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**Alfred Marshall and Walter T. Layton on the Cambridge School**

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# Alfred Marshall and Walter T. Layton on the Cambridge School

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## 1. Introduction

It is a widely acknowledged fact that Alfred Marshall (1842-1924) has considerably contributed to the establishment of the new Economics and Politics Tripos at Cambridge. In 1907, Walter Thomas Layton (1884–1966) was the first student who received his undergraduate degree with first class honour in the field of the new Tripos. After graduating, he taught Applied Economics on behalf of Marshall under the guidance of Professor A.C. Pigou (1877-1959) as a lecturer along with J.M. Keynes (1883-1946) from 1908 to 1914. During this period, he published two books, entitled *An Introduction to the Study of Prices* (1912) and *The Relations of Capital and Labour* (1914). In the former book, he discussed the subject of introducing a standard value for price stability and insisted on the 'index number of prices' and an 'optical tabular standard'.

He had studied Marshall's economic methodology and had also applied it to his statically works. Since Layton was the successor of Marshall's approach to applied economics at Cambridge, he contributed to it. Marshall had also discussed industrial and applied economics. However, applied economics based on the Marshallian tradition has not been sufficiently examined.<sup>1</sup>

In particular, this study investigates the following aspects: (1) a brief introduction to Layton at Cambridge and the new Economics Tripos, (2) Marshall's methodology and his idea of 'price fluctuation', (3) Layton's idea of 'price fluctuation' in his *An Introduction to the Study of Prices* and (4) the relationship between Marshall and Layton with regard to the Cambridge School.

Further, this paper intends to clarify Layton's contribution to the Cambridge

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<sup>1</sup> Groenewegen [2006] examined Layton's *The Relations of Capital and Labour* [1914]; however, he did not discuss Layton's *An Introduction to the Study of Prices*. Cristiano [2006] introduced Layton in *The Elgar Companion to Alfred Marshall*. Raffaelli [2002], [2003] describes the Marshallian School of Economics at Cambridge.

School by investigating the applied approach of Layton's Economics.

## 2. Walter T. Layton on the Cambridge School: Biographical Note<sup>2</sup>

Layton was born in Chelsea, London on 15 March 1884. His parents were professional musicians. He studied history and economics at the University College of London (UCL) from 1901 to 1904. During this time, Cambridge economists H. Foxwell and A.C. Pigou joined UCL in order to teach economics. C.P. Sanger (1871-1930), who was a student of Alfred Marshall at Cambridge and a lecturer at UCL, guided Layton in his study on statistics and also tutored him privately. As an assistant, Layton helped Sanger prepare a report on the state of British trade and industry; which had been asked to do so by Balfour. Following this, Sanger advised Layton to join Trinity College at Cambridge and to read for the new Economics Tripos. Subsequently, in October 1904, Layton went to Cambridge and attended Marshall's lectures for three years, from 1904 to 1907.<sup>3</sup>

'The attraction of Marshall's economics to Layton was that it provided the general framework of ideas which satisfied a young man's desire for some certainty, while being closely related to the real world'.<sup>4</sup> According to Cristiano [2006], Marshall's lectures reflected his current thoughts related to the book he was writing on industry and commerce, and 'industrial economics' immediately became Layton's subject of primary interest.<sup>5</sup>

Layton wrote an article entitled 'Argentina and Food Supply' for *the Economic Journal* in 1905.<sup>6</sup> He received a first class honours in both part I (1906) and part II (1907) of the new Economic Tripos. Subsequently, Layton succeeded in the Cobden Prize Essay<sup>7</sup>; however, he failed in his attempt to acquire a Trinity Fellowship in 1908. J. M. Keynes had also submitted the *Treatise on Probability* to receive a fellowship at

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<sup>2</sup> This biographical note is credited to Hubback [1985], Cristiano [2006], Groenewegen [2006], and Grayson [2004–2005] 'Walter Thomas Layton', *Oxford Dictionary of National Biography*.

<sup>3</sup> He attended 'Credit and Speculation' [1904], 'The Structure and Problem of Modern Industry' [1905] and some other lectures of Marshall during these three years (Hubback [1985] p.19).

<sup>4</sup> Hubback [1985] p.18.

<sup>5</sup> Cristiano [2006] p.602.

<sup>6</sup> *The Economic Journal*, Vol.15, No. 58, pp.197–204, July 1905. Layton wrote the 'Report of the Royal Commission on Supply and Food and Raw Material in the Time of War, 1905'. (*The Economic Journal*, Vol.15, No.60, Dec. 1905, pp.609–616).

<sup>7</sup> The title of Cobden Prize Essay, which Layton had got, was 'Change in the relative wages of miners, textile workers, agricultural labourers etc., Domestic servants, and the extent which these changes are due to variations in the quality of the work and faculties required in the several groups'.

Kings College, albeit he did not succeed. In 1908, Layton began to attend Workers' Educational Association tutorial classes, and he met with F.W. Hirst (1873-1958), the editor of *The Economist*. At least once a week, Layton would go to *The Economist* to help Hirst as an assistant editor. This was the beginning of an association with *The Economist* that would last until his death.

In 1909, Marshall retired from the chair of Professor of Political Economy. Pigou succeeded him and prepared to appoint Layton and J.M. Keynes as lecturers from his pocket money. That same year, Layton was also elected Fellow of Gonville and Caius College at Cambridge and was appointed as the Newmarch Lecturer (1909–1912) in Economics at UCL. In 1911, Layton became a Lecturer in Economics at Cambridge.

Marshall's economics dealt with the theoretical and practical fields. He appointed staff to conduct theoretical and applied research, complete an economics program at Cambridge<sup>8</sup>. Keynes' lecture was entitled 'Money, Credit, and Price' and Layton's was entitled 'Structure & Problem in Modern Industry'.<sup>9</sup>

Layton continued lecturing on Marshall's subject of the 'Problem of Industry and Labour' after the latter resigned. Later, Marshall wrote to Layton: 'When I resigned my Professorship, I should have felt very anxious as to the provision of lectures on "Structure & Problem on Modern Industry", if you had not been at hand. Under your care the subject flourished; because your heart was in the matter; and now your head holds more of it, probably than does that of any other economist'.<sup>10</sup> Layton's lecture was long remembered due to its admirable grasp of actualities.<sup>11</sup>

Layton published *An Introduction to the Study of Prices* (1912), and *The Relations of Capital and Labour* (1914). The former was appreciated by L.L. Price (1862-1950) in *The Economic Journal*<sup>12</sup>; it gave him the reputation of being an expert on statistics. Subsequently, the issue of prices became an important topic, and several editions of the book were published. According to Hubback [1985], 'up to 1914 Layton

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<sup>8</sup> Lectures and Staff [1907–1908] Prof. Marshall (Applied Economics), Oldham (Economic Geography), Foxwell (Nineteenth Century Economic History, History of Currency and Banking), Jonson (Diagrammatic Treatment of Pure Economic Theory), Green (Elementary of Political Economy), Pigou (Economics), Macgregor (Competition and Association), Benians (Economic and General History of the English Colonies and Dependencies), Wood (Economics), Fay (English Economic History during the Nineteenth Century) and Hamilton (Poverty)

<sup>9</sup> *Cambridge University Reporter*, No.1709, 19 June 1908.

<sup>10</sup> Marshall to Layton, 13 January 1919, Whitaker [1996], III, p.362.

<sup>11</sup> Harrod [1951] p.145

<sup>12</sup> L.L. Price 'Book Review: *An Introduction to the Study of Prices, with Special Reference to the History of the Nineteenth Century*', *The Economic Journal*, Vol.22, No.86, (June, 1912), pp.270–274.

was establishing himself as a good applied economist with a deepening knowledge of British industry and a gift for making effective use of statistics'.<sup>13</sup>

By the time the First World War broke out in 1914, Layton had joined the civil service. He worked at the local government board under Seebohm Rowntree (1871-1954) and was required to direct the Board of Trade by William H. Beveridge (1879-1963).<sup>14</sup> Later, in 1915, Layton transferred to the Ministry of Munitions, 'he was to become one of the main people on whom Lloyd George (1863-1945), Winston Churchill (1874-1965) and other munitions ministers relied'.<sup>15</sup> Moreover, Layton was also a member of the Balfour Mission and the Milner Mission during the War. In 1919, he attended the negotiations of the military and economic clauses of the Treaty of Versailles.

According to Hubback [1985], 'Keynes had always thought that Layton should return to Cambridge, as he was the only one in the front rank of younger economists who had first-hand knowledge of industry and labour questions'.<sup>16</sup> Marshall also wrote a letter to Layton, stating that if Layton would come back to Cambridge and teach the later generations, he might 'do more towards fashioning the life of Britain in the second and third quarters of this century than anybody else'.<sup>17</sup> It is more likely that he planned to establish an additional Professorship of Applied Economics at Cambridge;<sup>18</sup> however, this plan did not materialize.

In 1919, Layton became the Director of the Iron and Steel Federation. In 1921, he left this post in order to assume the editorship, and later the ownership (1928), of *The Economist*. At the same time, he had been seconded for a year to the directorship of the financial sector of the League of Nations. Layton continued as the editor of *The Economist* until 1938 and also served as the Chairman of the *News Chronicle* from 1930 to 1950. Further, he actively participated in public affairs during the Second World War. A Liberal throughout his life, Layton contributed to *the 1928 Yellow Book*, served under Keynes on the Finance and Industry Sub-Committee and ended his political career as the leader of the Liberals in the House of Lords from 1952 to 1955.

After Marshall had retired, none of the members of the group comprising D.H. Robertson (1890–1963), F. Lavington (1881–1927), D.H. Macgregor (1877–1953), P.S. Florence (1890–1982) and C.W. Guillebaud (1890–1971) immediately came forward to

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<sup>13</sup> Hubback [1985] p.34.

<sup>14</sup> Hubback [1985] p.35.

<sup>15</sup> Hubback [1985] p.35.

<sup>16</sup> Hubback [1985] p.51.

<sup>17</sup> Marshall to Layton, 13 January 1919, Whitaker [1996], III, p.362.

<sup>18</sup> Layton Paper, Box 2 No.39–No.48.

support the Cambridge School of Economics. We also need to consider the instructors who were teaching economics to this group. After Marshall resigned from his post as Professor, not only Pigou and Keynes but also Layton instructed and influenced this group. Layton was the pioneer of the Marshallian School of Economics.

Marshall emphasized and reiterated the importance of ‘theory’ and ‘reality’ for studying economics in the ‘Present Position of Economics’ (1885). For Marshall, ‘reality’ was an important factor in his approach. However, according to Collard [1990], ‘if one uses the *Economic Journal* as a guide there is no lack of “facts” in the work of the Cambridge School but the facts are, as it were, low level facts’. Again Collard [1990] appreciated Layton’s study of reality; that is the reason why the loss of Layton was considered to be so unfortunate.<sup>19</sup> Layton was a Cambridge economist who attacked ‘facts’ related to economic issue in all earnestness.

### 3. Marshall’s Methodology and Price Fluctuation

#### 3-1. Methodology

According to *Cambridge University Reporter*, Marshall’s lecture did not deal with his economic theory but with applied and industrial economics.

Every student, who had attended his lecture, had stated ‘it was commonly said amongst the undergraduates that he took his text out of that morning’s *Times* and talked about anything that had struck him in the day’s news. However, it would be nearer the mark to say that he gave us the benefit of his current thinking on the book that he was writing at the time on industry and commerce’.<sup>20</sup> Pigou confessed ‘when he first read Marshall’s *Principles* many years ago, he thought how very much better he could have written it himself!’<sup>21</sup> Marshall refused these proposals and required of him a detailed factual study of ‘Industrial Disputes’—their causes and consequence. Before long, Pigou was very grateful for this decision. It lent a realistic character to his economic thinking and the effects of this were seen for many years afterwards.<sup>22</sup> When coaching his disciples, Marshall requested his students to not reconstruct his theory but, instead, to investigate the underlying economic issue that he was referring to. Layton’s research topic was the study of price through statistics.

During the early stages of his study, it was said that Marshall had formulated Ricardo’s and Mill’s economic theories; therefore, it appears that the methodology he employed might have been deductive. However, throughout his study life from his

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<sup>19</sup> Collard [1990] p.167.

<sup>20</sup> Groenewegen [1995] p.314.

<sup>21</sup> Pigou [1925] p.86.

<sup>22</sup> Clark [1952] p.778.

days as a young scholar to the time of his retirement, Marshall had an interest to research factories and the industry in the UK and USA and collected and analysed data, statistics and facts. Subsequently, his efforts have proved beneficial for us since he enriched these study fields and took into account key issues in his economics. In *the Principles of Economics*, Marshall stated, with regard to his economic methodology, as follows:

It is the business of economics, as of almost every other science, to collect facts, to arrange and interpret them, and to draw inferences from them. 'Observation and description, definition and classification are the preparatory activities. But what we desire to reach thereby is a knowledge of the interdependence of economic phenomena... Induction and deduction are both needed for scientific thought as the right and left foot are both needed for walking'. The methods required for this twofold work are not peculiar to economics; they are the common property of all sciences.<sup>23</sup>

Marshall believed that his version of economics was also needed for collecting, classifying and analysing real data, and therefore, both induction and deduction were important in his economic methodology. Further, Marshall believed that 'the study of theory must go hand in hand with that of facts; and for dealing with most modern problem, it is modern facts that are of greatest use'. For Marshall, 'economics has them as its purpose firstly to acquire knowledge for its own sake, and secondly to throw light on practical issues'.<sup>24</sup>

Marshall also discussed the statically method as follows.

A dominant statistical fact is likely to have but a narrow scope; for otherwise, it could not be definite. Being definite, it is open to criticism and correction, and therein lies its main strength. Statistical statements, that have stood this test, have a greater certainty *within their limits* than is likely to belong to the decision even of a capable judge of the matter.<sup>25</sup>

In other words, the importance of statistics would gain increasing emphasis in accordance with economic development. Marshall read a paper at the International Statistical Congress in 1885, which was entitled the 'Graphic Method of Statistics'. This was subsequently published in the Jubilee volume of *The Journal of the Royal Statistical Society*. According to J.M. Keynes, the important novelties in this paper were the definition of the 'elasticity of demand' and some proposals for 'the

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<sup>23</sup> Marshall [1961] p.29.

<sup>24</sup> Marshall [1961] p.39.

<sup>25</sup> Marshall [1923] p.273.

construction of historical curves'.<sup>26</sup>

Marshall stated the following:

The graphical method of statistics, though inferior to the numerical in accuracy of representation, has the advantage of enabling the eye to take in at once a long series of facts.... In accuracy the graphic method is inferior to the numerical. But ease and rapidity are essential when we want to compare many sets of facts together; because, if the mind is delayed long in taking in the general effect of one set, it meanwhile loses full count of others: a chief function of the graphic method is to facilitate the comparison of different sets of statistics.<sup>27</sup>

Marshall pointed out that the graphical method of statistics facilitates the identification of the essence of the facts, an easy comparison of the facts and a ready comparison of statistics. He indicated the necessity and importance of the statistics method. At the same time, he took a sceptical view of using the statically method, and then, he showed his disciple the limitations of the statically method.<sup>28</sup> In the letter from Marshall to Bowley, who was the first statistics professor at the London School of Economics (LSE), Marshall wrote 'the statistical side must never be separated even for an instant from the non-statistical'.<sup>29</sup> Again, Marshall advised Pigou against an excessive reliance on mathematical instruments as they might lead economists astray in the pursuit of intellectual toys, and 'the need of accompanying sets of curves with written notes of non-statistical events'.<sup>30</sup>

Marshall mentioned that English history could be explained and verified with the statistical method as follows:

For instance, if the history of the English iron trade is being investigated, after looking at the page containing the curves specially relating to it, one can turn in the first instance to those showing the history for England of the money market, of the purchasing power of money, of coal, of railways, of ship building, of foreign trade, of the price of corn and other necessaries, and so on. And lastly, one would look at the pages giving the history of the iron trades of other countries. Not only would these last pages supply important causes for English history that might have otherwise been overlooked, but they would help us to test our explanations of English history by applying them to parallel events

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<sup>26</sup> Pigou [1925] p.501.

<sup>27</sup> Pigou [1925] p.175.

<sup>28</sup> From Marshall to Bowley, 21 February 1901, in Whitaker [1996] II pp.300–302.

<sup>29</sup> From Marshall to Bowley, 7 October 1906 in Whitaker [1996] III p.145.

<sup>30</sup> Pigou [1925] p.84.

in foreign history.<sup>31</sup>

However, Marshall pointed out that extensive use has already been made of method where a group of curves are arranged 'on the same sheet of paper a group of curves, each of which tells one of the constituent parts of, a piece of history'.<sup>32</sup> His proposal was to extend this plan and apply it not only to one sheet of paper but to a great many pages, which may be bound into one large book.<sup>33</sup> Marshall's idea, which he had been contemplating for years, was equivalent to Layton's *An Introduction to the Study of Prices*. As mentioned earlier, Marshall attached great importance to not only deduction but also induction in his methodology; therefore, he collected classified and analysed real data. Consequently, the statically analysis method was an important tool for him in studying economics.

### 3-2. Marshall's Price Fluctuation

Keynes described Marshall's price study and monetary theory as follows:

We must regret still more Marshall's postponement of the publication of his *Theory of Money* until extreme old age, when time had deprived his ideas of freshness and his exposition of sting and strength. There is no part of Economics where Marshall's originality and priority of thought are more marked than here, or where his superiority of insight and knowledge over his contemporaries.<sup>34</sup>

The contents of Marshall's ideas were promulgated among pupils in a general manner, that is, in an oral tradition, first, through his lectures and second through Professor Pigou, after Marshall's retirement. This was, until recently, superior to anything that could be found in printed books.<sup>35</sup> Keynes pointed out that his first serious contribution to the subject was contained in his responses to a questionnaire printed by the Royal Commission on the Depression of Trade and Industry in 1886 and his article on 'Remedies for Fluctuations of General Prices' in the *Contemporary Review* for March 1887, as well as in the voluminous evidence presented by him before the Gold and Silver Commission in 1887 and 1888.<sup>36</sup> However, Keynes pointed out that Marshall's theories 'were not expounded in a systematic form until the appearance of *Money Credit and Commerce* in 1923'. In addition, D.E.W. Laidler [1990]

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<sup>31</sup> Pigou [1925] p.178.

<sup>32</sup> Pigou [1925] p.176.

<sup>33</sup> Pigou [1925] p.177.

<sup>34</sup> Pigou [1925] p.27.

<sup>35</sup> Pigou [1925] p.27.

<sup>36</sup> Pigou [1925] p.28.

mentioned that Marshall's *Money Credit and Commerce* is 'of little historical significance, the idea it contains, considered as the product of the 1870s and 1880s, certainly are; and they had been disseminated much earlier, albeit unsystematically, in lectures and occasional articles, evidence to committees of enquiry and royal commissions, not to mention passages in the *Economics of Industry* and the *Principles* itself'.<sup>37</sup>

Keynes indicated the following seven aspects in which Marshall contributed to the monetary theory: (1) the exposition of the quantity of money as a part of the general theory of value; (2) the distinction between the real rate of interest and the money rate of interest and the part played by the rate of discount; (3) the causal manner in which an additional supply of money influences prices in modern credit systems, and the part played by the rate of discount; (4) the enunciation of the purchasing power parity theory for determining the rate of exchange between countries with mutually inconvertible currencies; (5) the chain method of compiling index numbers; (6) the proposal of paper currency for circulation based on gold-and-silver symmetallism as the standard and (7) the proposal of an official tabular standard for optional use in the case of long contracts.<sup>38</sup> Marshall contributed primarily to the first three aspects that were the core of the monetary theory at the Cambridge School. With regard to the last four aspects, Layton might have adapted Marshall's contributions, the index number and stabilization of the value of money.

According to Keynes, Marshall's paper entitled 'Remedies for Fluctuations of General Prices' was the most important of his occasional writings. Marshall regarded the fluctuation of prices as an evil; therefore, it was necessary to have a scheme for addressing the causes as part of the remedy.

In this section, we will carefully consider Marshall's notions regarding the fluctuation of prices. Initially, Marshall insisted that a period of rising prices was more beneficial to the labour classes than a period of falling prices; however, he later changed his opinion regarding this matter. Marshall supported a rise in prices as part of the 'Royal Commission on the Depression of Trade and Industry' in 1886; however, he changed his opinion and supported a fall in prices, insisting on the stability of prices, in his pamphlet 'Remedies for Fluctuations of General Prices' (1887). Further, he even confessed to having changed his opinion.<sup>39</sup> However, at the Royal Commission,

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<sup>37</sup> Laidler [1990] pp.44–45 in Whitaker [1990]

<sup>38</sup> Pigou [1925] pp.29–32.

<sup>39</sup> '...the memory of that passed away, and I will confess that, for ten or fifteen years after I began to study political economy, I held the common doctrine, that a rise of prices was generally beneficial to business men directly and indirectly to the working

Marshall' insistence provided an important idea about prices; this was because at this commission, he offered his opinion of a 'price index' and a 'tabular standard'. Eshag [1963] has provided a detailed description of how Marshall changed his opinion with regard to prices.<sup>40</sup> However, we must also consider the distribution of income among classes. Marshall's opinion with regard to prices was his last contribution; following this, he was succeeded by Layton. This issue will be considered later.

With reference to the standard of life, Marshall discussed the fluctuation of prices as follows:

...people of all classes, and especially of the working classes, spend their income more wisely when prices and money-wages are falling, and they think themselves worse off than they are, than when a rise of prices and money-wages leads them to exaggerate their real incomes and to be careless about their expenditure.<sup>41</sup>

Subsequently, Marshall argued the need for developing a standard for price fluctuations and put forth ideas such as a 'price index' and a 'tabular standard'. With regard to the price index, he mentioned that 'we want to use our unit for measuring payments of material wealth'. Further, Marshall stated that 'what we can get is not nearly so good for its purpose as an ordinary yard measure is for its purpose, yet it is a great advance on using as our standard the value of gold or even the mean between the values of gold and silver'.<sup>42</sup>

Moreover, he described the price index and the price list in the following manner:

The purpose of an 'index number' is to use authoritative lists of wholesale prices of certain leading commodities as representative of all prices; and the advantage of their changes... The purpose of the list being to show the percentage changes from year to year in the selected prices, a particular year, say, 1850, is chosen as the basis, it is called the 'basal year'. The price in that year of each commodity (or group of commodities) to be considered is set at 100; the price of the commodity in each subsequent year; and this percentage is entered in the price-list again that year.<sup>43</sup>

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classes. But, after that time, I changed my views, and I have been confirmed in my new opinions by finding that they are largely held in America, which has recently passed through experience somewhat similar to those of England early in the century'. Marshall [1899] in Keynes [1926] p.286.

<sup>40</sup> Eshag [1963]

<sup>41</sup> Marshall [1886] in Keynes [1926] p.9.

<sup>42</sup> Pigou [1925] p.211.

<sup>43</sup> Marshall [1923] pp.25–26.

Marshall merely presented his idea of a ‘price index’; however, he did not actually draw up a ‘list of price indexes’. Layton had inherited this idea from Marshall; he experimented with Marshall’s idea and included the list in his *An Introduction to the Study of Prices*.

With regard to the history of statistics, W.S. Jevons (1835–1882) is known as ‘the father of price index’; he was recognized as the individual who pioneered the making of a price index. In *The Depreciation of Gold* (1869), Jevons insisted that employing a geometric mean was a suitable method in calculating the price index. However, Marshall criticised Jevons’ method of employing a geometric mean and, instead, insisted that an arithmetic mean be used. In this regard, Marshall stated the following:

Jevons proposed to take the mean of the logarithms of the changes; but I venture to regard this as due to his overlooking dangers connected with the geometric mean which, though less obvious, are more fatal in extreme cases than those of the arithmetic mean—the one flaw in his unrivalled contributions to the theory of money and prices. The weights of the commodities would be estimated not oftener than once a year, even if, as is very likely, it should be found best to alter the unit itself once a month.<sup>44</sup>

As we shall later observe in detail, Layton also criticises the use of a geometric mean for determining the price index and supports an arithmetic mean similar to Marshall. Marshall believed that the negative effects of the fluctuation of prices were so considerable that it was worth the effort to do as much as possible in order to stabilize them.<sup>45</sup> Therefore, he felt the need to introduce a standard for price fluctuations. This standard and price index were inherited by Layton from Marshall.

#### 4. Layton’s Price Fluctuation in *An Introduction to the Study of Prices*

Layton gave Newmarch Memorial Lectures on statistics at UCL for three years from 1909 onwards. He published *An Introduction to the Study of Prices* in 1912, which contained the contents of his lecture notes. According to Collard [1990], ‘unlike anything else being done at Cambridge, the book contained a vast apparatus of economic statistics carefully analysed’.<sup>46</sup> As mentioned earlier, Layton’s book and his work have been recognised as being extremely significant by L.L. Price. In *The Economic Journal*, Price wrote that while Layton’s result has not been well received by

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<sup>44</sup> Pigou [1925] p.208n.

<sup>45</sup> Marshall [1961] p.595.

<sup>46</sup> Collard [1990] p.176.

professionals, it remains 'a useful permanent contribution to economic literature'.<sup>47</sup> Further, Price indicated that Layton's book was 'the most crucial of present popular economic questions, and it must always occupy a prominent place in the scientific discussions of professional economists'.<sup>48</sup> This book was accurately revised and additional chapters and supplementary statistics were incorporated; its third edition, which was its last, was published in 1938.<sup>49</sup>

In this book, Layton insisted that the community as a whole benefits more from falling rather than rising prices. He was in agreement with Marshall's idea and advocated a fall in prices; moreover, he came into conflict with higher authorities such as Jevons.<sup>50</sup> In this regard, Price states the following:

The contrary conclusion was reached both by Jevons and by Newmarch respecting the results of the great Australian and Californian discoveries of gold in the middle of the nineteenth century; and earlier historians, whose armoury of scientific economic knowledge was doubtless markedly deficient in comparison with these later trained and informed investigators, had passed a similar verdict on the balance of advantages and disadvantages attending the much greater disturbance caused by the influx of American silver into Europe in the sixteenth century.<sup>51</sup>

In the introductory chapter, Layton insisted that fluctuations were not sufficiently significant 'to arouse any general concern' but 'income-receivers are likely to be affected by rising or falling prices'.<sup>52</sup> Further, he discussed that 'much of the recent labour unrest in all countries is, by general agreement, attributed to the increasing cost of living'.<sup>53</sup> In addition, he mentioned that 'while it is easy to trace a connection between the failure of wheat and a rise in the price of wheat, it is by no means easy to grasp the meaning of a general rise of prices, or to understand the connection between currency and the value of commodities'.<sup>54</sup>

In *An Introduction to the Study of Prices*, Layton dealt with chapters two and four from a theoretical viewpoint and the remaining chapters from a historical

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<sup>47</sup> Price [1912] p.271.

<sup>48</sup> Price [1912] p.274.

<sup>49</sup> First edition [1912], Reprinted edition [1914], additional chapter and statistics [1920], Reprinted edition [1922], Second edition [1935] with Geoffrey Growther and Third edition [1938]

<sup>50</sup> Price [1912] p.272.

<sup>51</sup> Price [1912] pp.272–273.

<sup>52</sup> Layton [1912] p.1, p.3.

<sup>53</sup> Layton [1912] p.3.

<sup>54</sup> Layton [1912] pp.2–3.

viewpoint. He analysed in detail whether the community as a whole benefits more from falling or from rising prices. Layton considered how these economic situations could cause social problems for the people, and he would advance the analysis for settlement of a price change. As part of the concluding chapter, Layton pointed out that ‘throughout the discussion (of this book) no attempt has been made to estimate the absolute improvement or deterioration in the condition of the working classes’.<sup>55</sup>

According to Layton, ‘the material prosperity of a country is not determined by the number of sovereigns which make up the total of its national income; material welfare depends rather upon the quantity of food and clothing, housing accommodation, facilities for travel, means of recreation, and social intercourse which the work and enterprise of a community is able to produce, and on the equitable distribution of such means of enjoyment’.<sup>56</sup>

Hence, Layton believed that a change in general prices affects the material prosperity of particular classes. According to Layton, the working classes had not been in a satisfactory condition since 1860. Consequently, he made an effort to explain this situation by employing a table that depicted the living conditions of all classes. He analysed income-receivers according to the effect produced by a rise in prices. Subsequently, he classified them based on three conditions: (1) classes that benefit from a rise in prices, (2) classes which remain unaffected by a rise in prices and (3) classes that are negatively affected by a rise in prices. Layton further categorised them into the following three classes: (1) receivers of rents, profits and interest; (2) salaried and professional classes and (3) wages-earners. He analysed these classes and prepared a cross-table to help explain each condition.

From chapters five to eight of *An Introduction to the Study of Prices*, Layton classified the periods of falling and rising prices from 1820 to 1910 and analysed in detail how price fluctuations would influence certain types of classes.

Thus, based on Layton’s analysis, we can infer that a fall in prices was beneficial to the working class, whereas a rise benefited employers. A comparison between Marshall’s paper ‘Remedies for Fluctuations of General Prices’ and Layton’s book would lead to the same conclusion, which is that falling prices benefited the working class. However, Layton did not accept Marshall’s idea of price fluctuation in entirety.

Layton described the labour class’ condition with regard to falling and rising prices as follows:

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<sup>55</sup> Layton [1912] p.104.

<sup>56</sup> Layton [1912] p.5.

...while there is no reason to desire an advance in price on the ground that it stimulates production, it is evident that all classes of the community are concerned in the effect of fluctuating prices on the distribution of wealth. Distribution is, as we have seen, affected by other things than the price level, and therefore times of rising prices have not always been bad, and times of falling prices always good, for the working-classes.<sup>57</sup>

For Layton, what was important was not the change in the prices but the effect of the distribution of wealth. In terms of rising prices between 1849 and 1874, Layton showed, by using statistical figures, that the working class was not always at a disadvantage.<sup>58</sup> Moreover, Layton explained that the condition of the working class improved more rapidly than ever before. Further, he described that ‘it cannot therefore be said that a period of rising prices is necessarily always bad for employees, for when it is accompanied by great increase in the productive power of industry, there will sooner or later be a diffusion of these benefits among all ranks of society’.<sup>59</sup>

With regard to the period of falling prices between 1874 and 1896, it appeared that the living conditions of the working class improved, because ‘the greater part of the benefit to wage-receivers was due to the fall in prices rather than to the rise of money wages’.<sup>60</sup> In this period, Layton described that the consumption of meat, tea, sugar and cigarettes had spiralled due to the fall in prices; the working class was able to afford luxury items in addition to items essential for daily living, such as food. Further, he explained that the trade union movement spread like a wave through the lower-paid grades of the working class, and unions sprang up within many casual, scattered and unskilled occupations.<sup>61</sup> During the period of rising prices between 1896 and 1910, one of the causes of the rising prices was an appreciation of the raw materials market, which was reinforced by the demand from Germany and the USA. However, the wages of the working class did not increase alongside the rising prices; therefore, their standard of living deteriorated.<sup>62</sup>

Thus, we can observe how Layton described the relationship between the condition of the working class and price fluctuations by using statistics. His concern was whether or not price changes expedite the improvement of the condition of the working class. He clarified that price fluctuations have a positive influence on the

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<sup>57</sup> Layton [1912] p.102.

<sup>58</sup> Layton [1912] Chapter 6.

<sup>59</sup> Layton [1912] p.58.

<sup>60</sup> Layton [1912] p.76.

<sup>61</sup> Layton [1912] p.77.

<sup>62</sup> Layton [1912] Chapter 8.

distribution of national income.

Layton introduced a 'price index number' that fixed 1900 as the standard year. Further, he created a graph for the price index number. According to him, 'it is evident that a reliable and authoritative consumer's index number would be a great national asset'.<sup>63</sup> Therefore, he insisted that these index numbers be recalculated and publicised at regular intervals. Subsequently, he did not accept the geometric mean that Jevons insisted on but, instead, supported the arithmetic mean put forward by Marshall for determining the price index. He explained that an arithmetic mean was simple and easy to use to explain price changes and that 'two index numbers show exactly similar changes in direction, the extent of movements being about the same in most cases'.<sup>64</sup>

Layton suggested the following remedy for price fluctuations: 'without attempting in any way to interfere with gold, machinery may be devised for adjusting incomes to price movements more readily than at present'.<sup>65</sup> He insisted that 'the adoption of the tabular standard means, that in a case of this kind it would be assumed that gold had depreciated and other commodities had appreciated in value'.<sup>66</sup> Subsequently, he explained the tabular standard means as follows:

If average prices, as shown by a comprehensive index number, rise by 50 per cent at a given time, so that at the end of the period £150 are required to purchase goods that might have been brought for £100 at the beginning of the period, we say that prices have risen. But it would be equally correct to say that the value of commodities in general having remained the same, gold had depreciated to two-thirds of its former value.... The suggestion, however, though theoretically desirable, is an impracticable one on account of the difficulty of obtaining a general understanding of a complex standard, and because of the frequent recalculations that would be necessary whenever the responsible official authority announced a change in the value of sovereign.<sup>67</sup>

Layton was mainly concerned with how society progressed, for example, an improvement in the fields of production, science, education, transport, company systems, and distribution of national income, during the period of rising and falling prices. The progress of society was also an important factor of 'organic growth' in Marshall's economics. This period witnessed rapid advancements being made to improve the conditions of the working class. Layton mentioned that this idea should

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<sup>63</sup> Layton [1912] p.108.

<sup>64</sup> Layton [1912] pp.115–118.

<sup>65</sup> Layton [1912] p.106.

<sup>66</sup> Layton [1912] p.107.

<sup>67</sup> Layton [1912] p.107.

be credited to Alfred Marshall.<sup>68</sup> Marshall also demanded that Layton study the relationship between wages of the working class and its condition.<sup>69</sup>

Lastly, as part of the appendix, Layton presented the statistics illustrating the progress of the working class and concluded that ‘there has been a rise in the standard of living among the working class. Further, he stated that while money may be spent on expensive commodities, there is no doubt that the consumption of tea, sugar, currants, rice, tobacco and beer is mainly influenced by the prosperity or the lack of it of the working classes.’<sup>70</sup>

Based on the above-mentioned, it can be concluded that Layton’s *An Introduction to the Study of Prices* was the study of the history of prices in order to improve the condition of the working class by a statically method. In other words, Layton demonstrated that the condition of the working classes can be understood by using statistics. Therefore, like Collard [1990], we could not appreciate his work which was ‘unlike anything else being done at Cambridge’<sup>71</sup>; however, his book was based on Marshall’s idea of applied economics used for explaining the real world.

#### 4. Conclusion

It appears that Layton’s *An Introduction to the Study of Prices*, which used statistics in its analysis, is different from the other type of work found at the Cambridge School. However, it was published before Keynes’ *Indian Currency and Finance* (1913). We can infer that it followed Marshall’s economic methodology and that it was a work of applied economics which Marshall could not successfully embody. His successor, like Lavington who was one of Marshall’s disciplines, would often say ‘All in Marshall’, the key to solving economic questions was through Marshall’s published works, lectures and oral tradition.

Layton studied the inductive method from Marshall; therefore, he collected and analysed data, statistics and facts. He did not contribute to the formulation of a new theory nor create a new tool for analysis; instead, he analysed statistics that became essential to economics. Layton’s main concern was facts and figures, and he applied rather than developed Marshall’s economics. In other words, in *An Introduction to the Study of Prices*, Layton expressed his ideas by using statistics and historical data on the basis of ‘Remedies for Fluctuations of General Prices’ and Marshall’s statement on the Royal Commission. Layton also dealt with the improvement of the condition of the

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<sup>68</sup> Layton [1912] p.106.

<sup>69</sup> From Marshall to Layton, 13 January 1901, in Whitaker [1996] III p.362.

<sup>70</sup> Layton [1912] p.151.

<sup>71</sup> Collard [1990] p.176.

working classes and its development, which were essentially Marshall's ideas. He was also the pioneer of the Marshallian School of Economics. After the publication of Layton's book, the study of price became an important economic issue.

We may, therefore, reasonably conclude that the status of Layton at the Cambridge School was that of the first class honour student to have read the Economic Tripos and subsequently contribute to applied economics as an economist.

### References

- Baba, K. 1961. Marshall, Keisou-shobo in Japanese.
- Becattini, G. 2006. 'The Marshallian school of economics', *The Elgar Companion to Alfred Marshall* by edited Tiziano Raffaelli, Giacomo Becattini, Marco Dardi, Edward Elgar.
- Clark, C. 1952. 'On Pigou', in H.W. Spiegel(ed.), *The Development of Economic Thought*, John Wiley & Sons, 1952: 779-94.
- Collini, S., Winch, D., Burrow, J. 1983. *That Nobel Science of Politics: A Study in nineteenth century intellectual history*, Cambridge University Press.
- Collard, D. A. 1990. 'Cambridge after Marshall', J.K. Whitaker edited *Centenary Essays on Alfred Marshall*, Cambridge University Press.
- Cristano, C. 'Walter Thomas Layton', *The Elgar Companion to Alfred Marshall* by edited T. Raffaelli, G. Becattini, M. Dardi, Edward Elgar.
- Edwards, R.D. 1995. *The Pursuit of Reason: The Economist 1843-1993*, Harvard Business School Press.
- Eshag, E. 1963. *From Marshall To Keynes: An Essay on the Monetary Theory of the Cambridge School*, Blackwell.
- Groenewegen, P.D. 1990. 'Teaching Economics at Cambridge at the turn of the century: Alfred Marshall as lecture in Political Economy', *Scottish Journal of Political Economy*, Vol.37, No.1.
- Groenewegen, P.D. 1995. *A Soaring Eagle: Alfred Marshall 1842-1924*, Edward Elgar.
- Habback, D. 1985. *No Ordinary Press Baron: A life of Walter Layton*, Weidenfeld and Nicolson.
- Harrod, R.F. 1951. *The Life of John Maynard Keynes*, Macmillan.
- Ito, H. 2005. 'Marshall and Price Level', *Rikkyo Economic Review*, Vol. 59, No1, in Japanese.
- Keynes, J.M. 1972. *The Collected Writings of John Maynard Keynes, Vol.X, Essays in*

*Biography*, The Macmillan Press Ltd.

- Laidler, D.E.W. 1990. 'Alfred Marshall and the Development of Monetary Economics', J.K. Whitaker edited *Centenary Essays on Alfred Marshall*, Cambridge University Press.
- Layton, W. 1905. 'Argentina and Food Supply', *Economic Journal*, Vol.15, No.58.
- Layton, W. 1912. *An introduction to the Study of Prices, with special reference to the History of the Nineteenth Century*, Macmillan.
- Layton, W. 1914. *The Relations of Capital and Labour*, Collins Clear-Type Press.
- Layton, W. 1931. *The Economic Situation of Great Britain*, London General Press.
- Marshall, A. 1885. 'On the Graphic Method of Statistics', *Jubille Volume of the Statistical Society*.
- Marshall, A. 1886. 'Answers to Questions on the Subject of Currency and Prices, circulated by the Royal Commission on the Depression of Trade and Industry', Third Report, Appendix C, pp.31-34, O. 22035,-App.2, *Official Papers by Alfred Marshall*, edited by Keynes, J.M., pp.3-16, Macmillan.
- Marshall, A. 1885. 'On the Graphic Method of Statistics', *Jubille Volume of the Statistical Society*.
- Marshall, A. 1886. 'Answers to Questions on the Subject of Currency and Prices, circulated by the Royal Commission on the Depression of Trade and Industry', Third Report, Appendix C, pp.31-34, O. 22035,-App.2, *Official Papers by Alfred Marshall*, edited by Keynes, J.M., pp.3-16, Macmillan.
- Marshall, A. 1887. 'Remedies for Fluctuations of General Prices', *Contemporary Review*, Vol.51., *Memorials of Alfred Marshall*, edited by Pigou, A.C., 1925, Macmillan.
- Nishizawa 2007. *Economic Thought on Marshall and Historical School*, Iwanami shoten, in Japanese.
- Nishizawa, T. 2004. 'The Economics Tripos and Marshallian School in the Making Future of Economics 100 Years Ago—', *The Economic Review (Hitotubashi University)*, Vol.55, No.4, October.
- Price, L.L. 1912. 'Review: *An introduction to the Study of Prices, with special reference to the History of the Nineteenth Century*', *The Economic Journal*, Vol.22, No.86.
- Raffaelli, T. 2003a. *Marshall's Evolutionary Economics*, Routledge.
- Raffaelli, T. 2003b. 'Layton on Cambridge economics: in defence of the Tripos', *Marshall studies Bulletin*, Vol.8.
- Raffaelli, T. 2003c. 'The (provisional) Demise of Marshall's Concept of Industry and of his Theory of Value', *The History of Economic Thought*, Vol.44.

- Raffaelli, T. 2004. 'Whatever happened to Marshall's industrial economics?', *The European Journal of the History of Economic Thought*, Vol.11, No.2.
- Skidelsky, R. 1983. *John Maynard Keynes —Hopes betrayed 1883-1920*, Macmillan.
- The Economist Newspaper Limited 1943. *The Economist 1843-1943 A Centenary Volume*, The Economist Newspaper Limited.
- Whitaker, J.K. 1975. *The Early Economic Writings of Alfred Marshall, 1867-1890*, TheMacmillan Press Ltd.
- Whitaker, J.K. 1996. *The Correspondence of Alfred Marshall, Vol.1-Vol.3*, Cambridge University Press.