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Become an“Empty Box”?**

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Abstract

Modern industrial economics can be said to start from Alfred Marshall. He wrote factors of the development of an industry were internal economics and external economics. The former means things like mechanization, division of labor and internal organization of a company. The latter means industrial organization and social infrastructure. Marshall thought the latter more important than the former.

This choice of Marshall decided the developing path of industrial economics. It has developed as the theory of industrial organization until today. It is a very mathematical and clear analysis. It, however, seems to lack rich and concrete contents of real industries. This paper follows the history of industrial economics as an “empty box”.

This paper also proposes an idea with which to enrich industrial economics. We refer to Takahiro Fujimoto, a Japanese management scholar. Industrial economics could possibly utilize non-mathematical researches in the field of industrial study.

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Keywords: industrial economics, industrial organization, Marshall, internal economy, external economy, Harvard School, Chicago School, Takahiro Fujimoto.

Introduction

Alfred Marshall wrote that economy of scale did not contradict perfect competition because the merit of scale of a company is not so large comparing with the merit from development of the whole industry to which the company belonged. This proposition can be rewritten using the words of internal economy and external economy.

Against this statement, Piero Sraffa published his famous paper and insisted that the research should turn its way from perfect competition to monopoly. Ahead of this paper, John Clapham criticized Marshall technically. He wrote that we could not distinguish the effect from the increasing size of the whole industry and the effect from inventions or technological progress in the law of increasing returns.

Clapham used the word “empty economic boxes’ criticizing Marshall’s abstract approach to industries. We also used the same word. We, however, use the word to criticize formalism of modern theories of industrial organization. We regard Marshall’s ideas as having rich possibilities to analyze the reality of industries. After Marshall, industrial economics developed into very formal price theory and supply-demand analysis. The developing process, however, may be interpreted as the history in which industrial economics has been losing its rich contents.

This paper will describe the history from that perspective. We will also propose a possibility for industrial economics to regain the ability to analyze vivid development of real industries.

1. Marshallian Origin of Industrial Economics

It is a well-known fact that Marshall published a book on industrial economics with his wife Marry before his main book. He developed the concepts which he proposed in the joint book in his main book. And finally he published the book analyzing the real problems in industrial development in his later years. Considering this, we can tell that industrial economics located in the center of Marshallian economic analysis.

Marshall’s theory of economic development is called organic growth theory. He used an analogy of biology or evolution. Marshall paid attention to economic organizations as the elements that caused quantitative and qualitative changes in an economy. Economic organization diversifies and accumulates at the same time. If we explain logically, the former effect is internal economy and the latter one is external economy.

Internal economy means the developing effect from internal organization of a company.

Marshall explains internal economy as relationship between divided labors and machine. As tasks are normalized and the normalization is repeated, automatizing process progresses and the labor is divided further. The promoting factors of these mechanization and division of labor are expansions of markets¹. Complicated machines need high specialty of workers. This raises workers' wage. Only a skillful ability of management will give full play to such internal economy.

We can easily see that secret of development in industries is just in Marshallian internal economy. We mean that internal economy can be said innovation in Schumpeterian meaning. Marshall, however, regarded external economy as more important than internal economy².

Marshall divided external economy into industrial accumulation and industrial integration. The former means many small companies' concentration to one local area. His analysis is characterized as consideration of skilled workers behavior. The merits of this kind of external economy is counted four. The first is spin-off of technology and knowhow, the second development of supporting subdivisions, the third economy of scale and the fourth availability of skilled workers. This meaning of Marshallian external economy is the same as the modern concept of economy of agglomeration.

Industrial accumulation give rise to development of social infrastructure. Marshall enumerated systems of transportation and telecommunication. He, however, indicated that the development of systems of transportation and telecommunication could facilitate the movement of technologies and skilled workers. This is a negative factor to economic development of the area.

Another kind of Marshallian external economy is industrial integration. A large company can accumulate high-tech machines and raise its productivity rapidly. It can also take risks in developing new products and new technologies³. Finally a big size of the company enable it to execute mass purchase, mass sales and mass advertisement.

We can take notice of Marshall's emphasis on production cost and market prices. As we have already checked, Marshall thought more of external economy than internal one. This lead to Marshall's attention not to internal organization of a company but to external organization of the industry. In other words, Marshall thought that industrial organization was more important than innovation as a factor of increasing returns. We have to say this tendency of his decided the developing direction of industrial economics.

¹ This is really a deep implication of Adam Smith's political economy.

² Joseph Alois Schumpeter criticized Marshall in that Marshall had failed grasping the true cause of industrial development because of this choice.

³ This point would be emphasized by Schumpeter later.

2. Industrial Economics after Marshall

The contradiction of Marshallian theory on perfect competition and increasing returns gave birth to the two books by Joan Robinson and Edward Chamberlin. In the UK, Joan's husband, E. A. G. Robinson had already published a book discussing ruling companies' market behavior. In the US, Chamberlin's disciples, Edward Mason and J. S. Bain built the famous paradigm of research consisted of structure, conduct and performance⁴.

Harvard School of industrial organization, whose leading person was Bain, treated industrial organization as relatively static one. In contrast of this, Robinson's treatment was more dynamic and he affected American development of industrial organization theory, too⁵. Robinson and Bain, however, share the same view that goodwill is really important to a company. R. Triffin used cross elasticity of demand in analyzing oligopoly.

George Stigler is one of the most important persons in development of theories of industrial organization. He was a leading scholar of Chicago School of industrial organization. They insisted that competition would modify monopoly in the long run. They opposed direct regulation against monopoly by the government. J. M. Clark, who is a son of J. B. Clark, propose the concept of effective competition and proposed the necessity of social control on business though he was also Chicagoan.

Another leading character of Chicago School, Harold Demsetz argued that monopoly was the result of efficiency of a company. This argument is the antithesis to SCP paradigm of Harvard School. Harvard School insisted that monopoly is the cause of high profit. He wrote a joint paper with A. A. Alchan and denied the proposition of Harvard School that advertisement had an effective influence on making market structure. They told advertisement was one of market conduct and facilitated competition as the method of entry into a market.

3. Products and Typology of Industry

As we have written in this paper, industrial economics has just concentrated its analysis to industrial organization and neglected the relation between internal organization and

⁴ This is called SCP paradigm. It characterizes Harvard School of industrial organization.

⁵ Even contemporary researchers like J. Tirole refers to Robinson's writings.

industry. Takahiro Fujimoto, a Japanese management scholar, has continually researched about this aspect of industrial economics.

Fujimoto uses the concept of organizational capability in manufacturing⁶. He thinks that the success or prosperity of an industry in an economy depend on the capability building by most companies of the industry. He made a kind of typology of industry using the characters of products as benchmarks.

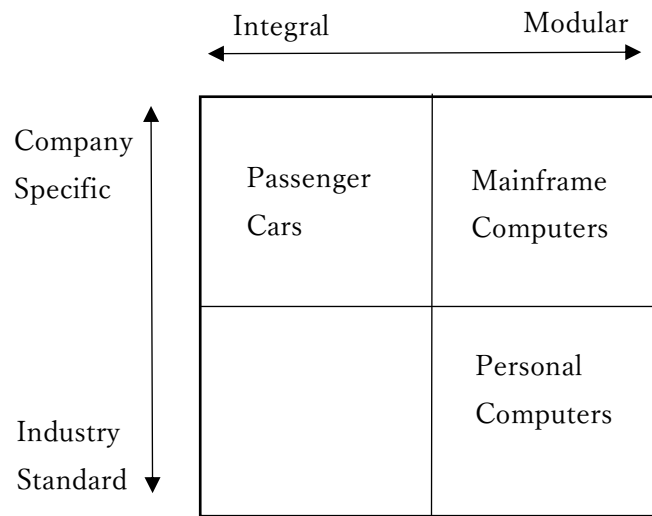


Figure 1, Fujimoto (2007), p. 36.

Fujimoto made a two-by-two matrix. Its horizontal axis expresses the degree of independence of parts design. The vertical axis expressed the degree of openness of technology to the outside. We obtain four quadrants. The south-west quadrant is vacant.

In addition to that matrix, Fujimoto made another. He wrote the latter was more useful for categorizing industries. This matrix just focuses on transfer of design information. Here the horizontal axis shows receptiveness to transfer of information. And the vertical axis shows the level of retention of information.

⁶ This concept directly corresponds to Marshallian idea of internal organization.

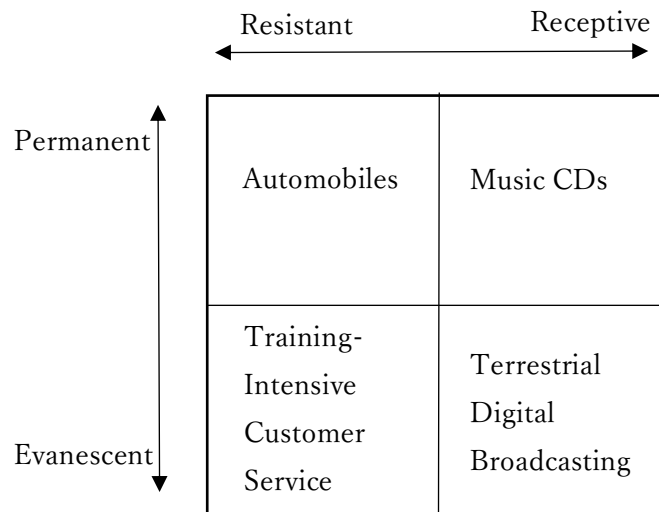


Figure 1, Fujimoto (2007), p. 37.

Conclusion

We have followed the history of industrial economics and considered why it became an empty box in this paper. Marshall had both concepts internal economy and external economy. He, however, concentrated his analysis only to the latter. Because of this, rich possibility of industrial economics might be lost.

Nowadays new theory of industrial organization introduces game theory as analytical tools for industrial organization. It, however, still lacks the attention of concrete typology of industries. As for internal organization of a company, new institutional economics analyzes from the view point of neoclassical economics. It is also too abstract to grasp real dynamism of product architecture.

Based on such an analysis of ours, we would like to say industrial economics has to recover its intrinsic contents. In doing so, economic scholars can make use of non-mathematical works of industrial study.

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