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Comparative Study on Electrification in
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Dissertation Abstract

This study begins from the question why the characteristics of electrification (also called ‘technological style’) differ in Germany and Japan. These different characteristics include ownership structure, business management (strategy and structure), regulation model, and network design. Following the question, this study sets up two purposes. One is to describe the technological styles by exploring empirical evidence. The other is to explain the reason of the difference by focusing on analyzing business-government relations.

In Chapter 1 we compared the business management of electricity firms. We compared primarily the strategic choice (do they pursue system expansion or choose to remain urban?), the organization choice (do they choose to remain vertically integrated or do they choose to specialize in power production or distribution?). We found that the integrated firms in both countries adopted the strategy of system expansion and chose the vertically integrated organizational structure. But we found that the production firms, although shared the similarity in adopting the strategy of system expansion, presented variety in organizational choice. The German firms were mostly government owned, and the Japanese firms were privately owned. Despite the difference, the integrated firms and production firms both reached growth and became large in asset. We also analyzed the impact of government on business management. We found that successful management choice leading to growth could be reached by both government owned and privately owned firms. We concluded that government’s impact on management is not absolute and must be contextualized.

In Chapter 2 we moved our scope out the firm and looked at the business environment to ask what determines the different ownership structure in the two countries. We examined three important components of business environment: the legal context, political structure, and ideological context. The three factors are deeply interrelated with each other and compound each other in

their function. We found that the difference in ownership structures in the two countries can be explained by the interaction of the legal, political, and ideological environment in their national context. Germany was gradually dominated by government ownership because the mature franchise model, the clear definition of public passage ownership, the long tradition of municipal self-administration, the decentralized federal structure, and the ideological belief to check private monopoly by replacing it with government monopoly. Japan has been dominated by private ownership since the beginning, because the weak franchise model and the ambiguous definition of property rights regarding public passages, on which electric utilities laid their network. In the long run, factors like the centralized rights of way, the centralized political structure, and the overwhelming power of the central government on local governments also contributed to explain the dominance of private ownership. The general social consensus was also favorable for private ownership in electricity. Put together with Chapter 1, we see that the dominance of private ownership in Japan was not because of the incapability of government owned utilities to reach successful management, but because of the particular environmental conditions was disadvantageous for the creation and expansion of government owned utilities.

In Chapter 3 we conducted a case study about the business-government relations behind the history of national grid building in Germany and Japan. We found that engineers and managers in both the two countries raised similar proposals about national grid plans based on similar economical-technological principles in the beginning of the 1920s, but the outcome was quite different. We found that the reason for this difference was complex, but can be reduced to business-government relations. In Germany, the local government-owned firms, represented by the case of RWE, were critical of the Reich's nationalization plan and set up the strategy to find a decentralized alternative in creating regional grids. The business environment was helpful in that the federal structure

prevented the enforcement of nationalization. The cooperation of the state-owned German regional electricity firms led to the multi-core interlocking structures as well as cartels as the organizational response towards grid building. And this structure might be a result of the power balance between the German states, in other words a result of political structure. However, in politically centralized Japan, the government adopted an industrial policy that encouraged competition so as to foster electrification. Moreover, the government viewed the unification of cycles as an unimportant goal. This business environment made it difficult for the Japanese firms to cooperate with each other in cycle unification and in grid building. So Japan had not built inter-firm networks that were necessary for grid building. The case of German and Japan shows that business-government relations could explain the different outcome in grid building.

In Chapter 4 we explored in detail the interaction between business and government in the case of Kyoto. It revealed the weakness of local government-owned utilities under a centralized political structure. It also revealed the Japanese ideological consensus towards the meaning of natural monopoly.

The chapters we examined, from different perspectives, indicate together that business-government relations are an important determinant of the different characteristics of electrification.