged poor and pension schemes and on government finance in general (cf. Groenewegen, 1990).

For the more than fully occupied Keynes of the mid-1920s, this pious devotion to the "master" is a striking tribute of the admiration Keynes felt for him. This admiration shines through some of the phrases in the *Memoir* on Marshall the economist: "... within his own field, the greatest in the world for a hundred years"; "Much, but not all, of this ideal many-sidedness Marshall possessed .... his mixed training and divided nature

furnished him with the most essential and fundamental of the economist's necessary gifts - he was conspicuously historian and mathematician, a dealer in the particular and the general, the temporal and the eternal, at the same time"; [Jevons's work] lives merely in the tenuous world of bright ideas when we compare it with the great working machine evolved by the patient, persistent toil and scientific genius of Marshall .... [in sitting] down silently to build an engine." (Keynes, 1972, pp. 173, 174, 184-5). Is it a wonder, that this "absurd little man" who had brought Keynes to economics, left his mark, on so many parts of Keynes's own work?

## 2. Methodological Parallels

Keynes's *Memoir* contains references to two important methodological aspects where Marshall's opinions can be described as rather similar to his own. Hence they may quite possibly have influenced Keynes's perspectives on the subject. One dealt with some essential features of the nature of economics; the other raised the well known issue about the dangers of mathematical reasoning in economics, including that of employing sophisticated mathematical and statistical techniques to draw inferences from the data. This section emphasises methodological aspects of the first of these issues, though for the purpose of this paper, the second issue cannot be totally ignored.

The general characteristics of Marshall's economics highlighted by Keynes are its practical nature - "the whole point lies in applying the bare bones of economic theory to the interpretation of current economic life" (Keynes, 1972, p. 196). This quality also gave economics its transitory nature, because the "profound knowledge of actual facts of industry and trade" are constantly and rapidly changing (Keynes, 1972, p. 196), as was so strikingly illustrated in Marshall's own *Industry and Trade* (Keynes, 1972, p. 228). Economics was therefore "far from a settled affair - like grammar or algebra - which had to be learnt, not criticised" to use Sanger's words which Keynes approvingly quoted (1972, p. 223). This implied the importance of developing an engine of analysis rather than a



body of settled principles. Such an analysis had to be capable of organising and selecting relevant facts and assisting in finding solutions to actual problems. It should be emphasised in the quite different world of economics in 1994 that this meant that determinate solutions to theoretical problems had relatively little importance in Marshall's foundations of economics. He was interested in comprehending an actual economic situation and on that basis to try to grasp the economic and social mechanisms by which certain desirable social and economic consequences over the longer period could be achieved. Facts went hand in hand with theory, justifying Marshall's factory inspections and his preference for reading factual books as he confessed to J.B. Clark (in Pigou, 1925, p. 417). Application was as essential as explanation, whether to temporal problems like structural and periodic unemployment, depressed industry or an over-stimulated war economy, shortage of the major monetary metal or deficiencies in government revenue raising capacity, or to the more eternal and higher themes of economic and social progress through human improvement in its widest sense. The final chapter of Book I of the *Principles* illustrates this philosophy of economics to perfection.

The engine that Marshall built in those *Principles* enabled him to deal with the particular in terms of the general; to explain a wide range of economic issues by the sophisticated analytical armoury that he brought into action under the rubric of the theory of value, or more broadly, the theory of supply and demand. Marshall's theory of supply and demand in this context should not be narrowly conceived in terms of stable functions of price. These were only a minor part of the analytical apparatus, despite the attention lavished on their detail by some of his early pupils (cf. Joan Robinson, 1953, p. 22). Marshall used the terminology of supply and demand as shorthand for the major forces in economic and social life: wants and activities, production and consumption, to use his terminology in titling Books III and IV. These categories were capable of assisting in explanations of the theory of relative prices and the theory of factor prices, the theory of output and the theory of employment, the theory of money and the theory of crises, the

theory of taxes and the theory of trade. They were to be seen as drawer labels in the filing cabinet for storing and classifying relevant detail, to paraphrase Friedman's metaphor. They had to be handled with the greatest of care because they needed *caeteris paribus* clauses with respect to time, with respect to interdependence, with respect to space, with respect to institutions, for a person is a poor economist, Marshall once remarked (1920, p. 368) who claims to find the theory of value easy. In building his apparatus for the mind, Marshall was searching for the holy grail of the ability to discover temporary, relevant truths, not looking for timeless, universal, equilibrium positions, useful though these could be in devising preliminary and exploratory strategies for analysis. Economics was a way of thinking, not a fund of ready-made conclusions and propositions.

Keynes's sympathy with this program is clear from the introductions he wrote for the *Cambridge Economic Handbooks*, whose publication commenced in the early 1920s.

The theory of Economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus to draw correct conclusions .... its modes of expression are much less precise than those provided by mathematical and scientific techniques .... The main task of the professional economist now consists, either in obtaining a wide knowledge of *relevant* facts and exercising skill in the application of economic principles to them, or in expounding the elements of his method in a lucid, accurate and illuminating way ... (Keynes, 1922, pp. v-vi).

Although these introductions paid homage to both Marshall and Pigou as the persons who have "chiefly influenced Cambridge thought for the past fifty years", it was Marshall's influence which stayed dominant in this context so far as Keynes was concerned. Keynes's emphasis on the virtue of economics' relative imprecision contrasts sharply with the formal mathematicisation in which Pigou liked to indulge when writing

theory and the manner in which he tried to present those parts of his system which Marshall had left purposefully untidy and allusive in a way which made them unambiguous, precise, clear and often enough, banal (Vaizey, 1976). This difference in style was already noted in connection with Marshall's and Pigou's lectures when Layton and Keynes attended them; moreover, Pigou's attempts at tidying Marshall's theory by simplification annoyed Marshall personally on several recorded occasions (Marshall to Pigou, 12 April 1916, in Pigou, 1925, pp. 43-4; Bharadwaj, 1972). It is a substantial wedge between Marshall and the Marshallians, particularly those Marshallians who developed Pigou's neat theorems, whose actual foundations in the volumes of Marshall's principles and applied economics were invariably qualified in the way Marshall himself had left them to his students. Pigou never absorbed Marshall's message on method, conceptualisation, the nature of abstraction, style and vision, parts of Marshall's economic legacy which Keynes found attractive and emphasised, not only in his tribute to Marshall, but in the practice of his own work. Keynes tentatively acknowledged this in his preface to the Japanese edition of the *General Theory* which sharply differentiated Marshall from his immediate followers on the subject of the need for a theory of output and consumption as a whole (Keynes, 1973a, p. xxix).

This Marshallian methodological legacy is preserved in the *General Theory* by adopting a number of important features of Marshall's analytical engine. One of these is Marshall's limited emphasis on the virtues of market clearing as compared with Pigou, and his hesitancy in applying the supply and demand apparatus to the labour market. Secondly, Marshall's analysis was far more aware of the monetary nature of economic life, despite the explicit intention to omit such monetary considerations from his *Principles*. However, Marshall drew attention on the dangers from this omission in matters like the rate of interest (Marshall, 1920, pp. 593-5) while his concluding paragraph in the book drew attention to the provisional nature of its contents. The first volume was unable to reach "practical conclusions", because "nearly every economic

issue depends, more or less directly, on some complex actions and reactions of credit, of foreign trade, and of modern developments of combination and monopoly" (Marshall, 1920, p. 722).

It can also be argued that Marshall's main engine of analysis, here broadly presented as the theory of supply and demand, played a major part in the conceptual apparatus of the *General Theory*. After all, its key elements were aggregate supply and demand, with the supply analysis very Marshallian in its conception. Supply and demand as broadly conceived are also embodied in many of the key variables of the analysis, even though sometimes in startlingly new dress (for example, the theory of interest). Moreover, given Marshall's feelings about the transitory nature of economic principles and his acceptance of the fact that texts like his *Principles* had the inevitable fate of becoming "waste paper" (Marshall to Fay, 23 February 1915, pp. 489-90), I doubt whether he would have been as upset about Keynes's treatment of part of his theory of saving-investment as some of his indirect pupils were. Marshall may in fact even have welcomed Keynes treatment, as a solution to the conundrum of his implicit supply and demand analysis of the capital market with its ambiguities in labelling the horizontal axis, and his doubts about portraying saving as a simple increasing function of the rate of interest. Interesting though such speculations may be, they are far removed from the topic of methodological empathy between Keynes and Marshall. Enough has been said on the last to show that this empathy had clear antecedents in the Marshall-Keynes interrelationship as here outlined.

Marshall's critical perspective on mathematical economics was fully captured in Keynes's (1972, pp. 185-8), which likewise recognised Marshall's claim to being correctly described as "the founder of modern diagrammatic economics". This drew on the preface to the first edition of the *Principles* (Marshall, 1920, pp. x-xi) where Marshall warned about these dangers and expressed a qualified preference for diagrams, which could only be used for illustrative purposes or for self-clarification. Ten years before,

Marshall had made this point to Edgeworth, arguing that "curves" were to be preferred to algebra because "they bear more obviously on the science of statistics". However, in the specific case of the labour market where Edgeworth wanted to use them, Marshall argued that supply considerations of labour were so complex, that his use of curves in this context "had been disappointing. The intricacies of the question are so numerous, the difficulties with the time element so great, that I have never got any curves relating to it which have satisfied me for many months after I just drew them." (Marshall to Edgeworth, 28 March 1880, British Library of Economics and Political Science, Collection Misc. 470, M469). Keynes's reluctance to use diagrams in the *General Theory* is also well known; the one diagram in that book, and in fact the only one used in his published economic writings, was foisted on him by Harrod after long debate. (Keynes, 1973a, p. 180n.1; Keynes, 1973b, p. 558 where Keynes told Harrod as a loyal Marshall pupil that such a diagram could never constitute a theory of interest). Diagrams could only accommodate the elementary, and they tended to freeze specific assumptions about elasticity from the specific shape of the curve given in the illustration, thereby implicitly constraining the generality of the analysis.

Keynes's criticism of econometrics in correspondence with Harrod and Tinbergen has been too frequently elaborated to require much comment here, but its association with Marshall's critical comments on the subject deserves some discussion. Their joint assault on Pearson was highly critical of the regression techniques which Pearson was employing in social data, and had induced Marshall to inform Keynes of earlier methodological criticisms of this nature which he had heard Todhunter make. Marshall expanded on such criticisms in correspondence with H.L. Moore. This concerned Moore's *Laws of Wages*, of which he had been sent a complimentary copy, and whose method Marshall criticised from the casual dips he had made into its contents on the basis of long-standing beliefs. These told him that "no important economic chain of events seems likely to be associated with any one cause so predominantly that a study of the

concomitant variations of the two can be made as well by mathematics, as by a comparison of a curve representing these two elements with a large number of other curves representing their operative causes: the "*caeteris paribus*" clause - though formally adequate seems to me impracticable. [Secondly,] nearly a half of the whole operative economic causes have refused as yet to be tabulated statistically". Over long periods of time, results from this method were particularly dangerous. Marshall enclosed a letter he had written to Edgeworth making similar points on Moore's book in a different way. Much later Marshall wrote Moore (15 December 1921), in acknowledging receipt of Moore's articles on business cycles, that he tried to solve issues of interrelating many variables during the 1870s by means of the statistical data he had recorded in his Red Book. This contained, on an annual basis for both the nineteenth and earlier centuries, consecutive statistics of basic economic variables, political and other events, and by this means he had tried to obtain "*a posteriori* results by the method of concomitant variations .... The result was that I found the depth of my ignorance as to the relations between the development of different economic phenomena to be even greater than I had supposed, and that is saying much".<sup>21</sup>

The methodological empathy between Marshall and Keynes, far greater than that existing between Keynes and Pigou, undoubtedly owed much to their close relationship over the last two decades of Marshall's life. As Keynes had written in the context of Pigou's Marshall memorial lecture, Pigou had failed to grasp this strong side of Marshall's work, an aspect of it which Keynes had specifically highlighted in his own appreciation of Marshall. Keynes of course went much beyond Marshall's position in various respects, but he shared Marshall's strong distrust of theory for theory's sake, his love for facts and his aim of the practical nature of economic science.

### 3. Social Progress and the Good Society: Two Cambridge Views of the 1920s

The penultimate paragraph of Keynes's *Memoir* (1972, p. 231) draws attention to the fact that Marshall's last two years were devoted to an attempt at constructing a final volume dealing "with the possibility of social advance". At one time, Marshall described his intentions to his wife as writing a twentieth century Plato's *Republic*, a sketch of an Utopia, in which the ideal was to be blended with the realities that made achievement difficult. Marshall's sharply declining powers of concentration and memory from 1922 onwards meant that the task effectively got no further than a bundle of notes, which contained various outlines, sketches for some of the chapters, and reflections on 'utopias' either to be admired or to be condemned and forgotten. Whether Keynes gleaned the information about this project from Mary Paley Marshall and the preface of *Money, Credit and Commerce* (Marshall, 1923, p. vi) or from a perusal of these notes in the Marshall papers during the months after Marshall's death, is not clear. What is clear is that some time during the early 1920s Keynes himself was sketching an outline of essays on the 'Economic Future of the World', a project to which his mind was probably turned by the pessimistic outlook for humanity in the aftermath of the First World War (O'Donnell, 1992, pp. 778-81, 806).

Marshall's association with this topic had been long-standing. As Keynes also wrote in his *Memoir* from autobiographical snippets of the the later years of Marshall's life (Keynes, 1972, pp. 170-1), Marshall's need to understand the economic constraints on the possibilities for social progress had driven him initially to study political economy in the second half of the 1860s. Marshall's enduring support for this basic aim in economic study is also clear from at least part of the opening chapter of the *Principles*, concerned as it is with progress as a means of alleviating, and ultimately removing, the human degradation involved in poverty. Moreover, the high theme of progress, an almost

inevitable consequence of human evolution, permeates substantial sections of the book. Alas, these fall precisely in the parts now least studied or read in that volume.

'Aims for the Future', had been a separate book for the second volume of the *Principles* as projected in 1887 to Macmillan (Whitaker, 1990, p. 195); and one, though dropped from the 1903 outline of that volume (Whitaker, 1990, p. 201), which resurfaced when the final volumes as they actually appeared started to take shape. In his eightieth year, Marshall partly transformed the separate volume on the future, into the more realistic project of a volume of previously published essays dealing with functions of government and possibilities for social advances,<sup>22</sup> but the separate volume was not forgotten. One of the preserved outlines gives a good indication of the form it was intended to take,

- Book I The Nature of E[conomic] P[rogress]
  - I Introductory conditions of E.P.
  - II Various tendencies of E.P.
  - III Interactions among the tendencies of E.P. Note on diagrams in lower type
  - IV Sectional interests in E.P.
- Book II Functions & Resources of Government in regard to E.P.
  - Intrody.
  - Currency
  - Stability of Credit
  - Taxes
  - I[n]ternational T[rade] competition
  - Commercial policy
- Book III The Economic Future
  - Influences of E.P. on the quality of life

Retrospect & prospect

Ideal & attainable. Poverty.

(Whitaker, 1990, p. 217).

The flavour of Marshall's thinking of what was to go in these boxes can be given from fragments on some of these subjects preserved in the Marshall Library:

Attainable ideals

rus in urbe, urb in rure.

Variety in life, even when hands are monotonously at work.

A right economic government by the people of their governors.

Equal early opportunities: graduated take of opportunities, stimuli, fruition?

Steadiness of employment, provision against unsteadiness

groups unselfishness.

Struggle without ferocity.

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Thus our ideals are: work for all intelligent but not carried to the length to exhaust the nervous[?] energies (unless of course under the pressure of exceptional emergency). This is not a rule for the student or the artist, when a divine frenzy is on him, he must let it have its head.

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True human progress is in the main an advance in capacity for feeling and for thought, yet it cannot be sustained without vigorous enterprise and energy. A certain minimum of means is necessary for mankind's well being, something more than that minimum is necessary for a high class life.

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Difficulties of the businessman in risk-taking .... This is apt to be overlooked by ardent social reformers. They recognise the necessity for capital - that can be annexed by the State and handed over as the basis of self-governed businesses: and they assume, with some measure of justice, that the workers themselves will be able to supply a good deal of faculty for routine management. But they do not seem to recognise that industrial progress is dependent on the right selection of ventures: they do not make provision for the control by the State of the action of the workers in regard to these risks. If no considerable risks are taken, there will be no progress: if considerable risks are taken at the expense of the State by men who have no special genius for handling them, the State will lose much of its capital. Meanwhile those who have the faculties needed for the higher work of business are likely to have escaped to seek any capital over which they may have control in other lands.

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Collective enterprise now has several advantages

- (i) joint stock management - like the difficulties government enterprise is open to
- (ii) government corruptibility reduced by publicity.

Conclusion: Government business must extend and ought to extend: but its extension brings great evils: and ought to be opposed save when it can make a strong *prima facie* case for efficiency and economy.<sup>23</sup>

Other notes raised issues to be specifically addressed when writing on the future of industry. These included the international distribution of progressive industries among nations, the international spread of improvements, benefits from trade including access to the products of mines and agriculture of new countries. Marshall stressed the problem of Western European countries without natural resources in maintaining their comparative

economic strength. This was to be achieved by fostering essential business qualities, especially innovative skills and ability of informed decision-making, both chief factors in the production of material wealth. Marshall discussed the incentives required for economic progress in terms of wealth and the stimulus of success. "Wealth, distinguished from a competency - is valued more for the power and distinction which it gives. Honours and prestige can give the same. This is the logical basis for heavy taxation of private wealth, providing the proceeds is [sic!] well spent."<sup>24</sup>

How does this Marshall conception of the future, economic progress and ideals compare with Keynes's contemporaneous sketch for the study of the economic future of the world. To facilitate comparison, reproduction of its dozen lines seems appropriate:

Essays on the Economic future of the world

1. Transitional character of the 19th century
2. Relative prices of agricultural and industrial products
3. Population
4. Climate v Race Patriotism
5. Present average wealth, and value of output
6. Importance of inequality to civilisation
  - Value of wealth to the individual
7. Prevention of great fortunes
8. Theoretical socialistic framework
9. Psychology of reward and incentive
10. Education, Eugenics and Quoei Soudri

(O'Donnell, 1992, p. 806)

Although, as O'Donnell (1992, pp. 779-80) convincingly points out, Keynes's outline for these essays drew on work on which he had been sporadically engaged both immediately before and after World War I, the similarity between part of the outline and

some of Marshall's ideas is nevertheless striking. Examples of the former are Keynes's proposed introduction in terms of the transitional character of the nineteenth century, reminding of the opening pages of his *Economic Consequences of the Peace*. Population, the Malthusian spectre and eugenics were likewise recurring themes in Keynes's writing of the early 1920s, though with pre-war origins. Particularly interesting are their apparent roots in 1912 lecture notes dealing with factors influencing labour supply which in itself carries a strong Marshallian flavour, given the attention Marshall had lavished on the topic in both Book IV and VI of the *Principles*. The same can be especially said about topics 6-9 of Keynes's list, dealing with equality and inequality in progress broadly conceived<sup>25</sup>, the need to curtail great fortunes, the psychology of reward and incentives and the need to examine a theoretical socialist framework in order to preserve its good, humanistic values while at the same time not eliminating some of the values of capitalism so essential to economic progress. Those values, as already illustrated, are abundantly present in Marshall's extant notes on economic progress and ideals, just as earlier, but in a more restrained way, they had been published in his last journal article on the 'Social Consequence of Economic Chivalry'.

Various inferences are possible on the basis of such broad similarities. To a large extent, they reflect the *zeitgeist* of those years, in which all thinking persons dwelled on the possibilities for progress in a future which the horrendous experience of the great war could only portray in the darkest colours, particularly when, with the peace terms imposed on Germany at Versailles, a recurrence of this catastrophe within a generation was highly feasible.<sup>26</sup> In addition, many of these ideas were in the air given the spectre of socialism as a reality imparted by the successful 1917 Bolshevik revolution, an event which coloured all serious speculation on an economic future for the world at that time, both with respect to the survival of capitalism and its other implications. However, a Marshallian influence cannot be totally ruled out with reference to some of the specific ways the questions were posed, and the suggestions this gave of the answers

contemplated. Several aspects of the economic research agenda for the post-1919 future had been strongly represented in Marshall's oral tradition, were reflected in fragments among Marshall's papers and even occasionally in published material.

#### 4. Political Perspectives on a Neo-Liberal Tendency to Socialism

Both Marshall's and Keynes's political positions can, and have been, described as neo-Liberal with tendencies towards socialism (McWilliams-Tullberg, 1975; Clarke, 1988; O'Donnell, 1989). Although Keynes at least for part of his life (the 1920s) was actively politically committed to the Liberal Party, Marshall stayed clear of such formal commitments except on the fringes. Examples are his brief association with the Cambridge Reform Club in the early 1870s and, in a more lasting way, with the Co-operative Movement especially during the 1880s. The Liberal creeds they adopted were those befitting their age and their class. However, their respective flirtations with notions of socialism and critiques of capitalism are the topics of interest here.

Marshall's tendency to socialism was unashamedly Millian and reformist. However, given the range of political opinion to which the name, socialism, was then applied (the Christian socialism of Maurice, Hughes and Ludlow; the social critiques of William Morris, the Georgist movement of land taxation and land reform, Fabianism, and the Marxism of Hyndman's Social-Democratic Federation) a person with Marshall's political and social opinions could easily describe himself as a socialist.<sup>27</sup> The characteristics of that socialism are not difficult to document, and for Marshall embraced the following. He expressed a measure of support for state enterprises and for what was called "municipal socialism" at the turn of the century; for progressive tax and social welfare policies to redress social inequality and poverty, and for schemes of profit-sharing and co-operative enterprise as more satisfactory forms of working class industrial organisation than that suggested by the "new", and more militant trade unions of unskilled labour which had begun to flex their muscles from the late 1880s. Much of this

platform was enunciated in Marshall's 'Social Possibilities of Economic Chivalry' and the subject was to have been re-iterated in expanded form for the final volume on economic progress.

However, the degree of support Marshall believed he could offer to these socialistic policies was constrained by their adverse effects of incentives and efficiency, particularly the incentives to work, save, accumulate, and above all, to take risk. Public enterprise he saw in general as adverse to risk-taking, while the overall incentive to enterprise in such organisations tended to be very limited because this depended largely on the motivations which ownership could only provide. As shown in the previous section, the growing importance of joint stock companies mitigated this conclusion. Such large conglomerates also divorced management and enterprise from ownership, while their increasingly bureaucratic form reduced proclivities to risk taking. Moreover, Marshall reacted strongly against the ambition of strong job expansion schemes in municipal enterprises especially in public transport, because this entailed the same detrimental productivity effects from over-manning he ascribed to what he called the "make-work schemes" of new unionists in the engineering and other sectors of British manufacture.<sup>28</sup> The type of public endeavour Marshall most strongly supported was in town planning, education, the arts and those activities not likely to be undertaken by private enterprise, either because of the collective benefits they bestowed or because they entailed health, sanitary and humanitarian costs which private owners were not likely to meet. No broad appeals for nationalising the commanding heights of the British economy came from this Cambridge economist.

Marshall also supported fiscal measures at distribution. Although originally opposed to redistributive taxation with progressive rates because of adverse incentive effects on work and thrift, during the last decades of his life he admitted that such disincentive effects of taxes on capital in particular had been grossly overstated.<sup>29</sup> Such taxes were a useful social policy instrument, especially if their proceeds were

satisfactorily spent. From an early age, Marshall also had progressive views on the policy of giving outdoor relief - the policy so heavily criticised by the 1834 Poor Law because of its disincentive effects on self help, thrift and work - to assist unemployed workers and more importantly, those destitute in sickness and old age, where he gave cautious support to the payment of age pensions. Hence, in his 'Social Possibilities of Economic Chivalry' (Pigou, 1925, pp. 345-6) Marshall argued that relief of suffering financed from public revenue should be strictly confined to "those who are weak and ailing through no fault of their own", that is, to the "deserving" poor. Compulsion needed to combine with assistance for those who, "thorough weakness or vice, have lost their self respect, either to reform their own lives or, at all events, to [prevent them from dragging] their children down with them". Universal assistance was decried for such reason, and because of its costs, including the excess burdens if such schemes were financed from general taxation.

Marshall's adherence to the principle of self help as crucial to labour organisations, so visible in his support for "old" trade unionism with their emphasis on voluntary, mutual assistance schemes, for profit sharing and for organising co-operative ventures in retailing and other activities, needs little attention in this context. However, his critical perspective on laissez faire and on unrestrained competition (for example, Marshall, 1920, pp. 6-10; Pigou, 1925, pp. 274-7) bear some reiteration. They can be summed up in his definition of laissez faire as "let the State be up and doing" (Pigou, 1925, p. 336), implying that an active State is essential to regulate and control the mixed consequences of vigorous competition under free enterprise, thereby enabling it to sift out the detrimental from the desirable. Marshall's attitude to capitalism and free enterprise is comparable to that of a late twentieth century social democrat: the state is required as regulator and as redistributor to remove the undesirable consequences from an otherwise superior economic and social system (competitive free enterprise) to any of the others that are known.<sup>30</sup>

Such sentiments are abundantly present in the projects Keynes was developing in the mid-1920s in his outlines for a 'Prolegomena to a New Socialism' and his associated project of a 'Critical Examination of Capitalism' (O'Donnell, 1992, pp. 781-93, 806-12). The thrust of the new socialism lay in the end of laissez faire, the theme on which Keynes later published an essay in 1926 (Keynes, 1931, pp. 312-22) which was in fact one of the few major publication outcomes of these projects. It associated the individualism of laissez faire with the "technical superiority of small units in certain cases", possessive "instincts of risk-taking ... [and] of avarice and hoarding" and a "criterion of profit" for which any new system should "preserve opportunities". These qualities gave it superiority over the State, but such "alleged disadvantages of the State [became] equally disadvantages of the large scale entrepreneur using other people's money" under the joint stock system which separated ownership from control and developed general bureaucratic tendencies (Cf. Keynes, 1931, pp. 314-5). The 'large' this brought with it for business organisation appeared therefore to the two Cambridge economists as not necessarily beautiful and efficient, an idea which Marshall had in fact partly adopted to deal with his so-called "Cournot problem" of the possibility of increasing returns destroying effective business competition.

Keynes's prolegomena in its subsequent two parts intended to develop the philosophical foundations in order to explore the role of "benevolence", the public good and more particularly, the means thereto in "economic well-being". It then intended to address the chief preoccupations of the State under six different heads: population, including eugenics; money<sup>31</sup>; enterprise issues lumped together as "adequacy of saving, investment of fixed capital, public utilities"; labour matters lumped together including "wage levels, [employment and social] insurance, industrial disputes"; "natural resources"; and last, and an almost total inversion of the priorities in the classic treatment of the subject by Adam Smith, "defence, peace" (O'Donnell, 1992, p. 807).



Many of these indications of proposed content were directly inspired by Keynes's own interests at the time. Monetary reform and the need for "a drastic remedy for unemployment" with its explicit rejection of "the old principle of laissez faire" as *passé* both for the labour and capital market (see Harrod, 1951, pp. 345-9) are clear examples. Much of the thrust of these arguments fit equally with some of Marshall's published and unpublished pronouncements on the matter. Of special relevance are his thoughts on the impact of developments in joint stock companies on the case against public enterprise, and more generally, the "master's" recognised emphasis on the transitory nature of economic phenomena. The particular developments in joint stock companies mentioned were a striking example of this transitional quality as was the general demise of laissez faire in its traditional, late Victorian meaning. Moreover, there was little in this list of proposed government responsibilities that Marshall could not have endorsed with the exception perhaps of its perspectives on saving and fixed capital investment.

The first outline for a critical examination of capitalism, which O'Donnell (1992, pp. 785-6) provisionally ascribes to November 1924, followed closely therefore on Marshall's death and in particular, Keynes's October visit to Mary Paley when he went through "papers and things". This, in my view, may explain the structure of "ideal, actual and practicable" as a model for organising Keynes's on the subject equally well as appealing to Moore's ethical foundations as O'Donnell does (1992, p. 788). Justice in distribution with critical remarks on inheritance, and more pertinently observations on the structure and purpose of an ideal society, of utopias, were important aspects of Marshall's outlines for his projected final volume which Keynes, when looking through Marshall's papers, could hardly have missed. Many of the themes to be raised by Keynes under the possible had likewise gained the attention of Marshall in his prognostications on potential post-war developments in his *Industry and Trade*. These included reflections on state saving; alternative social organisations based on state socialism, guild socialism and co-partnership; as well as the necessity of devising regulatory mechanisms for controlling

public utilities and trusts. These seem good reasons to think that Keynes's project to critically examine the contemporary operations of capitalism had a strong Marshall pedigree since such an examination was at least part and parcel of the research program which Marshall had laid out for himself in his study of economics, and which in fact he had partially achieved in his *Industry and Trade*. (Cf. Keynes, 1972, p. 228, whose reading of *Industry and Trade* is not inconsistent with this view.)

Drawing such parallels is much easier than documenting the influences in question. However, this is not the object of the paper. Its limited purpose is that the point should be made that in developing his own brand of liberal socialism, Keynes more than likely drew on the similar ideas of this subject the "master" had left to his "pupils" and of which Keynes himself was clearly aware (Keynes, 1972, p. 214). The two perspectives on politics by the two Cambridge economists resemble each other in some of their approaches to specific questions, and in so far as those of one is concerned, formed a substantial part of the roots of the other. This is all that can, and needs to, be claimed in this context.

## 5. Conclusions

A wider look at Marshall's influences on the system of thought developed by his most outstanding pupil may pay considerable dividends in the interpretation of Keynes's thought. In settling interpretative debates on the meaning of parts of the *General Theory*, as well as aspects of the economics of Keynes before that book, this has been a well recognised procedure. A closer look at the nature of the relationship between the two men aids this process, particularly if it includes the posthumous contact with Marshall's views which Keynes imposed on himself in the two years after Marshall's death. Misunderstanding of the extent of Marshall's influence on Keynes owes much to an inadequate grasp of this biographical aspect; it also arises from inadequate perception of the thrust and objectives of Marshall's own enormous, albeit incomplete, *opus*. The

*Principles, Money Credit and Commerce*, and especially the monetary evidence has received the focus of attention in the Marshall-Keynes relationship; if this paper has convinced Keynes scholars that this may not be enough, it will have served its purpose in assisting our understanding of the thought of the greatest twentieth century economist.

## ENDNOTES

- \* This paper draws on research financed by the Australian Research Council in connection with my Marshall biography, here gratefully acknowledged. I am indebted to the Faculty of Economics and Politics, University of Cambridge, for permission to quote from the Marshall Papers; the Master and Scholars of Trinity College, Cambridge, for permission to draw on the Layton Papers; for assistance from King's College archivists in giving me access to the Keynes Papers relating to Marshall and to allow me to quote from this material.
- 1. This section draws heavily on Groenewegen (1993).
- 2. On Mary Paley's account, Marshall's mental strength and memory began to deteriorate very sharply from 1921, making him virtually incapable of constructive work. This implies that much of *Money, Credit and Commerce* was based on his former work, edited by her, rather than on original rewriting.
- 3. That is, from 13 July when Marshall died until early (probably 4) September, or in less than two months. I intend to write more fully on the Keynes *Memoir* as Marshall biography for a book of Marshall essays to be edited by Marco Dardi, in a chapter provisionally titled, 'Marshall Biography after Keynes'.
- 4. Preserved at Trinity College, Cambridge, Layton Papers, Layton 15<sup>6</sup>.
- 5. The autobiographical remarks were noted down by Layton as follows: "Marshall intended to work at Maths and Physics under Stokes. Got on to metaphysics which he thought was the key to human life. Up at 5 in the morning to read

Kant's Critique. Got on to ethics - as solving practical problems got to Economics. Returned to ethics to find out what were not Ethics or Economics. Found one set: How far is a man bound to express opinion that what others hold to [as] good for them to believe but [which are] untrue" (Layton Papers, Layton 15<sup>6</sup>, p. 25). The essentials of this brief paragraph match Keynes's longer account in the *Memoir* (Keynes, 1972, pp. 167-171).

6. Austin Robinson then recalled that beneath Keynes's 'Georgian skin there peeped out from time to time an almost Victorian sense of moral purpose and obligation'.
7. As indicated Layton's notes, for example, Layton 15<sup>5</sup> (May term lectures 1905 on taxation).
8. Marshall offered to give Keynes some of these books if he had "the space", so that they "could come to you without waiting for my demise" (Marshall to Keynes, 30 May 1909).
9. The last were two hobby-horses of Marshall, particularly the first. See his 'Remedies for Fluctuations of General Prices' (1887) in Pigou (1925, pp. 188-211), *Official Papers* (Marshall, 1926, for example, pp. 11-12) and his correspondence with Irving Fisher (Pigou, 1925, pp. 474-8).
10. For a discussion of these curves, see Thomas M. Humphrey (1992); and an earlier working paper by Hennings (1979). The curves appeared in an appendix to editions of Rau from the fourth edition of 1841 onwards, hence also in the fifth edition of 1845 which Marshall lent Keynes. He had earlier (circa 1878) lent this copy to Jevons to enable him to include in the bibliography of mathematical economics bibliography Jevons published as an appendix to the second edition of

his *Theory of Political Economy* (1879). See Marshall to Jevons, 30 June 1879 (in Pigou, 1925, p. 371).

11. O'Donnell (1989, pp. 186-8) indicates that Keynes's critical attitude to Pearson's statistical methods had been sparked off initially in the context of Keynes's work on probability and that, more specifically, it addressed the logical validity of the entailed "induction" in these statistical exercises.
12. That is Pearson (1910), an annotated copy of which is reserved in the Marshall Library. The fact that Marshall alerted Keynes to its existence is indicated in Keynes to Marshall, 13 September 1910, in which Keynes thanked Marshall for lending him his copy of Pearson's pamphlet.
13. Marshall to Keynes, 2 November 1910; Marshall's third letter to the *Times*, published 19 August 1910, invited the public to adjudicate between him and Pearson from their published correspondence, but suggested also that in this context they should study Keynes's detailed reply in the *Statistical Journal*. It indicated that he "had finished" his public participation. Mary Paley wrote Keynes (21 September 1910) not to interrupt Marshall's holiday by involving him further in the Pearson controversy.
14. There are several favourable references to eugenics in the *Principles* (for example, Marshall, 1920, p. 248, while pp. 201-3 comment harshly on the selfishness of some middle-class parents in not having children.) Marshall wrote Keynes (18 May 1911) congratulating him on the local Eugenics Society and promising to pay him a life composition membership fee as soon as possible. The fact that the Marshalls had no children is discussed at some length in my biography (Groenewegen, 1994, Chapter 8) without clear conclusions as to the reasons for this.

15. Keynes's reactions to Pigou's Marshall Memorial Lecture in October 1924 is given in a letter to Lydia (Hill and Keynes, 1989, p. 241) which indicate Keynes's strong dislike of its sentimental stress on "the feeblest side of Marshall" before saying "that it was what we ought to admire". Keynes's measured admiration for Marshall in the *Memoir* is discussed in the next paragraph.
16. Maynard Keynes was present at Marshall's funeral on 17 July, unlike his parents. Perhaps this was because their friendship with Marshall had started to fade from the late 1890s, as a result of Marshall's public stance on the women's degrees issue at Cambridge University in 1896-7, the death of Sidgwick in 1900 and the administrative hassles which the establishment of the Economics and Politics Tripos, and more particularly, Marshall's irritating committee behaviour, brought in its wake for John Neville Keynes in his official capacity. However, he and his wife may have been prevented from attending the funeral because of other pressing engagements that Thursday afternoon on behalf of the university or from the Cambridge civic duties in which Florence Keynes was by then increasingly involving herself.
17. On 4 and 5 September 1924, Florence and John Neville Keynes congratulated their son on the *Memoir*, the latter praising son Maynard for his magnificent coordination of "appreciation and criticism" and a completeness which, in his view, made a formal "life" redundant because there was nothing "really important" on the subject left to say. However, by 30 August Edgeworth had seen proofs (and had censored them to remove reference to father William Marshall's tendency to "slipper discipline"). On 6 September, Edgeworth, who had probably invited Keynes to write the obituary in the first place, complimented him on the result as "a great success, .... not a mere eulogium but a portraiture ..." (letters preserved in Keynes's Marshall File, King's College, Cambridge).

18. Sometimes too freely, by trying to improve the story with his own literary embellishments, as for example, in Keynes (1972, pp. 161-2, 164-5, 169) dealing with Alfred Marshall's father, William, his Uncle Charles and Marshall's alleged missionary pretensions. Details have to await my forthcoming Marshall biography but see also Coase, 1984; 1990, esp. pp. 20-4:
19. *Economic Journal* 34 (136) December 1924, pp. 627-37. Keynes's list benefited greatly from a list of Marshall's published writings made by Mary Paley Marshall (and preserved in the Marshall Library) and from the Marshall's scrapbook of newspapers cuttings, which included copies of most of Marshall's not inconsiderable number of letters to the press.
20. One such objective could have been looking through Marshall's books to select ones unwanted by Mary Paley for library purposes. These visits also indicate the close rapport between Mary Paley Marshall and Maynard Keynes, which lasted for the whole of her life and which was undoubtedly far closer than her relationship with Pigou, the official literary executor of Marshall's will.
21. Marshall to Moore, 5 June 1912, 15 December 1921 (Columbia University Libraries, Ms Coll. H.L. Moore, Rare Book and Manuscript Library).
22. This was partly achieved in Pigou's *Memorials*, some of whose contents reprinted major Marshall essays on social progress he had published over his lifetime. Examples are Pigou, 1925, reading 2 on the future of the working classes, item 5 on housing the London poor, which resembled the later garden city proposals, item 10 on co-operation and item 17, on the social possibilities of economic chivalry, Marshall's most outspoken platform for social policy and reform.

23. Marshall Library, Red Box 1 (5), 'Progress and Ideals', fragments dated early 1920s apart from the first which is dated 7 April 1903.
24. Marshall Library, Red Box 1 (5), 'Progress and Ideals', fragments titled 'Book III - The Future of Industry' dated 23 July 1920. Several of the sentiments expressed in these fragments parallel those given in 'Social Possibilities of Economic Chivalry' (Pigou, 1925, p. 323-46) which had first appeared in the *Economic Journal* in March 1907.
25. Thus Marshall pleaded specifically for inequality in work practices and distribution for artists and intellectual workers, in order to enable them to use their scarce talents to the full, and thereby to make an essential contribution to civilised life to the maximum extent possible, a position already hinted at in the *Principles* (Marshall, 1920, pp. 70 and n.2, 194-6 and n.1) the second of which also raises issues of race and climate in this context.
26. Alfred Marshall had himself speculated on this possibility in letters to Taussig (37 [sic!] March 1915) and Maynard Keynes (21 February 1915), both in Pigou, 1925, pp. 290 and 482 respectively.
27. "We are told sometimes that everyone who strenuously endeavours to promote the social amelioration of the people is a Socialist - at all events, if he believes that much of this work can be better performed by the State than by individual effort. In this sense nearly every economist of the present generation is a Socialist. In this sense I was a Socialist before I knew anything of economics; and, indeed, it was my desire to know what was practicable in social reform by State and other agencies which led me to read Adam Smith and Mill, Marx and Lassalle forty years ago. I have since then been steadily growing a more

- convinced socialist in this sense of the word ..." (Social Possibilities of Economic Chivalry', in Pigou, 1925, p. 334).
28. Marshall to Edward Caird, 22 October 1897, 5 December 1897 in Pigou 1925, pp. 398-401, for example, "Leisure is good, if it is well used. But the laborious laziness, which has come into many English government workshops, and some private ones, engenders a character to which leisure is useless" (ibid., p. 401).
  29. Marshall to Lord Reay, 12 November 1909, in Pigou, 1925, pp. 461-5, esp. p. 463.
  30. Vaisey's perceptive comments that Marshall set far less store on the market-clearing properties of a competitive system than Pigou did (Vaisey, 1976) is of relevance here. It should not be forgotten that Marshall's *Principles* (Book V, Chapter XIII) had explicitly criticised those who were drawing naive welfare implications from competitive equilibrium while Marshall was also very sceptical, particularly as compared with Pigou, about the ease with which government action could address the situation. Marshall's scattered comments on the subject of unemployment suggests also that he never entertained flexible wage solutions to this problem, except as a form of phantasy when exercising the mind in the realms of pure theory.
  31. Obviously placed second because of Keynes's conclusions in the *Tract on Monetary Reform*, which he had completed the year before and which stressed the positive and important role of the state in securing price stability. As indicated earlier, Marshall had stressed the importance of price stability for facilitating satisfactory business decisions, and urged a government role therein in providing suitable price indexes on an official basis.

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