

科学研究費助成事業 研究成果報告書

平成 29 年 5 月 31 日現在

機関番号：14401

研究種目：基盤研究(C) (一般)

研究期間：2013～2016

課題番号：25380424

研究課題名(和文) 日本における医療の経済史 放射線器械の普及を中心に(1890-1960年)

研究課題名(英文) Economic history of healthcare in Japan: a focus on the diffusion of radiology (1890-1960)

研究代表者

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交付決定額(研究期間全体)：(直接経費) 3,000,000円

研究成果の概要(和文)：この研究は、日本における医療市場の形成に関する新しい医療技術(エックス線装置の事例を通して)の影響を明らかにした。2点は特に強調された。

1) 病院システムの構造(日本の場合は都市において多数の私立小病院の集中)・組織(日本には、自由競争)は技術の普及と強い関係がある。その結果、日本市場の特徴を理解していたエックス線装置メーカー(島津製作所)は、グローバル企業(ドイツのシーメンス)より市場を支配した。

2) 新技術は投資であり、病院の経営へのインパクトは大きかった(富裕層の患者の入院など)。病院システムの調整のため、国家は介入した。

研究成果の概要(英文)：This research demonstrated that new medical technology (X-ray equipment as a case study) contributed to transform deeply the nature of the Japanese healthcare system and to make medicine a growing business. Two main points have been emphasized: 1) There is a strong relation between the structure (numerous small private hospitals in urban areas, in the case of Japan) and the organization (free competition, in Japan) of the hospital and the diffusion of technology. The manufacturers of equipment that knew the conditions of local market (Shimadzu), rather than global companies (Siemens), were able to dominate the business of X-ray equipment. 2) The acquisition of new technology was an investment which had a major impact on the management of hospitals (need for new financial resources; attraction of wealthy patients) and on the whole hospital system. This gave way to the intervention of the state (regulation to support the access to healthcare to population).

研究分野：Business History

キーワード：経済史 経営史 医療ビジネス 病院経営 エックス線装置

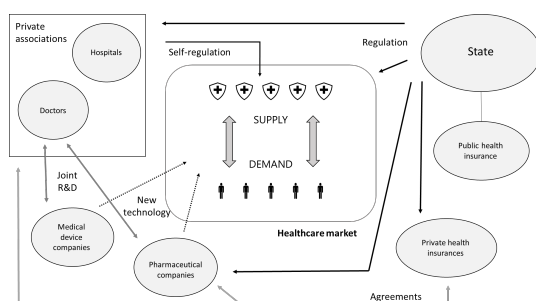
1 . 研究開始当初の背景

Healthcare and medicine experienced a major transformation during the twentieth century, characterized by the transformation of this sector into a fast-growing business. Three main fields of research focused on the historical development of the healthcare market (social history of technology, business history of manufacturers of medical devices, and history of hospitals). However, the integration of these various perspective in a single approach was not realized yet and could provide a new and promising understanding of the transformation of medicine into a business.

2 . 研究の目的

The objective of this research was to make clear the process of transformation of medicine into a business in Japan between 1890 and 1960, and which role technology played in this mutation. As a cast study, this research tackled X-ray equipment, because it was the first global medical technology, controlled by a handful of companies, and because it had a major impact on hospital management. Hence, this research adopted a multifocal analysis in order to discuss the organization and the evolution of the healthcare market (see figure 1).

Figure 1: Organization of the healthcare market



Source: designed by the author ©.

Following an approach of business history and history of technology, this research focused in particular on the two following topics:

- 1) Relations between the adoption of new medical technology and hospital management: important issues were to understand the process of diffusion of technology through social networks and market mechanisms, and the strategy adopted by multinational enterprises (Siemens and General Electric) as well as local companies (Shimadzu).
- 2) Organization of the healthcare market: the need to attract more patients to enlarge financial resources to amortize new equipment strengthened competitiveness on the healthcare market. The intervention of the state and the action of various actors (insurances, hospitals, and doctors) must be addressed to understand how the market has been regulated.

3 . 研究の方法

This project adopted the methodology of historical research, i.e. a survey based on the analysis of primary (archives) and secondary (literature) sources. A broad range of sources from various organizations and actors has been gathered in order to achieve the systemic perspective aimed by this research. I followed different approaches to discuss the most important issues:

- 1) Business history: analysis of the sales and development of X-ray devices in Japan. General Electric, Siemens and

Shimadzu were the major target of my research; analysis of joint research between manufacturers and doctors, based on a quantitative survey of patents; management of hospitals.

- 2) Social history: analysis of the emergence of medical specialties in Japan and of the way radiologists achieved to control the use of X-ray technology.
- 3) Economic history: analysis of the regulation of the healthcare market.

4 . 研究成果

The analysis of the historical development of the healthcare market in Japan between 1890 and 1960 made it possible to highlight the major features of this process. This research has emphasized five main points.

- 1) The business history of the suppliers of new medical technology, namely the producers of X-ray equipment, demonstrated that these companies had to adapt their product to the particular structure and organization of the Japanese market. The issue was to launch cheaper equipment that could be sold to local hospitals, which were smaller than Western hospitals. The specificity of the Japanese hospital system was the opportunity for domestic producers (like Shimadzu) to develop suitable equipment. On the opposite, global companies, like Siemens, lost their competitiveness in Japan during the 1920s because they did not engage in product adaptation.
- 2) The social history of medical specialists in Japan during the interwar showed that, unlike Western countries, the process of specialization was not the

outcome of regulation through certification, but the result of free-market mechanisms. However, although there was not legal limitation to self-define oneself as a specialist, social relations (engagement in academic and professional networks) were determinant for careers. The professionalization of radiologist was hence a gradual process that occurred during the 1920s and the 1930s, with the emergence of a new generation of doctors who took control over X-ray technology against established surgeons.

- 3) The quantitative analysis of patenting medical devices in Japan until WWII highlighted the various strategies carried out by manufacturers regarding joint research and development (R&D) with medical doctors, particularly radiologists. While multinational enterprises (Siemens and General Electric) hardly outsourced R&D, Shimadzu worked intensively with doctors. This collaboration is at the basis of the competitive advantage of this company on the domestic market.
- 4) The business history of hospitals showed the way X-ray technology was gradually diffused in the Japanese healthcare system and its impact on hospital management – being both an investment and a source of growing revenues. Hospitals had to reorganize themselves to attract wealthy patients. This change occurred mostly in the 1920s and 1930s, after the introduction of X-ray equipment. Consequently, the hospital market became more and more

competitive, particularly in urban areas, where numerous small private hospitals were established.

- 5) The analysis of regulation of the healthcare market shed a light on the way the various actors intervened to overcome the contradictions of the transformation of medicine into a business (i.e. avoiding the gradual decrease of profitability). The state intervened lately and the scope of its engagement was limited to the support of health insurances. An international comparison shows that Japan was, until World War II, characterized by one of the lowest levels of coverage of population for healthcare insurance.

5 . 主な発表論文等

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6. 研究組織

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