The Source of Marshall’s Thoughts on Economic Progress
with a Focus on his Study of American Industry

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Abstract: The purpose of this paper is to show that Marshall’s thoughts on economic progress were greatly influenced by his detailed consideration of industry. His study of American industry brings about one of the sources for his economic growth theory, generally called the Organic Growth Theory. His study provides an interpretation of the mutual progress of human ability and economic society. The main motive for his work was that England should become a predominant industrial power much as it was in the mid-Victorian era. With regard to clarify this belief, it is important to examine his study of the American industry to make use of the rich repository of knowledge on economic progress in his major works. In conclusion, his study of American industry, which began with his research trip to America in 1875, indicates that ‘mobility’ plays an important role in economic progress. ‘Localization of industry’ promotes the expansion of the economic sphere dominated by small and mid-sized firms, as does ‘mobility’ and ‘standardization.’ Moreover, the restoration of England’s economy required ‘scientific management,’ which has its roots in the works of the English scientist Charles Babbage, in Marshall’s economic thought.

I. INTRODUCTION

The last twenty-five years of the nineteenth century, during which Alfred Marshall (1842-1924) eagerly engaged in economic study, represents the period of England’s great depression. There was nothing left of England that had enjoyed the highest of its economic prosperity as the ‘factory of the world’ in the mid-nineteenth century. On the contrary, both German, as a developing country, and the United States, as a new country, were achieving rapid economic progress by advancing with industrialization at the same time. Here, ‘She [=England] cannot be the leader, but she may be a leader’ (Marshall, [1903]1926, p.404). Marshall sought to achieve industrial leadership for England again by theoretical considering that man’s ordinary life and business was influenced by the technical evolution of industry in German and America. In general, it was the static aspect of Marshall’s economics, namely, partial equilibrium theory, that has attracted considerable attention. However, he also analyzed movements such as economic progress that cannot be grasped by the static analysis and considered that human moral ability and economic society improve together.

Marshall’s economics deals with observable facts and has an empirical aspect. ‘Economics has then as its purpose firstly to acquire knowledge for its own sake, and secondly to throw light on practical
issues’ (Marshall, 1961, p.39). However, the basis for Marshall’s analytical thoughts on economic progress as well as relevance of his theory in solving a practical problem remains unclear. It seems that the whole of the Marshall’s intended Economics 2) can be approached only after clarifying the point at issue.

Marshall was concerned about industry throughout his life. His research of industry was based on his experiences starting in the 1870s 3). The direction of his research was evident in the lecture ‘Some Features of American Industry’ after his American research trip from June to September in 1875. In 1877, He gave his inaugural address as the principal of University College in Bristol, ‘Some Aspects of Modern Industrial Life,’ and his lecture ‘The Economic Condition of America’ was reported in Bristol Mercury and Dairy Post in 15 January 1878. Moreover, he published The Economics of Industry in collaboration with his wife Mary Paley Marshall in 1879. Marshall’s economic thought was based on his belief that England should make a comeback to reassert its industrial leadership. In his research of industry, Marshall found much of interest in the German and American industry, having visited both countries. This article focuses on his study of American industry that clearly discusses economic progress. Marshall interpreted economic organizations as organisms, and attached greater importance to the viewpoint of mutual progress of human ability and economic society. However, there have been few studies that analyze Marshall’s thoughts on economic progress in relation to his study of American industry. As to understanding of Marshall’s economic progress, most previous studies focused on Marshall’s biological methodology to explain theoretically (Levine, 1989; Niman, 1991; Thomas, 1991; Hodgson, 1993). Although Reisman (1987) discussed Marshall’s mutual progress of human ability and economy in detail, he merely indicated that Marshall had come to consider the formation of a high moral character, which was influenced by external economic circumstances, through his American trip. In addition, several studies have been made on Marshall’s thoughts on economic progress in Japan (Sugimoto, [1949]1982; Baba, 1961; Deguchi, 1979; Sakaguchi, 1990, 1993; Kondo, 1996; Iwashita 2008). Nonetheless, few researches investigated Marshall’s observation of American industry in 1875 in terms of his thoughts on economic progress (Matsuyama, 2007, 2009; Nishioka, 2009).

To the best of my knowledge, no research deals with Marshall’s thoughts on economic progress differently from an interpretation of his notion of ‘the standard of life.’ Therefore, this paper attempts to clarify how Marshall’s study of American industry made an important contribution to his analysis of economic progress. In particular, most previous studies did no more than indicate the ‘study of the Problem of Protection in a New Country’ as mentioned by J.M. Keynes in his Marshall’s biography (Keynes, [1933]1972, p.176). What is the content of Marshall’s investigation of American protectionism? This fundamental question also remains unanswered. Marshall’s study of American industry was so
continuous to the later part of his life that an inquiry into his experience in 1875 should not be a one-sided interpretation. This article contributes to the understanding of relationship between Marshall’s economic thoughts and his economic theory by exploring his empirical research of American industry.

The objectives of this article are twofold. Firstly, I demonstrate how Marshall interpreted the concept of ‘mobility’ as the source of Marshall’s thoughts on economic progress. Secondly, this concept of ‘mobility’ is regarded as playing an important role in his theory of economic progress, which was developed by him in the light of his experiences in economics after 1875. The present paper consists of four sections. Section II considers the following two aspects of Marshall’s American research trip: one is his investigation of American protectionism and the other is his study of American industry. Section III confirms his dealings with the concept of ‘mobility’ in his major works, and discusses how the concept of ‘mobility’ is based on his theory of economic progress that involves both ‘a localization of industry’ and ‘scientific management.’ Finally, Section IV concludes this paper.

II. MARSHALL’S AMERICAN TRIP: AMERICAN PROTECTIONISM AND AMERICAN INDUSTRY

As many previous studies indicated, Marshall’s research trip to America affected all his academic research (Keynes, [1933]1972; McWilliams-Tullberg, 1972; Groenewegen, 1995). However, the truth of the matter is not yet clarified. In this section, I examine his American trip with regard to the following two facets: his investigation of American protectionism and his observation of American industry.

1. The Condition of American Protectionism

Keynes reported Marshall’s memorandum in Essays in Biography as follows,

He did indeed write the first draft of a monograph on Foreign Trade; and in 1875 he visited the chief seats of industry in America with the purpose of studying the problem of Protection in a new country. But this work was suspended by his marriage.

(Keynes, [1933]1972, p.182)

Thus, Marshall’s ‘Pure Theory of Foreign Trade 4), is not based on the knowledge that he had acquired from his American trip, and he broke off his work on protectionism after getting married to Mary Paley in 1877. His investigations of American protectionism can be described from his letters to his
mother Rebecca. Further, they are also presented in his presidential address ‘Some Aspects of Competition’ to the Economic Science and Statistical Section of the British Association for the Advancement of Science in 1890.

Marshall had sent letters to Rebecca in England during his American trip. Here, I discuss his investigations that he referred to in his letters. Marshall left the port of Liverpool by steamship on 3 June 1875, and arrived at the port of New York three days later (5 June 1875, in Whitaker, 1996, vol.1, Letter 21, p.36). After spending of his time in the State of Connecticut in June, he had a discussion regarding economic and political matters with William Graham Sumner and Francis Amasa Walker who were the Professors of Political Economy at Yale College (5 July 1875, in Whitaker, 1996, vol.1, Letter 26, p.66). Sumner supported the principles of sound money and attacked bimetallism in his A History of American Currency (1874) from the standpoint of classical economics. Walker was a well-known statistician, and criticized the wage-funded theory, which was developed by classical economists, after Marshall’s visit. However, it is unclear whether Marshall discussed the issue of American protectionism with Sumner and Walker.

Subsequently, Marshall left for the west coast and visited the city of San Francisco. As the following extract indicates, Marshall did not find much of interest there: ‘My journey from Virginia City here was devoid of any special features of interest’ (22 August 1875, in Whitaker, 1996, vol.1, Letter 29, p.73). Apparently, Marshall accomplished the purpose of his American trip when he arrived in Philadelphia in mid-September. He wrote in a letter to Rebecca that read as follows,

I spent many hours in conversation with the leading protectionists. And now I think, as soon as I have read some books they have recommended me to read, I shall really know the whole of their case; & I do not believe there is or ever has been another Englishman who could say the same.


This is the only letter that clearly indicates that Marshall had held discussion with American protectionists in his letters to Rebecca. However, several memorandums were enclosed with this letter. Further, a memorandum ‘H.C. Carey,’ which dated September 18, was included in these memorandums. According to this memorandum, Marshall held twice interviews with Henry Charles Carey who was 83 years old (Enclosure ‘H.C. Carey,’ in the letter to Rebecca, 23 September 1875, in Whitaker, 1996, vol.1, Letter 31, p.82). In the second interview, Carey emotionaly refuted every Marshall’s questions. For example, Carey took a rebellious attitude toward the interpretation of value which was indicated by
McClurghan and Jevons, Marshall attempted to explain about that Carey’s understanding of ‘[v]alue depends on cost of reproduction’ was wrong. However, Marshall failed in this persuasion. Unfortunately, there was not any descriptions in terms of his discussion of American protectionism in this memorandum. Did Marshall, therefore, discuss about the American protectionism with Carey? The clue to this can be found in his presidential address ‘Some Aspects of Competition’ in 1890 as follows,

One of my most vivid recollections of a visit I made, in 1875, to study American Protection on the spot, is that of Mr Carey’s splendid anger, as he exclaimed that foreign commerce had made even the railways of America run from east to west, rather than from north to south.

(Marshall, 1890, p.260)

Carey’s attitude in the above quotation is the same as one which Marshall wrote in the memorandum which was enclosed with the letter to Rebecca. Carey strongly defended protectionism in America. He insisted on the protection and cultivation of infant industries and the growth of a domestic market economy, especially a regional division of labour. The extension of such a discussion may be his above-mentioned reference to the transcontinental railroad. Carey’s aim was that under the protectionism, the northern industrial capital would become the basis of the American economic society (Tanaka, 2002, p.81). In reality, the extension of the railway from north to south could not maintain harmony among domestic agriculture, industry, and commerce. Moreover, increased railway production promoted the development of the British steel industry. Therefore, these factors might have frustrated Carey.

Incidentally, what attitude Marshall exhibited in his discussion with Carey? He said that ‘[t]he adoption of Free Trade, so soon as its first disturbances were over, would strengthen this firm and weaken that.’ (Marshall, 1890, p.262). In other words, an adoption of free trade system balances positive and negative effect on a non-agricultural population and causes damage to lower manufacturing industries. He mentioned the advisability of free trade system as follows,

[T]hose metal and wood trades, for instance, which give the best scope for the special genius of the native American artisan would gain by the change. Taking account therefore of the political corruption which necessarily results from struggles about the tariff in a democratic country, and taking account also of the interests of the agricultural classes, I settled in my own mind the question as to which I had had some doubt till I went to America, and decided that, if an American, I should unhesitatingly vote for Free Trade.

(Marshall, 1890, p.263)
Hence, Marshall emphasized that if the American adopted the free trade system, it would hardly be detrimental to national benefit. Of course, Marshall discussed the matter with persons other than Carey because he noted that ‘I [=Marshall] discussed the Protective policy with several of its leading advocates’ (Marshall, 1890, p.262). Nevertheless, under the existing circumstances, this argument is fragmentary in terms of Marshall’s investigation of protectionism in America in 1875. However, it is evident that Marshall’s positive attitude to economic freedom was clearly expressed during his American trip. Further, the whole of his economic thought and theory is developed under the notion of ‘economic freedom’.

There is another side to his investigation. Marshall walked through almost all the streets of major cities, ‘visited factories in almost every first-class city, and compared as well as [he] could the condition of the workers there with that of similar workers at home’ (Marshall, 1890, p.261). What did Marshall learn from his observations in each city or factory, including mills and workshops? The answer can be found in the address ‘Some Features of American Industry,’ that was delivered at the Moral Science Club in Cambridge immediately after his American trip.

2. The condition of American industry

The second facet of Marshall’s American research trip is an analysis of the progress of American economic society. His American trip in 1875 also contained the significant point at issue in Marshall’s economics. For instance, Iwashita (2008, p.13) indicated that Marshall came to value the experience or positive fact of having taken the opportunity of making the research trip to America. Matsuyama (2007, 2009) described the possibility that Marshall had Alexis de Tocqueville’s Democracy in America in his possession when he took the steamship from the port of Liverpool, and indicated that Marshall clearly considered the mutual progress of human moral ability and economic society referring to in Tocqueville’s discussion of ‘commune.’ Nishioka (2009, p.54) insisted that Marshall developed ‘the progress to alternative society’ by independent growing of man because Tocqueville did not consider the change of a dynamic population and structure of economic society in America. Moreover, Isokawa (1989, p.148) expressed that Marshall’s description of self and others integrated to a moral mind is Hegelian in nature. Groenewegen (1995, p.200) considered that Marshall distinguished the ethical growth of American society from two perspectives: Hegel’s ‘subjective freedom’ and ‘objective freedom’.

Although previous studies have raised many issues apparently, Marshall’s understanding of the American trip can be summed up by the following two points: (1) the condition of American industry can be explained by ‘mobility,’ and (2) America had a well-developed educational and vocational training system. Marshall considered that these two factors were responsible for the rapid progress in American society.
Firstly, Marshall paid attention to the marked characteristics of American workers. Their industrious character were formed by ‘shiftiness,’ ‘the power of doing anything,’ ‘fertility in expedients for overcoming new difficulties,’ and ‘bold self reliance’ (Marshall, 1875, p.361). Moreover, Marshall emphasized that the main factor that maintains the condition of the American industry is as follows:

The chief of the conditions of industry in America with which I have to do is its mobility: by which I mean the habit of passing readily from one occupation to another and from one district to another; either movement involving more or less a change of acquaintances.

(Marshall, 1875, p.358)

Marshall recognized that ‘mobility’ which led to movement among occupations or regions, was the American custom. There was a tradition that artisans in Europe were peripatetic as they honed their craft. However, the ‘mobility’ of American workers had more liquidity than that of European workers. According to Marshall’s statistical investigation, of the people who stayed in the Northern States, more than half were inhabitants from outside that area. Moreover, approximately a third of populations of the States of Ohio, Indiana, and Wisconsin, and nearly half of the population of the States of Illinois, Missouri, and Michigan were born in other States (Marshall, 1875, pp.358-359). Marshall emphasized that the American workers not only frequently moved outside the regions where they were born but also acquired the habit of moving between occupations.

Secondly, Marshall also noticed that the educational and vocational training system in America, along with the notion of ‘mobility’ had brought about economic progress in America. He investigated the ‘manufacturing belt’ 7), which integrated many manufacturing factories such as piano works (Boston), rail works (Pittsburgh), and a glass factory (Birmingham in the States of Pennsylvania), and said that ‘I spent most of mine; in American workshops’ (Marshall, 1875, p.357). Then, Marshall paid attention not only to the manufacturing process 8) but also to American workers who ‘have become full of energy and activity, but also restless and impatient’ (Marshall, 1878, p.64) 9). They ‘could learn their trades well in shorter apprenticeships than the lads of other nations’ (Marshall, 1875, p.359), because a young person became a full-fledged worker after receiving an education and apprenticeships in America. According to de Tocqueville, whom Marshall referred to, school education was provided as prescribed by the law in America: schools were required to be established and maintained by residents in the said ‘commune’ or, to use Marshall’s term, ‘township’ and parents sent their children to these schools (de Tocqueville [1835]1951, p.40). According to Mori (1996, p.119), at the same time, an apprenticeship period of four or five years was the norm after finishing school in America. Moreover, because of the efficacy of school
education and apprenticeship, ‘the control over his actions comes to a lad at an early age in America: by the time he is fifteen years old, parents and masters, policeman and church ministers, have not much power to keep him to an engagement’ (Marshall 1875, p.359). Young people who finished an apprenticeship period traveled to various places for polishing their work skills in America. Therefore, young American workers refused to settle down in a specific region or form close neighborly relationships (Marshall 1875, p.313): their lives were such that ‘it [was] not a general rule for an American to spend the whole of his life in one occupation’ (Marshall, 1878, p.63). Young Englishmen, of course, did not have such dispositions. Moreover, not only American workers but also foreign workers who stayed in America acquired the custom of ‘mobility.’ For example, Karl Marx indicated that a French worker had come to change his character through his American life in San Francisco as follows, ‘I was firstly convinced that I was fit for nothing but letter-press printing. … Once in the midst of this world of adventures, who change their occupation as often as they do their shirt, egad, I did as the others’ (Marx [1887]1990, p.426n). Hence, the condition of American industry was greatly influenced by the ‘mobility’ of its workers.

Marshall insisted that ‘[t]he instability of the conditions of industrial life in America affects the development of moral character in some ways not only indirectly but also directly’ (Marshall, 1875, p.364). Economic progress, which depended on the ‘mobility,’ had an effect on human moral abilities 10). In other words, the advancement of people and that of the economic society were correlated with ‘mobility’ in America. Thus, Marshall’s economics methodology presented individuals chiefly as members of industrial and occupational groups. This methodology is also evident in his major work *Principles of Economics* 11).

Marshall also paid attention to natural conditions such as climate, which affected economic activities. For example, he mentioned that ‘[t]here is a great slackening of many kinds of business in most town east of the Rocky Mountain during the “heated term.” And with the exception of the Pacific Slope there is in America north of the latitude of Gibraltar a cold so intense during a great part of the winter as partially, or wholly, to suspend many kinds of outdoor labour’ (Marshall, 1875, p.362). In America, it was found that industrial districts were connected with natural conditions, and the Northern area was unfit for agriculture. Thus, Marshall considered that the economic condition of the Northern area in America was supported by the ‘mobility’ of workmen who moved toward the industrialized cities, while the condition of England maintained the closed labour market and the custom which parents and their children got a same or resemble occupation in the late half of nineteenth century (Hara, 1988, p.83). Therefore, Marshall mentioned the difference between American economy and British economy, which depended on their young worker’s character.
From his experience during the American trip, Marshall concluded that the rapid progress of the American economy was maintained by ‘mobility’ which included the American workmen’s peculiar character, school education, and apprenticeship, as well as natural conditions. Again, it is necessary to note that the concept of ‘mobility’ includes two factors, regional and occupational movement. Of course, these factors were derived from his observations, which were based on his experiences.

III. ECONOMIC THEORY OF ‘MOBILITY’

This section clarifies that Marshall’s positive investigations concerning the concept of ‘mobility’ played an important role in his analysis of economic progress. Firstly, I confirm three factors, namely, the movement between regions, occupations, and classes, as part of the concept of ‘mobility’ in his major works. Secondly, I show that these factors make an important contribution to Marshall’s economic theory with respect to the following two cases: ‘a localization of industry’ and ‘scientific management’.

1. The ‘mobility’ in Marshall’s major works

On the basis of his observations during his trip in 1875, Marshall determined that the economic social progress in America was due to ‘mobility.’ He also indicated that the notion of ‘mobility’ was presented in two phenomena, movement between regions and movement between occupations. Therefore, how is this concept of ‘mobility’ expressed in Marshall’s economics after his American trip?

In The Economics of Industry, Marshall addressed the concept of ‘mobility’ in terms of the relationship between workmen’s ability and economic conditions. He said that ‘[a] manufacturing district offers many social advantages. Experience shew that skilled artisans are intelligent and self-reliant, even when their work is monotonous. They have escaped from the dominion of custom, and are apt to consider whether they cannot better their condition by moving from one place to another, and even from one occupation to another’ (Marshall and Marshall, 1879, p.47). In other words, if a manufacturing area was established (this will be discussed subsequently), workmen who had ‘vigour’ moved in pursuit of better living conditions, changing regions and occupations. As I mentioned before, the same understanding was expressed in ‘Some Features of American Industry’ (1875).

In Principles, he clearly discussed the concept of ‘mobility’ in relation to economic theory. According to him, the concept of ‘mobility’ involves three factors as follows:
We must not omit to notice those adjustments of the supply of labour to the demand for it, which are effected by movements of adults from one trade to another, one grade to another, and one place to another. The movements from one grade to another can seldom be on a very large scale; although it is true that exceptional opportunities may sometimes develop rapidly a great deal of latent ability among the lower grades. Thus, for instance, the sudden opening out of a new country, or such an event as the American war, will raise from the lower ranks of labour many men who bear themselves well in difficult and responsible posts. ... But the movements of adult labour from trade to trade and from place to place can in some cases be so large and so rapid as to reduce within a very short compass the period which required to enable the supply of labour to adjust itself to the demand. That general ability, which is easily transferable from one trade to another, is every year rising in importance relatively to that manual skill and technical knowledge which are specialized to one branch of industry. And thus economic progress brings with it on the one hand, a constantly increasing changefulness in the methods of industry, and therefore, a constantly increasing difficulty in predicting the demand for labour of any kind a generation ahead: but on the other hand, it brings also an increasing power of remedying such errors of adjustment as have been made.

(\text{Marshall, 1961, pp.572-573})

Thus, Marshall understood that ‘mobility’ as a concept included the movement of not only regions and occupations but also classes \(^{13}\) because of its practical efficacy. In the relationship between ‘mobility’ and economic theory, he suggested that the concept of ‘mobility’ creates temporary adjustment in the demand for labour, which increases with the increment of production quantities. This implies that the temporary adjustment of supply and demand in any region and occupation is gradually achieved over the long term. Marshall’s originality lies in his understanding of the economic progress in terms of historical time, in his term ‘secular,’ which is longer than the notion of a long periods, and implies ‘the gradual growth of knowledge, of population, and of capital, and the changing conditions of demand and supply from one generation to another’ (Marshall, 1961, p.379).

Furthermore, the later work \textit{Industry and Trade} also indicates not only the movement between regions (Marshall, 1923, p.28, p.150) and occupations (Marshall, 1923, pp.147-148) but also a possibility of the movement of classes which is based on education. In short, ‘[e]ducation has always been taken seriously in America’ (Marshall,1923, p.155). Further, he said that ‘the chief change is assimilation of the training, and consequently the capacity, of the working classes generally to those of the well-to-do’ (Marshall, 1923, p.4). In fact, it is that ‘the whole division between the “upper” and “lower” classes in
industries seemed to grow broader during the second and third quarters of last century. … More recently however an opposite tendency has set in’ (Marshall, 1923, p.636). In addition, Marshall insisted that ‘[t]he movement towards the better education of the people at large, which had been gradually growing, received a great impetus from the Education Act of 1870; and it has proceeded so fast and steadily that the more alert of the working classes now stand on nearly as high an intellectual level as do the great majority of the middle classes’ (Marshall, 1923, p.636). At the beginning of the twentieth century, a situation developed wherein the working classes improved their social position through education. Therefore, it was clear that the difference between the classes had been reduced by maintaining the education system prescribed by law, which invigorated the working classes in the industry: in other words, it could be seen that the population of residuum had been reduced. This phenomenon, of course, was greatly desired by Marshall in his whole academic life.

In Marshall’s economics, the concept of ‘mobility’ can be generalized from the three factors mentioned above, which are derived from Marshall’s investigations and observations. These factors demonstrated movements between regions and occupations, which brought about a temporary adjustment of increased demand for labour responding to the increment of production quantity, and the movement of classes because of the maintenance of the education system. Then, how is the concept of ‘mobility’ reflected in his economic theory on economic progress? It can be found in Marshall’s discussion of industrial organization.

2. The localization of industry

Marshall elucidated the discussion of ‘the localization of industry’ for the first time in his The Economics of Industry. He stated that ‘[t]his collection into the same locality of large numbers who are engaged in the same trade is called the Localisation of industry [sic]’ (Marshall and Marshall, 1879, p.47). This phenomenon of ‘the localization of industry’ became evident in England during the 1870s (Marshall and Marshall, 1879, p.48). Typical examples, such as Lancashire’s cotton industry and Yorkshire’s woollen textile industry, showed that markets were formed in specific regions, and many manufacturers were concentrated in the market and conducted their business with related neighbouring firms. This horizontal relationship between firms can also be seen in Birmingham’s metal-processing industry in the 1850s (Sunagawa, 1998, p.266). England’s industry adopted the American production system by introducing mechanization. Marshall indicated that the localization of industry has the effect of improving human ability as follows:
Where large masses of people are working at the same kind of trade, they educate one another. The skill and the taste required for their work are in the air, and children breathe them as they grow up. … Each man profits by the idea of his neighbours: he is stimulated by contact with those who are interested in his own pursuit to make new experiments; and each successful invention, whether it be a new machine, a new process, or a new way of organizing the business, is likely when once started to spread and to be improved upon. … In a district in which an industry is localized a skilled workman is sure of finding work to suit him.

(Marshall and Marshall, 1879, p.53)

Human character and ability are greatly influenced by circumstances that surround ordinary life. In the region where industry is localized, new skills and production processes spread rapidly. As I mentioned before, the concept of ‘mobility’ affected temporarily the supply and demand adjustment of labour. Therefore, it may be understood that the concept of ‘mobility’ came to have significance and meaning in the localized industry. The localization of industry emphasized the spread of education and skill, and the concentration of manufactures, as described in The Economics Industry. This understanding of ‘the localization of industry’ is consistent with his view in Principles.

According to Principles, the localization of industry originally arose from the natural conditions and the attracting skilled workmen, which were protected by the court (Marshall, 1961, pp.268-269). Within such a localized industry, the supply of labour grew rapidly. Moreover, two factors, that is, ‘mobility’ and the localization of industry, achieved the temporary supply and demand adjustment of labour by advancing the standardization of parts and production processes. However, industry was always on the move and never remained stationary. Because ‘mobility’ and the localization of industry intermittently affect economic society, these have given rise to a new industry and expanded the scale of localized industry. In order to develop this discussion, Marshall introduced two concepts, namely, ‘external economy’ and ‘internal economy’ in Principles; the former means that the economy depends on the general progress of industry and the latter means the economy depends on the resources of the individual firms, their organization, and efficiency of their managements. Marshall especially valued the external economy because this promotes the concentration of many businesses in particular localities (Marshall, 1961, p.266).

The localization of industry demonstrated the effect of the external economy, and stimulated the ‘mobility.’ For example, Marshall paid attention to the manufacture of watches in Switzerland, and examined it as a primitive localized industry (Marshall, 1961, p.257). In the manufacture of watches, each small manufacturer undertook over 50 kinds of production processes. The subdivision of labour had
progressed slowly there. Each skilled workman worked for low wages, and used his professional skills to make the product. However, for introducing the mechanization based on standardization such as American production system gradually, this reduced the work that needed to be performed by the skilled workmen. As a result of standardization, mechanization, and subdivision of labour, many boundaries between different types of industries were weakened. These influences were mainly found in the internal economy. This phenomenon also implies that the professional skill and knowledge belonging to the skilled workmen were replaced by skills that were more generic. In other words, unskilled workers could be moved easily to other industries or production processes in any firm. Thus, ‘[t]he growing intelligence of the labourer and the increasing facility of movement from one part of the country to another have caused a close communication and to some extent a free circulation of labour between the various centres of industry’ (Marshall and Marshall, 1879, p.48).

Marshall indicated the features of the localization of industry as follows: (1) maintaining the concentrating of manufacturing industries in a specific region, (2) increasing the quantity of production by advancement of mechanization, (3) drawing the skilled workmen through improved transportation infrastructure, (4) developing related neighbourhood industries (the supplementary industry), and (5) dealing effectively with a depression by development of a supplementary industry (Marshall, 1961, pp.271-273). As to above third feature, the decreasing price of transportation implies that information can be freely exchanged between distant regions, and tariffs, and product price can be, of course, reduced. It can be interpreted that improved transportation infrastructure brings about new ‘mobility,’ which creates various opportunity and promotes the localization of industry. On the other hand, the existence of convertible skills owing to the standardization and mechanization of industry promotes free movement of workmen within the firm or between occupations. Further, ‘the division of labour sometimes enables a man to pass easily between trades which used to be totally distinct’ (Marshall and Marshall, 1879, p.56). Moreover, the growth of supplementary industry surrounding the central manufacture reduces the likelihood of a depression owing to the drop in the demand or lack of raw materials associated with a single firm (Marshall, 1961, p.273). Thus, the growth of manufactures and supplementary industry expands the localization of industry centrifugally. Various firms achieved the external economy benefits because of improved transportation infrastructures, which connected each industrial region. As Marshall emphasized, the dominant economic fact in the nineteenth century was the development not of the manufacturing, but of the transport industries (Marshall, 1961, pp.674-675).

However, the economic condition does not remain in a stationary state once the localization of industry has taken place. Marshall indicated that ‘a firm which has lost the exceptional energy which enabled it to rise, is likely ere long quickly to decay’ (Marshall, 1961, p.287): in other words, every
business firm exists in a competitive environment, which is presented as the economic freedom. How could England follow Germany and America, which were leaders in economy built on mass production? Marshall looked for the clue to this economic problem in ‘scientific management’.

3. The influence of scientific management

In general, scientific management refers to the time and motion studies developed by F.W. Taylor on the basis of his observations of the work performed by workers who are, for example, shovelling ore from a train’s carrying platform or conducting inspections of ball bearings etc \(^\text{16}\). As a feature of scientific management, Taylor mentioned ‘[t]he standardization of all tools and implements used in the trades, and also of the acts or movements of workmen for each class of work’ (Taylor, [1911]1947, p.129). Marshall also considered that the rapid American economic progress was owing to scientific management, which was based on both standardization and mobility. In *Industry and Trade*, Marshall wrote that it was understood that ‘it would be profitable to keep elaborate records of every detail of the expenditure of material and labour in a factory with a large and various output,’ and ‘a scheme has been already brought into operation on a considerable scale in America, under which it is claimed that such records are obtained as by-products of a movement for applying to the mental work of business those general methods of extreme subdivision and specialization of labour, which have greatly increased the aggregate efficiency of manual labour’ (Marshall, 1923, p.368). Needless to say, it is evident that ‘a scheme’ referred to in the above quotation is the scientific management.

Taylor started the discussion of scientific management with his business philosophy, which was ‘the maximum prosperity for the employer, coupled with the maximum prosperity for each employé’ (Taylor, [1911]1947, p.9). The features of his scientific management based on the time-motion studies can be summed up in the following five points: (1) Science, not rule of thumb, (2) Harmony, not discord, (3) Cooperation, not individualism, (4) Maximum output, in place of restricted output, and (5) The development of each man to his greatest efficiency and prosperity (Taylor, [1911]1947, p.140). Moreover, Taylor positively encouraged workers to give suggestions or reports on the improvement of production processes to his superiors whenever they could.

Marshall clearly understood that scientific management strongly affected the American industry. Further he expressed the following ideas:
It is not irrelevant to remark that international comparative statistics show the output per head in engineering industries generally to be a great deal higher in America than anywhere else; though it is true that much of this difference is due to her extended use of standardized mechanical process.

(Marshall, 1923, p.374)

In addition, Marshall’s idea of the organizing more than one foreman for each worker and the standardization of manufacturing process are expressed clearly in Taylor’s *The Principles of Scientific Management*\(^{17}\). Especially, Marshall considered that American industry was a prolific producer of goods because it had introduced standardization to the production process. Thus, in his memorandum on international trade that was ordered by the House of Commons in 1903, Marshall clearly emphasized that ‘the time had passed at which they [=Englishmen] could afford merely to teach foreigners [=American and German rivals] and not learn from them in return’ (Marshall [1903] 1926, p.406). England needed to learn from the American industry in order to make a comeback and reassume industrial leadership.

Marshall took note of the famous English scientist Charles Babbage who urged that workmen be allocated to the production processes according to their skills and abilities \(^{18}\). Marshall described scientific management as developed by Babbage in *The Economics of Industry and Principles*, and examined Babbage’s discussion of the production process in detail in *Industry and Trade* \(^{19}\). Therefore, Marshall indicated that Taylor’s scientific management was based on the Babbage’s discussion (Marshall, 1923, pp.224-225). Indeed, Marshall paid attention to Babbage’s work before engaging in economic research, and had referred to Babbage’s discussion in his psychological research in 1868 (Marshall 1868, 122) \(^{20}\). In addition, Marshall held the position of second wrangler in the Mathematical Tripos at Cambridge. Thus, Babbage was known to Marshall.

Moreover, the fact that the economy would achieve high productivity, which was indicated in Babbage’s discussion, was demonstrated in the case study of American manufactures. In America, scientific management was considerably widespread, and high productivity was achieved in the mass-production manufactures. The well-known model is Ford motor company’s production system, which represents a continuous specialized production system. Marshall understood the meaning of the production system as follows: ‘[i]t is claimed that this method enables high-class products to be made at low costs by very highly paid, though not exceptionally skilled workers, moving steadily without strain or hurry’ (Marshall, 1923, pp.237-238). Thus, scientific management employed a lot of unskilled worker, and promoted the movement between occupations. Further the American workers earned high wages in spite of they working within the regulation time. In Marshall’s understanding, introduction of ‘scientific
management’ was an effective method which brought about a reduction in working hours, that is an increment of leisure time, and high wages 21).

A high wage 22) increases the possibility of movement between classes and is one of the core factors in Marshall’s theory of economic progress. This theory is the analysis of the mutual progress of human ability and economic society, which is construed as a rise in ‘the standard of life,’ which is a consequent adjustment to wants. The rise in ‘the standard of life’ is brought about by the improvement of production efficiency, increase in leisure time, rise of wages and future expenditure, and it describes a cumulative process. Marshall said that ‘those effects which are cumulative are generally far more important in the long run than those which are not, however prominent the latter may appear’ (Marshall, 1961, p.559). Then, according to Marshall’s thought, ‘as civilization advances, further progress becomes more and more dependent upon the diffusion of education among the working classes’ (Marshall and Marshall, 1879, p.11): By acquiring leisure time, the working classes have an opportunity to receive an education, which cultivates their human nature. Moreover, by achieving high wages, people feel obliged to give their children a better and more perfect education than they themselves had received (Marshall, 1873, p.117). Marshall emphasized that education played an important role in economic progress as cumulative process. The working classes raise their industrial efficiency and achieve increased wages by receiving education. If high wages are spent on the improvement of physical, intellectual, and moral abilities in the present and subsequent generations, ‘high wages are a cause of that efficiency and “social morality” which enable wages to be permanently high’ (Alfred Marshall to the Editor, The Times, 30 May 1885, in Whitaker, 1996, vol.1, Letter 160, p.193). Further, ‘[t]he active vigour of the people would continually increase; and in each successive generation it would be more completely true that every man was by occupation a gentleman’ (Marshall, 1873, p.115). Therefore, education leads to both high wages and increasing leisure time bring about the possibility of the movement between the classes.

Marshall also considered that American’s acquisition of industrial leadership was unique in some respects: ‘no leadership quite like hers [American leadership] is to be expected from any country, which cannot rival both the largeness of her national resources, and the alertness of her vast population’ (Marshall, 1919, p.158). He mentioned that ‘England will not be able to hold her own against other nations by the mere sedulous practice of familiar processes. These are being reduced to such mechanical routine by her own, and still more by American, ingenuity that an Englishman’s labour in them will not continue long to count for very much more than that of an equally energetic man of a more backward race’ (Marshall [1903]1926, p.404). Marshall suggested that Englishmen needed to have a sense of impending crisis about the condition of English’s industry, and change their conventional way of thinking as much as possible. In practical terms, in order to overcome the economic stagnation in England and
reassume industrial leadership, it was necessary to promote the mobility or liquidity of the labour force, commodity, capital, and information in England. Therefore, Marshall indicated Babbage’s discussion and said that ‘from another point of view it [=American method] might properly be called British’ (Marshall, 1923, p.224). As a result, Marshall discussed not only ‘the localization of industry’ which would result in the movement between regions, occupations, and classes, to reconstruct English industrial leadership but also ‘scientific management,’ which supported the basis for the movement between occupations and promoted the possibility of movement between the classes.

IV. CONCLUSION

This paper provides new evidence of Marshall’s thoughts on economic progress and their sources. The goals of this article were twofold. The first was to describe the concept of ‘mobility’ by referring to Marshall’s investigations and observations in America in 1875 as the source of his thoughts on economic progress. The second was to examine the role of the ‘mobility’ in Marshall’s representative industrial analysis after his American research trip in 1875, particularly in relation to the localization of industry and scientific management.

In summary, I indicated, firstly, that Marshall became alienated between the purpose and the truth of the matter in his American research trip in 1875. The original purpose of his trip was to investigate the condition of American protectionism; however, he actually began considering the American economic society on the basis of his observation of manufactures as well. The former explains that Marshall discussed with W.G. Sumner, F.A. Warker, and H.C. Carey, and latter developed Marshall’s understanding of American economic and social progress. Marshall’s discussion of the economic progress closely related to the latter. American economic progress was owing to the ‘mobility’ facilitated by American young worker’s receiving an education and apprenticeship. For the efficacy of education, apprenticeship, and ‘mobility,’ young American’s independent spirit were more strengthen than young Englishmen. Then, Marshall described ‘mobility’ as the movement between regions, and occupations, which supported economic progress. Secondly, the concept of ‘mobility’ was also dealt within all his major works — The Economics of Industry, Principles of Economics, and Industry and Trade — as the movement between regions, occupations, and classes. Marshall’s understanding of it was closely related to his discussion of economic progress, and could be found in the ideas of ‘the localization of industry’ and ‘scientific management’.

The localization of industry spread owing to the movement between regions, and occupations. This
was characterized by the maintainance of concentration of manufacturing industries in a specific region; attracting workmen owing to improved transportation infrastructure, raising of the liquidity of goods, capital, and information etc. In particular, the convertible skills, based on standardization and mechanization, promoted the moving of workmen among firms and occupations in industry. Thus, ‘mobility’ and ‘the localization of industry’ performed the supply-demand adjustment temporarily, which was indispensable for economic progress.

Scientific management supported the localization of industry. In particular, standardization and mechanization, which brought about convertible skills, were greatly indebted to it. Scientific management meant that the American production system could create an economy of mass production. As a result of introducing scientific management, the economy keeps up with the rapid increase of demand for products, and the working classes become able to enjoy high wages and to acquire leisure time. Marshall’s theory of economic progress was based on the increase of ‘the standard of life.’ The standard of life consisted of the improvement of production efficiency, and high wages and increasing leisure time were significant factors in the cumulative process of economic progress. At the same time, Marshall emphasized importance of the education, which brought about increasing leisure time. The working classes achieved high efficiency and earned high wages by receiving education. They spent their high wages on investing in the education of the next generation. Over the long term, the educational investment enables the working classes to be the gentleman classes. Marshall indicated that scientific management had been introduced by Babbage in England before Taylor’s book was published in America. Moreover, Marshall insisted on the American production system as the English production system. Thus, he aimed to enable England to resume its industrial leadership by investigating the condition of the American industry in comparison with that of the English industry.

Most previous studies paid attention to personal vigour as a source of general progress that would improve the quality of nations, cultures, and races. Of course, ‘the standard of life,’ which was based on Marshall’s theory of economic progress, was closely connected with personal vigour. However, Marshall’s discussion was focused on economic progress, which was stricter than general progress. It was evident that his methodology of economic analysis was concerned with individuals chiefly as members of the social organism. Marshall touched on the role of the organization as one of the factors of production. The cooperation of individual factors and movement of economic society were greatly facilitated by the mediating role of ‘mobility’. Therefore, it should be recognized that Marshall’s theory of economic progress is based on the concept of ‘mobility’.

However, this paper only presented a partial interpretation of Marshall’s thoughts on economic progress based on his experience, because his empirical analysis as a whole included not only American
industry but also German industry. Marshall visited twice in Germany; the first time was 1869 and second time was 1870 to 1871. In particular, the second trip to Germany was to study Hegel’s *Philosophy of History* and Roscher’s economics as representatives of the German historical school. However, the substance of Marshall’s German trip is not well known. Although his consideration of Germany is not inferior to his interest in America, this paper described Marshall’s empirical discussion of economic progress by examining his American study only. Marshall’s discussion of economic progress, which he did not completely elucidate before he died, can enrich the interpretation of his intended Organic Growth Theory by way of the concept of ‘mobility’.

NOTES

1) This paper adopts the term ‘America’ in keeping with Marshall’s indication in *Industry and Trade* as follows, ‘I have followed the practice, that prevails on the other side of the Atlantic, of shortening “United States of America” to “America,” where no confusion could be caused thereby: there is no adjective corresponding to “United States”’ (Marshall, 1923, pp.viii-ix).


3) This can be confirmed following Marshall’s assertion, ‘[n]early half century has passed since I set myself to obtain some insight into industrial problems by obtaining leave to visit one or more representative works in each chief industry’ (Marshall, 1919, p.vii).

4) Marshall did not publish ‘Pure Theory of Foreign Trade’ and ‘Pure Theory of Domestic Value.’ Instead, he chose to publish *The Economic of Industry*, which he had authored with Mary Paley. However, Sidgwick was alarmed at the prospect of Marshall’s right of priority being taken from him; therefore, he printed those papers privately and sent copies to several economists (Keynes [1933]1972, p.185).

5) Sumner sent his new book *Problems of in Political Economy* to Marshall. So, Marshall sent a thank-you letter to Sumner, who was staying in Oxford in the 1880s which read as follows: ‘I have to thank you for your excellent little book of suggestive questions on economics. I have been using and have been getting a good many of my pupils to get your *Social Classes*. I found it a most fascinating book, though I am not quite so thorough an advocate of *Laisser faire* as you are.’ (Alfred Marshall to William Graham Sumner, 1884?, in Whitaker, 1996, vol.1, Letter 151, p.185)

6) In fact, the American steel industry greatly extended its achievement in the production of rail.
7) From the second half of the nineteenth century to the first half of the twentieth century, there were some industries, wherein manufactures were concentrated within the area formed by the following cities: Green Bay, Saint Louis, Baltimore and Portland. This area is called the ‘manufacturing belt’ (Krugman, 1991, p.11). All the cities that Marshall visited belonged to this area.

8) In the mid-nineteenth century, the British investigating commission of industry visited America. According to their report, professionalization and cooperation based on the social division of labour brought about the subdivision of production processes, and narrowed the working ranges of workmen. In order to raise the productive efficiency in this matter, the compatibility of parts have to be guaranteed by the simple production process (Tsuchiya, 1990, p.164). Therefore, Marshall’s indication in The Economics of Industry and Principles was already mentioned by the British investigating commission of industry. However, Marshall was of the view that integration between the American production system and English production system would help in overcoming backward industrial condition of England.

9) Marshall indicated that the source of general progress is the ‘vigour’ (Marshall, 1961, p.194). Moreover, this ‘energy’ and ‘activity’ can be included in the notion of ‘vigour.’

10) Marshall found that ‘mobility’ led to economic progress in America, and that economic progress influenced the development of human moral ability. Marshall attempted to lay the philosophical foundations for Americans’ moral and ethical development by referring to the concept of ‘objective freedom’ and ‘subjective freedom’ in Hegel’s Philosophy of History. The first factor of ethical development was that the man who used moral effort unconsciously was acting on the basis of sympathy for society. Marshall understood this as the objective freedom. The second factor of ethical development meant that people adhered to the law and observed a such law. This was subjective freedom. Moreover, in order to achieve Marshall’s ideal society, it is necessary to cultivate a strong will through education. Detailed research on this topic is provided in Isokawa (1989), Groenewegen (1995), and Matsuyama (2009).

11) Marshall said that ‘[p]erhaps the earlier English economists confined their attention too much to the motives of individual action. But in fact economists, like all other students of social science, are concerned with individuals chiefly as members of the social organism. … [I]n most economic problems the best starting-point is to be found in the motives that affect the individual, regarded not indeed as an isolated atom, but as a member of some particular trade or industrial group’ (Marshall, 1961, p.25).

12) In The Economics of Industry and Principles, it seems that Marshall values general education more than technical education because general education is an indispensable element for raising an
individual’s ‘the standard of life.’ On the other hand, Marshall paid attention to technical education in relation to the character of the American workers. However, Marshall missed that general education had the tendency to homogenize human moral ability by offering each person’s ‘mobility’ in American society.

13) Marshall demonstrated the actual movement of classes as follows, ‘[t]here is no breach of continuity as we ascend from the unskilled laborer to the skilled, thence to the foreman, to the head of a department, to the general manager of a large business paid partly by a share of the profits, to the junior partner, and lastly to the head partner of a large private business’ (Marshall, 1961, p.663).

14) According to Becattini (2004, p.68), ‘[t]he most logical starting point for exploring the birth of the notion of industrial districts in Marshall’s early writings can be found in the economic debates that raged when he made his debut as an economist (1871-1873), especially those that arose after the publication of J.S. Mill’s Principles of Political Economy and involved primarily J.E. Cairnes and T. Cliffe Leslie.’

15) Marshall added the following sentence in the fifth edition of Principles, ‘[s]tandardization is most helpful in regard to things which are to be built up with others into complex machines, buildings, bridges, etc.’ (Marshall, 1961, p.257n).

16) Various movements in the business administration were attempted from the 1880s in America. In keeping with this trend, Taylor introduced the standardization of work and built up a suitable production system for American workers (Tsuchiya, 1990, p.166).

17) Marshall’s understanding here corresponded to Taylor’s discussion regarding the arrangement of a workers under not one foreman but eight professional foremen (Taylor, [1911]1947, pp.123-125).

18) The method of scientific management was developed by English mathematician Charles Babbage who graduated at Cambridge, before Taylor’s The Principles of Scientific Management.


20) Marshall’s psychological research was examined in detail by Raffaelli (2003) and Matsuyama (2010).

21) According to Whitaker (1999, p.266), Marshall worried that scientific management had harmful influences on the growth of human nature and human relationships among workers, because its ‘Owellian supervisory structure’ severely limited worker’s behaviour in the factory.

22) Marshall emphasized that ‘it [=competition] tends to adjust them [=high wages] to the efficiency of
the workers’ (Marshall, 1961, p.706). Moreover, Marshall pointed out that Mr. and Mrs. Webb and trade union leaders misunderstood these concepts of ‘competition’ and ‘mobility’ in labour market. Their wrong discussion is based on a following indication, ‘under “perfect competition” and complete mobility between one occupation and another, the common level of wages tends to be no more than “the net produce due to the labour of the marginal labourer” who is on the verge of not being employed at all !!’ (Webb, 1892, p.710).

23) According to Keynes ([1933]1972, p.172), Marshall stayed with a German professor who had taught Henry Sidgwick in Dresden when Marshall visited Germany the first time. On his second visit to Germany from 1870 to 1871, Marshall stayed in Berlin. Research into Marshall’s relationship with Sidgwick should do much to clarify the contents of his German travel.

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