

Professionalization and the Spread of Marginalist Economics in the United States^{*}

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This paper examines the manner in which the professionalization of economics in the United States, which intensified in the late nineteenth century, affected the spread of marginal economics. Focusing on the way in which the professional culture of researchers affected the acceptance of economics in the academic domain, this study suggests that “professional conservatism,” which compelled economists to follow certain research procedures and prohibited them from engaging in the problematic local partisanship, provided an environment that was favorable to the newly born marginal economics. As a case study to support this argument, this paper compares the difference between John Bates Clark and Irving Fisher with respect to their theories of distribution and attitudes toward the role of economists, thereby concluding that while Clark was more concerned with legitimizing the capitalist system, Fisher concentrated his efforts on analyzing the short-run state.

Keywords: J. B. Clark, I. Fisher, professionalization of economics

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1. Introduction

Although many previous studies have dealt with the origins of the marginalist revolution, as Blaug (1997) indicates, no single approach can be considered satisfactory. This is because that the changes in economics that occurred in the late nineteenth century were part of a complex phenomenon. Since both the concept like marginal utility and techniques like marginal analysis were developed well before the 1870s, current studies on marginalist revolution have focused on what kind of environment was favorable to the adoption of neoclassical economics, and naturally, these studies paid more attention to the process of professionalization of economics in Western countries and its influence on the marginalist revolution. For

example, Maloney (1991) provides the illuminating explanation that the scope and content of economics, as established by Marshall, resulted from the professionalism that differentiated orthodox neoclassical academics, who came to be considered scientific economists, from heterodox critics, who were regarded as non-professionals. In view of that, this paper attempts to explain the increasing dominance of neoclassical economics in the United States at the turn of the twentieth century from the perspective of the professionalization process.

It is important, however, to mention three precautionary observations while explaining the rise of neoclassical economics as an outcome of the professionalization process. First, the process of professionalization is so complex that one aspect of its multi-faceted nature alone cannot explain the character of professional culture in which neoclassical economics was nurtured. This is especially so because, as Coats (1980) emphasizes, the universities in the United States were very diverse, lacking the authority and insularity prevalent in England. In other words, a one-dimensional explanation linking the rise of neoclassical economics to either intensified specialization or increased academic-centeredness is bound to fail, since it may not describe the very complex nature of a historical development.

To consider an example, Stigler (1973) argues that the marginal utility theory and marginal analysis became the main concern of economists at about the same time that economic research became an exclusively university-related profession, which distanced the latter from discussions of contemporary problems. In his argument, Stigler claims that one of the chief features of the academic approach was the use of mathematical formalization in order to find a unified explanation for economic phenomena¹⁾. As Stigler himself admits, however, the historical school became prevalent in the nineteenth-century German universities where professionalism was already a well-developed concept. In addition, the use of mathematics as a professional technique cannot be the predominant cause of the rise of marginalism, considering that not all neoclassical economists favored the use of mathematics. Nor was the deployment of mathematics in economic discourse an inexorable or unhindered progress, according to Mirowski (1991), who has presented the actual percentage of pages using mathematical arguments in major economic journals for the period of 1887–1955.

Second, the subtle tension between economists as academics searching for a more general theory, keeping aloof from the mundane muddles of society, and economists as worldly philosophers wishing to affect and being affected by social movements has to be treated with a special care, especially at a stage when the academic profession was still in its incipient period. On the one hand, the profession of economics itself was not an entity isolated from other social forces, values, and viewpoints. On the other hand, a scientific community of economists

¹⁾ Stigler (1973) also suggests that the higher proportion of academics among the French than among the American economists is related to the earlier adoption of marginal analysis by the French, as compared to the American economists.

tried to achieve relative autonomy with certain professional conducts and behavioral rules. The works of some American social science historians such as Furner (1975) and Ross (1991) tend to exaggerate the politically conservative attitude of neoclassical economists, which mainly arose in response to the social conflicts of those days and attacks by institutional economists; however, these works make an insightful examination of the primary sources of neoclassical economic thought. To explain the rise of neoclassical economics in the academia, however, it is necessary to pay more serious attention to the formation of a professional culture in which discussion on problematic social issues such as the private property system, unequal distribution, nationality, and political ideology was avoided. This culture was mainly a product of professional interaction among academic economists.

Last, but not the least, it should be noted that the professionalization process alone cannot completely explain the marginalist revolution, because the change in economic theories was the outcome of multiple causes, including not only socioeconomic, political, cultural, and academic but also personal factors. For instance, the Protestant religion, in which labor was highly respected, could hinder the adoption of the marginal utility theory, as Kauder (1953) maintains. To cite another example, Mirowski (1989) convincingly argues that neoclassical economists sought to emulate the new, unified principles of energetics in physics into economics, thus inspiring the marginalist revolution. These stories do help construct some parts of the marginalist revolution, but they need to be further explicated in order to depict the entire picture. In light of this, the present paper focuses on elucidating the process of diffusion of neoclassical economics, not merely its origin or birth.

In order to explore the effect of professionalization on the development of neoclassical economics in the United States, the next section deals with the professionalization process in the late nineteenth century. This section mainly surveys previous studies on this period, including the pioneering works of J. Dorfman (1949, 1955), a series of illuminating papers by Coats (1960, 1961, 1985, and 1988), an informative article by Parrish (1967), a collection of papers on the history of major economics departments edited by Barber (1988a), and the works of historians mentioned earlier. One aspect of professionalization is the strengthened self-recognition of professional economists, which prompted the establishment of professional organizations, such as the American Economic Association and Political Economy Club. Another aspect is the rise of academic economists and their efforts to set up an independent economics department. These aspects will be further clarified in order to achieve a comprehensive understanding of the environment surrounding economists in the late nineteenth century.

The third section discusses the ways in which the process of professionalization affected the intellectual atmosphere of the time; this is done on the basis of some previous researches by Furner (1975), Ross (1991), Coats (1980), and others. Since the professionalization of economics in the United States was a neither smooth nor a rapid process, it led to a number of conflicts within and from outside of

universities. Within universities, there was considerable tension between professional economists seeking independent research and either university authorities eager to obtain financial support or theologians teaching economic doctrines as a part of their moral philosophies. There was also a tripartite schism among economists themselves, namely, among those following the traditional classical economics, those developing the reformist institutionalism, and those inventing the relatively new marginalist economics. In addition, there were off-campus pressures exerted by financial contributors to universities, local businessmen, and politicians.

In the midst of these conflicts, the search for a common base for the academic community led to what can be called "professional conservatism," in which debates on differences in political views were discouraged, economic questions were not argued beyond a certain point, and direct involvement in locally problematic issues was avoided. After examining some seminal cases on academic freedom, including the famous Bemis case, this paper contends that it was the culture of professional conservatism, and not political conservatism, that played a major role in determining whether an economist would be condemned or exonerated for his views; in this contention, the paper differs from the interpretation of Bergquist (1972).

The fourth section investigates the manner in which the culture of professional conservatism affected the rise of neoclassical economics. After a brief review of the process of introduction and acceptance of marginal economics, this section discusses the contribution of two eminent American neoclassical economists, John Bates Clark and Irving Fisher. In order to clarify how the theoretical achievements of these economists are related to the professional culture of the time, this study compares the two economists' attitudes regarding prior theorists and their theoretical orientation. Although both Clark and Fisher showed many similarities in their research methods and theoretical orientations, there was one interesting difference in their application of the distribution theory. Clark sought to explain the income of collective identities as capital and labor for legitimizing the income distribution of capitalism, whereas Fisher wanted to construct a pricing rule that would be applicable to the daily operation of a market. This subtle difference mainly arose from Clark's concern with the long-run position of capitalism, as opposed to Fisher's interest in the short-run movement of a market, without much consideration of the class structure of capitalism. As Garegani (1976) observes in his seminal paper, this shift in concern coincided with the subtle change of the notion of equilibrium from a long-run to a short-run position.

The final section contains a summary of the paper and suggestions for future research.

2. Professionalization of Economics in the United States

Most historians of American economic thought agree that economics became intensely professionalized in the 1880s and 1890s, although O'Connor (1953)

notes that the teaching of political economy as an independent subject dates back to the 1820s. The state of economics before the Civil War, the aftermath of which was felt the most in the 1870s, was characterized by a clerical and/or laissez-faire tradition; this is evident from the fact that, in many colleges, economics was taught by theologians or school presidents as a part of moral philosophy. Their education often emphasized the natural harmony of an economy following the laissez-faire doctrines. When a publisher conducted a survey in 1876 to identify the ten highest-selling works on political economy, most of the selected books were either those by English classicists such as J. S. Mill, A. Smith, J. E. Cairnes, and Fawcett or textbooks of American authors following the classical tradition such as A. L. Perry, A. Walker and F. Wayland, one notable exception being *The Theory of Political Economy* (1871) by W. S. Jevons²⁾.

Two fundamental factors that brought about the professionalization of economics in the 1880s and 1890s were economic development and university reform. After recovering from the economic meltdown of the Civil War, the American economy began to experience rapid industrialization. This industrialization brought about not only the expansion of the manufacturing sector, thus threatening the British economic leadership, but also plenty of socioeconomic problems, including labor unrests, populist revolts for “cheap” money in the rural regions, and problems associated with industrial monopoly³⁾. According to Ross (1991), these problems destroyed the widespread optimism in the antebellum period that the United States would be an exception to the conflicts associated with industrialization, and the rapidly disintegrating economic system aroused the concern of intellectuals, who turned their attention to German social sciences for solutions.

The institution of higher education also underwent changes in accordance with this social change. As promising new jobs opened up in the business sector, along with the old professions of the clergy, medicine, and law, college education had to be made increasingly secularized in order to provide an educational program that would suitably cater to the expanding administrative and business demands. This change was facilitated not only by public support, such as the Morrill Act of 1862—under which the federal government provided aid to states supporting colleges whose curriculums included agricultural and mechanical instruction—but also by private money flowing into the academic sector⁴⁾. As Barber (1988a) notes

²⁾ See J. Dorfman (1949, p. 81). American thinkers were highly influenced by French libertarian economists like J. Bastiat.

³⁾ See J. Dorfman (1949, pp. 113–40 and pp. 215–30) for the social background of the 1880s and 1890s.

⁴⁾ See Veysey (1965) on this point. Veysey also notes that this change led to a conflict between the goals of higher education with respect to cultural enhancement in the old-fashioned approach, abstract research based on the pure German model, and practical public service; it also caused tension between college administrators who enjoyed the support of peers in the academic community and professors who often separated themselves from the community, thus relishing the distinctiveness of higher learning.

in the introduction of the book under his editorial, a remarkable occurrence was the establishment of the Johns Hopkins University in 1876, which was dedicated to the encouragement of research at the graduate level, following the model of German research universities. This model was imitated by most of the first-generation American colleges, many new state institutions, and several new private schools, notably the University of Chicago (established in 1892), Clark University (1889), and Stanford University (1891).

Table 1 shows the academic background of faculty members teaching economics courses in 28 prominent colleges and universities. It shows that many professors studied in Germany as well as at the Johns Hopkins University, among American universities.

Table 1 Academic Background of Economists in 28 Institutions (1870–1900)

	Number	Studied in Germany	Did Not Study in Germany
Total	76	53	23
German Ph. D.	19	19	0
American Ph. D.	43	24	19

Notes: 1. From among the 28 schools, 10 schools-including Chicago, Columbia, Cornell, Harvard, and John Hopkins-received many endowments; 10 had high enrollment, such as UC at Berkeley, Illinois, and Michigan; and 8 were small but prominent institutions, such as Amherst, Brown, Oberlin, and Smith.

2. The German universities that conferred degrees on several American economists included Halle (11) and Heidelberg (4), while the American universities that produced the highest number of Ph. D. s were Johns Hopkins (12), Columbia (8), Michigan (5), Harvard (4), Yale (4), and Wisconsin (4); the numbers in parentheses represent the number of Ph. D. recipients.

Source: Parrish (1967).

University reform was often initiated by faculty members in the field of social sciences, including economists, and it was not a coincidence that many of them were trained in Germany, where tertiary education at the graduate level were relatively advanced. In most cases, the economics professors exercised a certain amount of caution in their teaching, because the classic four-year curriculum was often inflexible. They sometimes added economics courses to the curriculum by using the elective system, which was first introduced at Harvard by President Eliot in 1869, and sometimes added only one course at either the graduate or undergraduate level, so that they could open up courses later at both levels.

Professionalization was responsible for three marked changes in the field, that is, economics obtained the status of an independent discipline in the universities, professional organizations were formed, and professional journals came to be published. First of all, as shown by Parrish (1967), economics acquired a very prominent status in universities. After political economy came to be recognized as an independent subject-indicated by institutional achievements such as the introduction of professorships, graduate courses, and doctoral degrees in political

economy by the 1870s—economics courses increased in quantity, while the quality of graduate studies improved greatly in the 1880s and 1890s.

As was reported in the survey that appeared in the first issue of the *Journal of Political Economy*, the aggregate hours of economics instruction offered at 65 institutions in 1892–93 were more than six times those in 1876. Out of 65, the top 12 institutions that taught economics courses, based on number of hours, in 1892–93 are listed in Table 2. It should be noted that newly established universities such as Chicago; schools that established separate programs for economics or social sciences such as Columbia, Pennsylvania, and Wisconsin; and first-generation universities such as Harvard offered a considerable number of economics courses in the 1890s. As more courses in economics came to be offered, their relative importance also increased. In the 28 schools selected by Parrish (1967), the ratios of Latin courses to political economy were roughly 7 : 1 in 1870, 10 : 1 in 1880, 8 : 1 in 1890, and less than 2 : 1 in 1900.

The quality of education improved in many respects. The seminar system, in

Table 2 Economics Courses: Number of Hours

University/College	1876	1892–93
Pennsylvania	N. A.	1, 020
Chicago	N. A.	996
Columbia	34	764
Michigan	45	756
Harvard	180	735
Yale	180	648
Wisconsin	N. A.	612
Cornell	22	408
MIT	30	375
Oberlin	60	337
Kansas State	95	266
Brown	40–42	242–50

Notes: 1. The above data are based on a survey of 65 institutions. However, the survey did not include a number of established institutions, such as Johns Hopkins University, the University of Virginia, and Amherst College.

2. The above institutions conducted the top 12 economics courses with the highest total number of for the academic year of 1892–93. The total number of hours per economics course was obtained by multiplying the number of hours per week by the number of weeks in a year.

3. “N. A.” stands for “not applicable,” for various reasons: the University of Chicago was established in 1892; the Wharton School at the University of Pennsylvania opened in 1881; and the School of Economics, Political Science, and History at the University of Wisconsin was established in 1891.

Sources: “Courses of Study in Political Economy in the United States in 1876 and 1892–93”, *Journal of Political Economy*, Vol. 1 No. 1, 1892, pp. 143–51; and J. P. Henderson (1988).

which both teachers and students contributed to the subject, helped develop professional skills in research, analysis, and presentation. More abundant library resources facilitated specialization in particular topics, which in turn led to more fruitful research outputs. Dissertations became longer and more specialized, so they came to be considered a demonstration of professional skills.

Following this, the conducting of meetings by the economists can be regarded as their declaration of disciplinary independence from other moral or social sciences. The establishment of the American Economic Association (AEA) in 1885 gave momentum to this change. Initiated by young reformist economists such as Richard T. Ely, Herbert B. Adams, and others, the AEA was officially inaugurated on September 9, 1885, at Saratoga Springs, New York, where the second meeting of the American Historical Association (AHA) was held. Although less than fifty participants attended the first meeting, the association's membership increased to more than a thousand within two decades. As Coats (1960) puts it, this permanently established the association as "a strictly scientific and scholarly body." In order to fully comprehend how economic ideas were developed in the midst of controversy among three distinctive groups—those following the *laissez-faire* tradition, those fostering the historical or institutional approach, and those adopting the marginalist approach—and how the economics profession evolved in the midst of internal and external conflicts, it is necessary to closely study the history of AEA. For the purpose of this paper, however, it will suffice to mention three interesting features in the course of AEA's development.

The most noticeable feature is that AEA endeavored to remain impartial toward conflicting social interests and political issues, even as its membership expanded. This trend became apparent in the amendment of its constitution and the dramatic change of the officers-in-charge. As Ely (1887) reported, his initial platform stating that "the doctrine of *laissez-faire* is unsafe in politics and unsound in morals" was dropped from the first constitution in response to the opposition of some members, including Henry C. Adams. At the third annual meeting in 1888, this amendment was made with the motion of Professor G. B. Newcomb and approval of the Council. The notable change in this amendment was the omission of some parts of the third article of the first constitution; these comprised two clauses that showed the reformists' influence. One was the view of the state "as an agency whose positive assistance is one of the indispensable conditions of human progress," and the other was the recognition of the labor-capital conflict as a major source of social problems "whose solution requires the united efforts, each in its own sphere, of the church, of the state, and of science." The sections that were retained included one passage encouraging "the historical and statistical study of the actual conditions of industrial life" and one sentence stating that "the association, as such, will take no partisan attitude, nor will it commit its members to any position on practical economic questions⁵⁾."

The leadership shift in 1892 was another incidence showing the nature of professionalization. In response to Ely's unilateral announcement that the 1892 annual meeting of AEA would be held at Chautauqua, New York, where he usually

taught at a Christian summer school, many professional economists declined to attend the meeting, in order to preserve their scholarly images. This incidence prompted the movement to oust Ely from the secretarial position, and in time both Ely and the President, Francis A. Walker, stepped down. Although this act seemed “voluntary,” it was actually the result of an informal compromise. At this significant meeting of 1892, Edward A. Ross of Cornell replaced his former teacher, Ely, while Professor Charles Dunbar of Harvard was elected as the president of AEA.

The increasing moderation and shift in leadership further expanded AEA's membership, which grew to include distinguished scholars such as F. W. Taussig of Harvard in 1887, Arthur T. Hadley and Henry Farnam of Yale in 1892, and finally, J. L. Laughlin of Chicago in 1904. This expansion can be contrasted with two other efforts to establish an economists' organization, which were not as successful as AEA. One is the proposal to establish a Society for the Study of the National Economy by E. J. James and S. N. Patten at the University of Pennsylvania in 1884, which was most probably aborted due to their protectionist position. The other is the short-lived Political Economy Club (1883–1903) initiated by J. L. Laughlin, who failed to keep the club from degenerating into a free-traders' meeting⁶⁾.

The second noteworthy feature is that AEA was basically an organization dominated by the professional academics, unlike the American Social Science Association (ASSA) founded in 1865 or the AHA founded in 1884, both of which shared a part of their membership with AEA. As Coats (1985) notes, despite the efforts of its founding member, AHA was dominated by elderly amateurs and men of leisure, while all the officers who took charge of AEA in its first years and most of its council members were affiliated with universities⁷⁾.

The third feature to be noted in the development of AEA is that it became a professional organization specializing in the discipline of economics. At the turn of the twentieth century, this trend of specialization had become so intensified that both conservative and reformist economists complained about the narrow scope of economic research and the limited audience for its results. The divisions of knowledge among social scientists were institutionally established, for instance, the American Political Science Association was formed in 1903, the American Sociological Society was established in 1905, and the general meeting of ASSA was held for the last time in 1909.

As the final aspect of professionalization, let us examine the commencement of

⁵⁾ For the first constitution of AEA and its amended version after the third annual meeting, see Ely (1887, pp. 35–37) and Ely (1889, p. 314).

⁶⁾ See Coats (1961) for the history of the Political Economy Club.

⁷⁾ Among the 24 council members for the first three years of AEA, as reported in Ely (1887), only 6 were non-academics, i.e., 3 clergymen, 2 government officials, and 1 journalist. The clergymen — particularly Revs. W. Gladden and G. M. Steele — were active in the early period, but their influence declined over time. As Coats (1960) reports, the number of members from the clergy was 23/188 in 1886 and 39/661 in 1894.

several professional journals, one of the oldest being the *Quarterly Journal of Economics* (QJE), published by Harvard University. Table 3 provides a list of these journals. AEA published the Publications series, which contained summary reports of the annual meetings as well as some academic theses, and thus deferred publishing a regular journal until 1911, in order to get a consensus among members. The professional journals served as effective information networks not only among American economists but also across countries. One interesting thing is that journals that were relatively specialized in economics, like QJE and the *Journal of Political Economy*, have remained core economics journals, whereas those dealing with broader issues did not achieve this level of specialization.

Table 3 Journals that Started in the 1880s and 1890s

Managing Organization	Title	Editor(s)	Year of Establishment
Harvard Univ.	<i>Quarterly Journal of Economics</i>	Dunbar, Taussig	1886
Columbia Univ. ¹	<i>Political Science Quarterly</i>	M. Smith	1886
American Academy of Political & Social Science	<i>The Annals of the Academy of Political and Social Science</i>	E. J. James	1820
Univ. of Chicago	<i>Journal of Political Economy</i>	J. L. Laughlin	1892
Yale Univ.	<i>The Yale Review</i>	Hadley Schwab ²	1892
AEA	<i>Publications of American Economic Associations</i>	Publication Committee	1886
AEA ³	<i>Economic Studies</i>		1896–99

Notes: 1. Columbia also started publishing *Studies in History, Economic, and Public Law*, which contained dissertations selected under the editorship of Seligman.

2. Other members from the history department also sat on the editorial board until their resignation in 1896, and the journal reverted to publishing a wider range of topics from 1911 onward.

3. AEA launched the *American Economic Review* in 1911, followed by three volumes of the *Economic Bulletin* (1908–10).

Sources: Barber (1988b), Coats (1969), and the first issue of each journal.

The professionalization process, which occurred concurrently with the institutionalization of economics departments in the universities and the formation of information networks, enhanced the recognition and visibility of the economics profession as an independent body of authoritative scientists and facilitated the development of distinctive research procedures. This process gave rise to a unique professional culture, which we shall henceforth study.

3. Professional Economists and Their Culture

Most researchers of the American social sciences in the last quarter of the nineteenth century agree that the professionalization process brought about a

unique professional culture in which open partisanship on controversial public policies was restrained. This culture was termed “professional conservatism” by Coats (1980) and “careerism” by Furner (1975).

This professional culture was probably the outcome of two inter-connected forces: the first was the intra-professional effort of maintaining professional solidarity and identity by achieving a consensus on research aims, procedures, and standards of professional conduct, while the second constituted extra-professional pressure exerted to keep professional economists from expressing policy opinions that might damage the economic interests of certain group, especially groups enjoying social hegemony.

These two factors, however, failed to work smoothly. Professional economists were expected to have a unified, authoritative, and objective opinion on social issues, but at times the only issues on which they could easily achieve a consensus among themselves had socially trivial implications. Non-academic members wanted the contributions of social scientists without any negative effects of their “scientific” research findings. As the title of a book by Furner (1975) emphatically demonstrates, there was a continual and un-resolvable tension between *Advocacy and Objectivity*. The intra-professional efforts to achieve a professional identity were manifested in discussions among economists, which will be later explained in more detail. The presence of extra-professional pressure was dramatically observed in the so-called “academic freedom cases,” which became quite frequent in the last two decades of the nineteenth century. Table 4 summarizes some relatively well-known academic freedom cases in which economists were involved.

As shown in this table, there were many cases in which university

Table 4 Academic Freedom Cases

Scholar's name	Year	Univ.	Main Antagonists	Issue	Result
Henry C. Adams	1886	Cornell	Benefactor	Socialist view	Termination of contract
Same as above	1886	Michigan	Regents	Same as above	Same as above
Richard T. Ely	1894	Wisconsin	Ex-officio member of the board	Pro-labor speech	Tried and exonerated
Edward Bemis	1895	Chicago	President & businessmen	Pro-labor view	Forced to resign
E. P. Andrews	1897	Brown	Board members	Free silver	Resignation withdrawn
Edward Ross	1898–90	Stanford	Founder's widow	Free silver	Forced to resign
J. R. Commons	1899	Syracuse	Chancellor	Socialist view	Forced to resign

Sources: Metzger (1955) and Furner (1975).

administrators either forced or were made to force reformist economists, once appointed by the administrators themselves, to resign under pressure exerted by wealthy benefactors or conservative board members. However, these academic freedom cases cannot be viewed merely as the political establishment's encroachment upon the objective research activities of scientists. First, the conservatives alone did not violate the principle of academic freedom, as was demonstrated in the case of the Kansas State Agricultural College, where the controlling Populist majority in the Board of Regents terminated all contracts with the exiting faculty members in 1894 and then hired new ones, including E. W. Bemis, who was once expelled from Chicago.

Moreover, according to Metzger (1955), who offers a comparison between the trial of Ely in Wisconsin and the expulsion of Bemis in Chicago, there were multiple factors affecting such occurrences: these included the role played by the college administrator, the professional status of the defendants, the status of the accusers, and the nature of criticism made by the scholars, especially with regard to whether it was made against the general social order or specific persons. Metzger provides two reasons for the frequent occurrence of academic freedom cases in the last two decades of the nineteenth century: First, those with self-seeking vested interests tended to conspire against those following the truth-seeking disinterested sciences, and second, there was a kind of cultural incompatibility between the bureaucratic management, which regarded professors as employees, and those professors who favored unrestrained activities, either in academic or social areas. Metzger seems to favor the latter interpretation, with the caveat that the business culture in universities was not so much due to the demands of trustee members as it was the product of the increasing size and academic rule-making in universities.

In light of this, the famous case of Bemis—who was virtually expelled from the University of Chicago in 1895—should not be seen merely as the dismissal of a radical economist by President Harper. According to Bergquist (1972), the president decided to sacrifice Bemis on the urging of a lavish supporter, John D. Rockefeller, and other local businessmen. However, it should be remembered that the local businesses outraged and offended by Bemis's remarks on the municipal ownership of universities and the pro-labor movement undeniably sparked the tension. Moreover, some facts regarding three academic figures who were involved with the expulsion of Bemis indicate that factors other than business interests mattered in determining the fate of Bemis.

First, as Barber (1988b) notes, President Harper was well-aware of the crossfire between the old classical and new Institutional school and wanted to form the faculty of economics in such a way as to include a mixture of diverse perspectives. He even offered a head professorship to the prominent interventionist Richard T. Ely and requested him to run the Department of Political Economy; however, Harper was unable to meet Ely's strict terms and demands.

Second, as Coats (1963) observes, Chairman Laughlin attempted update the department with the current research trends by appointing Institutionalists such as E. James, T. Veblen, R. Hoxie, J. M. Clark, and W. Mitchell, although Laughlin

did prevent Bemis, who taught at the University Extension Program, from being appointed as a faculty member of the Economics Department. To be sure, Laughlin was a founder of the Political Economy Club, the majority of whose members were conservative free traders; however, as Coats (1961) points out, Laughlin tried his best to keep the club scientific and nonpartisan.

Third, the position of Bemis's immediate superior, Professor Albion W. Small, appears to have been equivocal. He issued the statement ascribing the dismissal to Bemis's poor performance in the University Extension work, but at the same time, he largely agreed with Bemis's policy views, including municipal ownership of public utilities; this is possibly because Small was R. T. Ely's student. As suggested by Furner (1975), Small simply believed that a scholar in a vulnerable position had to avoid taking a stand on controversial issues—an attitude that was probably shared by many contemporary economists. This was also the major reason why AEA did not make official statements on the academic freedom cases on behalf of its members, unlike several other national associations such as the American Association of University Professors (AAUP).

The Bemis case, which apparently showed the dominance of business interests at the cost of academic freedom, was indicative of the setting of certain limits within which academic conduct could be allowed. Furner describes these limits as the range of permissible dissent:

Yet the leading professionals had tentatively established a policy of defending established scholars under certain conditions: when the subject at issue was clearly a conventional concern of economics; when the controversial doctrines fell into an area where the accuracy of calculation and reasoning—one test of objectivity—could be easily demonstrated; where there was no violation of ethical procedure, excessive popularization, or indoctrination; and where the support of influential scholars and citizens somewhere, if not in the immediate area, located the controversial teaching within the range of permissible dissent. (Furner 1975, p. 228)

As she further argues, the academic freedom cases contributed to the gradual narrowing of the range of dissent that seemed safe for professional economists. This range was the product of not only extra-professional but also intra-professional forces, since professional economists wanted the kind of scholarly authority that would not be undermined by excessive partisanship or divisions in public opinion.

Narrowing the range of investigation and audience helped obtain this kind of scholarly authority. The role of economists as experts in gathering facts and evaluating the effects of policy measures began to be regarded as a useful one by government officials and parliamentary members. Some economists tended to think that their work, which was based on statistical fact-finding, would help resolve the many conflicting opinions of politicians. Church (1974) interprets this change of audience as a strategic change toward achieving the same purpose, in the

sense that academic economists sought to significantly impact society by working even more closely with those in power directly after 1890, mainly because they were discouraged at the slow progress made in teaching large segments of society in the earlier period. He further argues that professionalization and the stress on scientific and quantitative methods had not lessened the overriding concern about applying scientific knowledge to the improvement of a society. However, it is undeniable that adopting professional research skills and limiting the scope of topics helped build a common ground on which economists could discuss economic matters and contributed to excluding the philosophical, ethical, and sometimes political questions from economic discourses, if not annihilating policy differences.

Most professional economists agreed on the importance of the economists' role in American society, as is shown in their own discussions. One noteworthy case is the controversy provoked by the presidential address of Arthur T. Hadley. In his address delivered in December 1898, Hadley, who once was the proponent of academic purism, complained that economists did not make sufficient efforts to explain their points to the statesman and often took refuge in the seclusion of their schools, generating theories of society that were more interesting and profitable to scientists than to politicians⁸⁾.

In response to the demand of members that more time be given for discussion, Hadley elaborated on the methods of exerting influence upon the political world in his address in 1899. After making a distinction between a theory of distribution dealing with a division of income among different members of the community and a theory of prosperity dealing with the aggregate result of the nation as a whole, he argued that the latter was closely connected to ethical or political principles, while the former was not. He called for employing the understanding of economists as a means of evoking public spirit, since the principle of competition could not coexist with economic harmony, as people sought to perpetuate their individual interests within classes, not between classes, by forming trusts or trade unions⁹⁾.

In a discussion on Hadley's address, Commons argued that economists had to represent a class that was excluded from its rightful legal share in the government. Commons explained that the difference between Hadley and himself lay in their view of government: Hadley believed that the government was controlled more or less by public opinion, while in reality, according to Commons, different interests were more likely to be subject to the head of the organization. In other words, a failure to recognize social classes would lead to paternalism, based on the survival of the strongest, while the recognition of social classes would imply self-government, based on legalized justice between classes.

Commons's view, however, was supported by few economists. E. R. A. Seligman, who often acted as a theoretical arbitrator, rebutted Commons by saying

⁸⁾ See Hadley (1899, pp. 14–15).

⁹⁾ See Hadley (1900, pp. 46–53). See also the continued discussion for the opinions of its various participants.

that all economists should try represent the common interests of society, avoiding representing any one class. This opinion was shared by other participants such as Mayo-Smith and Powers. Even E. W. Bemis argued that Commons's method of representing a class might be inappropriate and that economists had to employ positive action from the viewpoint of ensuring the welfare of a general society, although he agreed that the positive convictions of economists could be sometimes personally equated with social interests. This exchange led to Hadley's final remark that economists would henceforth attempt to promote unbiased discussion aimed at promoting public interest.

The above discussion is indicative of the professional atmosphere in which economists located themselves in society. In addition, the rapidly expanding size of universities and market for economists facilitated the bureaucratization process, in which academic performance would be judged in terms of publication records; hence, the culture of "publish or perish" prevailed in the end. These internal and external tendencies helped gradually establish the culture of professional conservatism among academic intellectuals.

4. Professionalization and Marginalist Economics: The Cases of J. B. Clark and I. Fisher

The period of professionalization overlapped the period of the marginal revolution, and many researchers have pointed out that the professional culture somehow affected the development of marginalist economics. For example, the professionalization of English economics led by Marshall shaped the future development of the Cambridge neoclassical school, in which the classical tradition was cherished. Unlike the professionalization of English economics, that of American economics was carried out collectively, without there being a single authoritative figure, as suggested by Coats (1980). Moreover, the United States was not a land of theoretical innovation in the 1870s and 1880s. Goodwin (1973) suggests two factors to explain why the environment in the United States was unfavorable to the growth of marginalism at this time. First, the dominance of Protestant theology hampered mathematical education and favored a cost-of-production theory. Second, the economy was relatively underdeveloped economy meant that intellectuals tended to be preoccupied with more urgent policy matters, thus paying less attention to a luxurious and purely theoretical research.

Whatever be the true reasons, the marginal revolution in the United States occurred gradually, just like the professionalization process. Table 5 presents the profiles of nine American marginalist economists. These were chosen from among 50 prominent American economists in the period of 1865–1918, who were selected by Stigler (1973) on the basis of the third volume of Dorfman's grand research, *The Economic Mind in American Civilization* (1949). Although the classification of these nine economists as marginalists was based on Dorfman's description of individual economists, it is possible that the selection is subjective. For instance, the position of H. J. Davenport was a mixture of marginalism and institutionalism.

Further, some scholars who favorably mentioned marginalism, such as F. A. Walker and F. M. Taylor, were not included in the list.

Among the 50 prominent economists of this period, the marginalists were outnumbered by the institutionalists; in fact, the 1920s are often regarded as the heyday of American institutionalism. On the other hand, the marginalists outnumbered the followers of English liberalism, such as J. L. Laughlin and D. Wells. In addition, the impact of the marginalist revolution most significant in the field of economics education, and even many critics of marginalism acknowledged the analytical usefulness of concepts developed by marginalists. In his discussion of Fetter's paper presented in the 13th annual meeting of AEA in 1900, C. A. Tuttle admitted that the re-examination of fundamental concepts such as the utility theory of value yielded encouraging results, and even though he was critical of Clark's marginal productivity theory, Tuttle acknowledged that due to marginalist economics, the student of that time could deploy a much more efficient equipment for the investigation of practical questions¹⁰⁾.

Table 5 Profile of American Marginalist Economists

Name (year of birth-death)	Education	Occupation	Major works
Simon Newcomb (1835-1909)	B. S. Harvard	Professor Johns Hopkins	Principles of Political Economy (1886)
John Bates Clark (1847-1938)	B. A. Amherst	Professor Columbia	The Distribution of Wealth (1899)
Stuart Wood (1853-1914)	Ph. D. Harvard	Businessman	"A New View of the Theory of Wages, I-II," QJE (1888 & 1889)
Herbert J. Davenport (1861-1931)	Ph. D. Chicago	Professor Missouri, Cornell	Value and Distribution (1908)
Frank Fetter (1863-1949)	Ph. D. Halle	Professor Cornell, Princeton	The Principles of Economics (1904)
David I. Green (1864-deceased)	Ph. D. Johns Hopkins	Professor Alfred, Kenyon, etc.	Not applicable
Thomas N. Carver (1865-1961)	Ph. D. Cornell	Professor Oberlin, Harvard	The Distribution of Wealth (1904)
Irving Fisher (1867-1947)	Ph. D. Yale (mathematics)	Professor	The Rate of Interest (1907)
Henry L. Moore (1869-1958)	Ph. D. Hopkins	Professor Columbia	Laws of Wages (1911) Synthetic Economics (1929)

Note: The above economists are presented in the order of their birth years.

Sources: Blaug (1986), except for David I. Green, whose biographical information comes from *Who Was Who in America*, 1897-1942, Vol. 1 (A. N. Marquis Co., Chicago), 1943.

¹⁰⁾ See Tuttle's comment on Fetter's (1901) paper.

It is worth mentioning that the number of academic economists among marginalists, i.e., 8 out of 9, was higher than that of academics among all prominent economics, i.e., 40 out of 50. It is also noteworthy that some marginalist scholars were initially trained in natural sciences, e.g., Newcomb in astronomy, Fisher in mathematics, and Moore in statistics.

Tobin (1985) suggests that among the nine economists, J. B. Clark and Irving Fisher were undoubtedly the two most distinguished American economists. This paper, therefore, examines the contribution of these two luminaries in more detail in order to clarify how the changes in the economics profession affected the development of marginalist economics.

John Bates Clark was renowned as the original proponent of the marginal productivity theory of income, and his influence among contemporary marginalists was tremendous, as is noted by Homan (1928). After graduating from Amherst College in 1872, he went to Germany to study economics under the direction of Karl Knies at the University of Heidelberg. Upon returning to the United States, he engaged in teaching at various universities. A series of papers written by him during the first decade of *The New Englander* were later collected and published under the title *The Philosophy of Wealth* in 1886. In this book, Clark criticized classical economics for failing to recognize human motives other than material self-interest; he also brought attention to the transient nature of the competitive system and the unity of society. Clark called for the "solidarism" of individuals, especially between capital and labor, based on moral forces:

The present state of industrial society is transitional and chaotic. ... The crudeness of the transitional system has begotten lawlessness. Labor is employing irregular methods in the contest with capital; capital is using injurious methods in its dealings with society. Individual competition, the great regulator of the former era, has, in important fields, practically disappeared. It ought to disappear; it was, in its latter days, incapable of working justice. The alternative regulator is moral force, and this is already in action. The system of individualistic competition was a tolerated and regulated reign of force; solidarity, even in its present crude state, presents the beginnings of a reign of law. (Clark 1886, p. 148)

However, the flavor of the above morally heavy-loaded statement with regard to the limitation of free competition not to be found in his second book, *The Distribution of Wealth* (1899), which was based on a series of theoretical papers published in various professional journals, such as QJE (1891, 1895) and the *Yale Review* (1893). In this book, Clark claimed that the functional incomes of factors would be determined by their marginal product and that personal distribution can be explained accordingly. The question of equity would lie outside the realm of economics:

If functions are paid according to their products, men are also. Hence, while

rights are personal, the issue of rights that is involved in distribution is settled by a functional study. ... We might raise the question, whether a rule that gives to each man his product is, in the highest sense, just. ... The entire question whether this is just or not lies outside of our inquiry, for it is a matter of pure ethics. Before us, on the other hand, is a problem of economic fact. (Clark 1899, p. 8)

The two passages quoted above are very disparate and indicate a dramatic change in Clark's views, from Christian socialism to seemingly free-market conservatism. This change is manifested not only in his published materials but also in Clark's reaction to professional affairs. In 1885, Clark expressed that his views and wishes were quite in line with Ely's original platform of the projected AEA, in which the state was regarded as an "educational and ethical agency whose positive aid is an indispensable condition of human progress"¹¹. In 1887, when the academic freedom case of Bemis was about to be disclosed to the public, Clark warned Bemis that winning the case before the public might actually harm his chances for a good appointment. Furner (1975) describes Clark's attitude toward Bemis as changing from sympathetic to ambivalent to gradually hardening over the years, as the same events that radicalized Bemis worked to moderate Clark's interest in reform.

This apparently dramatic conversion of Clark's intellectual orientation has been investigated by many researchers. His son, John Maurice Clark (1952), Homan (1928), a contemporary economist, and more recently, Henry (1982, 1994) consider this change only as a change of emphasis, while Jalladeau (1975) and Tanaka (1990, 2000) interpret that Clark's conversion was fundamental in a methodological and philosophical dimension. Since this paper does not attempt to give a definite verdict on either side, it is sufficient to mention two aspects in relation to the effect of professionalization and marginal revolution on the change in Clark's research agenda.

First, Clark's personal intellectual journey reflected what happened to the economics profession at large in the 1880s and 1890s, as Tobin (1985) mentions. As the publication of academic papers became a means to obtain positions in more prestigious universities, the audience and scope of academic research became limited. Undoubtedly, Clark's publications in professional journals dealing with specialized topics helped him move from Carleton College in Minnesota (1875–81) to Smith College (1893–95), Amherst College (1893–95), and finally, to Columbia University (1895–1923). As Hutchison (1955) perceptively suggests, new theoretical achievements-especially the more abstract models applicable to advanced countries regardless of their cultural differences-flowed more easily through professional journals. In this context, Clark's academic interest could have been intensified by frequent communication with foreign pioneers of marginalist

¹¹ See Ely's report (1887, pp. 6–8).

economists, as Jalladeau notes:

Endowed, on the one hand, with a great propensity of theoretical construction, and on the other, swept along in the rising flood of international marginalism, Clark, a representative American of the new stream of thought, develops more profoundly those ideas which appeared to him very early as being of world-wide interest. (Jalladeau 1975, p. 224)

Second, there remained some methodological and philosophical similarities between his earlier and later writings, and this aspect of continuity might be a reflection of the gradual process of professionalization and/or marginal revolution¹²⁾. In his early work, *The Philosophy of Wealth*, Clark was not entirely against deductive reasoning, as he praised his teacher Karl Knies for his insightful use of both deductive and inductive reasoning¹³⁾. In this book, wherein Clark presented his own version of the marginal utility theory of value without knowing Jevons's version, Clark used the organismist approach to the explanation of market value:

The social organism is never nerveless; independently of sympathy, between man and man, there is a beautiful law of society as a whole, which makes the wants of every member a matter of decisive interest to all. It is society as a whole that originally bought the loaf from its producer; ... Independently of personal sympathies, society assumes a paternal relation toward particular members, buys articles for their use, consigns the articles to them, and has no desire to take them again. (Clark 1886, pp. 84–85)

A similar organismistic view of society persisted in his later work, *The Distribution of Wealth*, although the book mostly followed methodological individualism. This organismist view can be found in the conception of true capital as an entity which can perpetuate itself only by continually moving out of one body into another, as against concrete capital goods. In his dispute with Böhm-Bawerk, Clark argued that the concept of true capital was needed to study the permanent fund of capital in its entirety, in terms of which the interest problem was defined, unlike the case of perishable capital goods:

The material tissue of social capital is undergoing continual change, like the substance of a living organism; but the productive fund as a whole may be said to keep its identity. It continues unimpaired through the changes that

¹²⁾ According to Homan (1928, p. 25), Clark's early treatment of the problem of value is curiously inconsistent with his criticism of the postulates of classical economics. I am of the opinion that Clark's explanation of value in terms of "effective" utility was also made under the influence of the German historical school.

¹³⁾ See Clark (1886, p. 35).

affect its separate tissues. ... Capital acts continuously and without periods, while each particular instrument has a beginning and an end. (Clark 1895, p. 257)

Clark's marginal productivity theory of distribution logically needed the organismistic and holistic notion of capital in order to explain the uniform rate of interest as one determined by the final increment of homogeneous capital; this was demonstrated following the well-known capital controversy surrounding the notion of capital in the 1960s¹⁴⁾. Clark's notion of true capital is not merely an abstract concept used for the convenience of macro-economic analysis, since he also used this concept to explain the movement of real interest rates.

Besides the spurious notion of capital, Clark's assumption of a given supply of input led to the statement that both wages and interest would be determined by the law of final productivity, treating the supply of input as given. Clark's version, however, differs from the more sophisticated version of the marginal productivity theory prevalent now. The latter is merely the result of assuming profit maximization, continuous production function, and perfect competition, and therefore, it only describes the demand for various inputs. The former was designed to defend the way incomes between classes would be distributed in capitalism, although Clark (1888) argued that the differentiation between classes had become blurred. In the first chapter of *Distribution of Wealth*, he presented his main thesis in the study of specific production:

We may now advance the more general thesis ... that, where natural laws have their way, the share of income that attaches to any productive function is gauged by the actual product of it. In other words, free competition tends to give to labor what labor creates, to capitalists what capital creates, and to entrepreneurs what the coordinating function creates. (Clark 1899, p. 3)

As most interpreters of Clark agree, Clark's later position stemmed from his aim of refuting the socialist thesis of exploitation. Clark believed that a modern property system could be legitimized, if it could be proved that actual wage would be the whole product of labor; interest, the product of capital; and profit, the product of a coordinating act¹⁵⁾. He was also concerned with the growth of an economy and attempted to extend his static analysis to the dynamic state. In his book *Essentials of Economic Theory* (1907), Clark tried to explain how changes in data, such as population, capital, technology, organization, and preferences, would affect all prices and quantity variables.

¹⁴⁾ As Garegnani (1976) explains, the early neoclassical theorists, including Clark and Böhm-Bawerk, tried to measure the value of capital in terms of a single physical unit, since their object of inquiry was the long-term equilibrium position where a uniform rate of interest would prevail.

¹⁵⁾ See Clark (1899, p. 5). In Clark's framework, land is included in capital and economic profit is non-existent in a static equilibrium.

It was Clark's basic intention that it impossible to completely separate value-free positive economics from the ethics-ridden normative economics. As Henry (1983) maintains, Clark's theory not only generated a specific ethical conclusion but was also based on the very same conclusion, since he wanted to demonstrate the justice of distribution under a capitalist social organization. Clark's ethically heavy version of marginal productivity was the outcome of his obsession with the legitimization of capitalism and perhaps reflected the state of the economics profession in the nineteenth century, when the distinction between theory and praxis was not as strict as it is at present.

Now if we turn our attention to Irving Fisher, we find some difference between his theoretical motives and structures and those of Clark. Irving Fisher was younger than J. B. Clark by twenty years, and he started his professional career as a mathematical economist at Yale, after submitting his dissertation entitled *Mathematical Investigations in the Theory of Value and Price* (1891). This dissertation was an exposition on the conditions of general equilibrium in the case of cardinal utilities and was hailed by Samuelson (1967) as the greatest Ph. D. dissertation ever written in economics. Allen (1993) reports that while Fisher seemed to have specialized in developing economic theories in his earlier career, his interests extended to include economic statistics, business cycles, monetary reform, finance, nutrition, public health, invention, etc.

He was very critical of the historical school, as he expressed in his address as chairman of the social and economic science section of the American Association for the Advancement of Science:

The inductive method, by which any theory of phenomena must be checked by reference to actual historical fact, thus forms the means of distinguishing between truth and falsity. Rejecting false theories is quite different from rejecting all theories. What is needed now in political economy is to rid ourselves of the false and superficial theories, on the one hand, which have been constructed a priori and irrespective of facts; and, on the other hand, to release ourselves from the cheap empiricism of the historical school, who interpret their task as merely one of generalizing phenomena without analyzing them. (Fisher 1906, pp. 259–60)

He was not, however, an enthusiastic supporter of the laissez-faire doctrine; in fact, he was critical of it. In his address as vice-president of the same organization, he argued that the two premises of individualist doctrines were erroneous: Each individual might not be the best judge of his own interest, owing to his ignorance or his lack of self-control, and society would not be merely the sum of individuals in the presence of an externality of individual actions. He thus called for government intervention for the practical solution of social problems:

We are doubtless to-day in danger of too much socialistic experimentation; but nothing can be gained and much may be lost by ignoring or condoning

the opposite evils of individualism. (Fisher 1907a, p. 27)

Fisher sensed the prodigious inequalities in the personal distribution of capitalism, as he wrote about the tendency of the rich to grow richer and the poor to grow poorer in his textbook entitled *Elementary Principles of Economics* (1910). Fisher, however, wrote that the problem of personal inequality, which would include the application of economic principles, could not be discussed in a book designed to treat only economic principles themselves¹⁶⁾.

In the introductory part of his textbook, Fisher underscored the strict separation between economic principle and its application:

That is, the study of economic principles must precede the application of those principles to problems of public policy. In the end the student will reach more satisfactory conclusions, if at the beginning he will put aside all thought of such applications, and cease to commit himself a free trader or a protectionist, an individualist or a socialist, or indeed, any other kind of partisan. (Fisher 1910, pp. 1-2)

A similar view was re-emphasized in the concluding part:

The whole study has been, as a study of scientific principle should be, cold and impartial. The practical application of the principles was not included, and the student was warned at the outset against taking any partisan position in economic questions until he had some grounding in economic principles. ... The chief use of study of principles is as a preparation for the study of their application; and unless educated man use their knowledge of principles as a means of influencing public opinion on economic problem, the solution of these problems will be left to those who neither understand nor recognize the existence of any economic principles. Every educated man owes it to the community to use his education for intelligent leadership. (Fisher 1910, p. 475)

In this passage, Fisher retained the position that economic principles should be independent of political orientation, even as he stressed the importance of public education under the guidance of economic knowledge¹⁷⁾. This view was also expressed in his presidential address to the thirty-first AEA meeting in 1918, in which he underscored the urgent need for diffusing economic principles among the masses. This was probably due to the self-recognition of economists as unselfish

¹⁶⁾ See Fisher (1910, p. 440).

¹⁷⁾ In this light, the position of Church (1974), who considers Fisher a conservative economist like Laughlin, needs to be re-examined. However, I do not contend that Fisher was entirely free from any value judgment or bias, since Fisher was very harsh regarding the exploitation theory of interest (see Fisher 1910, p. 344.).

and impartial scientists, which could be comparable to the image of physicists in laboratories. Fisher also suggested the creation of “an endowment for economic research, in the management of which labor, capital, and economists would, all three, share and which would be a sort of laboratory for the study of the great economic problems before us” (Fisher 1919, p. 20).

This self-realization of the special role of professional economists was shared by most economists, as seen in the discussion among Hadley and other participants of the twelfth AEA meeting in 1899. Then the question arises: How did this growing self-recognition affect Fisher’s theoretical framework? In order to arrive at an answer, the following part of the paper analyzes Fisher’s theory of capital and interest.

After a series of papers on the concepts of capital and income, Fisher published a book, *The Nature of Capital and Income*, in 1906. In this book, Fisher applied the distinction between stock and flow to these concepts, defining capital as a stock of goods existing at a given point of time and income as flow of any benefit from these goods. It was then necessary to arrive at the rate of interest, in order to measure the money value of capital as the discounted value of the expected income. Capital, in this definition, is merely the result of aggregating the present value of capital goods, when the interest rate is known. Unlike Clark, however, Fisher did not attempt to explain the rate of interest in terms of marginal product of aggregate capital.

Instead, he treated the subject of interest from a different angle. Fisher presented his theory of interest at greater length in *The Rate of Interest* (1907b), in which he explained the interest rate as determined by both impatience and investment opportunity. In this book, for the first time in the history of economics, he applied the indifference curve to the description of consumption over time and gave a supply-and-demand explanation of the interest rate. Fisher’s presentation of the interest theory was basically a one-good model, in contrast to the multiple-good model presented in his dissertation, but he did not limit his theory to the explanation of the uniform rate of interest. He defined the rate of interest as the premium on goods in hand at one date, in terms of goods of the same kind expected to be in hand in the future. He developed a model to explain the term structure of interest rates in the presence of uncertainty. Moreover, Velupillai (1975) notes that Fisher was the first man to recognize the possibility of multiple rates of return, according to which a cost could be equated with the present value of uneven future income streams, as mentioned in the appendix of *The Rate of Interest*.

Samuelson (1967) argues that the greatest contribution in Fisher’s book is its presentation of a definitive model of a general equilibrium determination of interest rates, which is completely isomorphic to the general equilibrium model later developed by J. R. Hicks. Samuelson’s praise of Fisher seems exaggerated, since Fisher neither extended his model to include the multiple-good case nor used the concept of inter-temporal general equilibrium, as is clarified in a reappraisal by Schefold (1999). It is obvious, however, that Fisher’s research orientation was quite

in line with modern neoclassical general equilibrium theories that have attempted a positive description of short-term market operation and avoided the normative justification of the existence of interest.

In this view, Clark's notion of pure capital as a permanent fund and Fisher's concept of capital as the value of stocks play different roles within their own theoretical frameworks, contrary to Meacci's (1989) contention that Fisher's purpose in developing the rules by which the actual measurement of capital can be carried out was an attempt to provide practical support to Clark's notion of pure capital. Clark applied his notion to the legitimization of the entire working of capitalism, whereas Fisher presented the one-good model as a simple device to explain the basic structure of the transaction problem over time. Comparing the theories of distribution of both the giants, Tobin (1985) argues that Fisher's contributions have proved more durable and useful as foundations for further advances in theory, not just because of his use of mathematics but his formulations of problems. The subtle change in the object of inquiry and role of theory that occurred between Clark and Fisher should be interpreted as not merely a logical extension of the equilibrium concept but as a reflection of the changing role of economic theory and economists in the professionalization process¹⁸⁾.

5. Concluding Remarks

American economics in the last quarter of the nineteenth century underwent a dramatic change in several aspects, the most remarkable one being the establishment of the profession of economics as an independent disciplinary community. The establishment of independent economics departments and graduate programs in many universities, professional organizations, and journals were both the results and the causes of professionalization. This professionalization, which was made possible through the efforts of self-conscious economists in the process of economic development and university reform, did not proceed smoothly in this period. For instance, there were conflicts between college administrators and economics professors, between economists and non-economists such as businessmen or politicians, and also among economists following different approaches. It was in this complicated setting that the professional culture of economists as distinct scientists was formed. This culture could be called professional conservatism, in which the discussion of differences in ideological and political issues was minimized in order to preserve the identity of the profession and consensus between professional economists.

This professionalization and professional culture seemed to be favorable to

¹⁸⁾ Gareganani (1976) argues that the change in the notion of equilibrium from the long- to the short-run position is owing to the logical inconsistency between the demand-and-supply theory and long-run equilibrium. This argument is plausible, but other socio-economic causes, like the abovementioned professionalization and the increase of market volatility, should not be ignored. (See the comment by Commons (1907, p. 121) on Fisher's notion of capital and income.)

marginalist economics, although the overall impacts of professionalization and professional culture might have been complex. As a result of increasing specialization, some economists began to concentrate on developing abstract theories, which required special knowledge of the field of mathematics and other natural sciences. These theories began to spread among academic economists, because most of the theories did not appear to be directly linked to special political positions. In this context, Goodwin's (1973) account of the marginalists appears sensible:

Moreover, they soon found that their new body of tools did not necessarily either support or conflict with most policy proposals. E. R. A. Seligman, J. B. Clark, Frank Fetter, and others were all attracted to political economy by such reformist schemes as that of Henry George, and over their lifetimes they remained intensely involved with questions of tax reform, trade union regulations, relief of depressions, and antitrust legislations. Undoubtedly they believed that their adherence to marginalism did not predetermine their differing positions on these practical issues. (Goodwin 1973, p. 300)

This description is quite in line with the argument of Kauder (1953), who thinks that the concept of marginal utility is ideologically neutral and that marginalism has no close connection with any special historical economic situation. His interpretation may not fit into the entire picture of development of marginalism, because some early marginalists like J. B. Clark tried to defend capitalism on the basis of the marginal productivity theory. In this light, Ross argues that marginalism was "most attractive to those professional cultures in which the classical economists' positivist scientific assumptions and liberal premises had the strongest professional and cultural support" (Ross 1991, p. 177).

Ross's interpretation, however, is somewhat misleading if we consider the effects of professionalization. The politically conservative nature of economics, if it appears to prevail in the academic world, can be explained as a by-product of the narrowed scope of economics due to the specialization process. As the professionalization proceeded, the disengagement of theory from policy became stronger, and positive theories emerged that appeared to be independent of political orientation. In the specialization process, professional economists began to focus more on the daily operation of the market economy than on the legitimacy of the entire economic system. Irving Fisher was one such economist, although his personal activities were more diverse than those of J. B. Clark. As a result, economists tended to take the capitalist system for granted, which made economics appear to support the status quo.

In other words, professional economists worked more from the motive of securing academic positions than from that of defending the capitalist system, although both motives might have affected research procedures and contents. In order to examine the overall impact of professionalization on the development of economics, it is necessary to conduct further research on the attitudes of many

other economists apart from J. B. Clark and I. Fisher.

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