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## 学位論文内容の要旨

博士の専攻分野の名称：博士（経済学）

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### 学位論文題名

## Essays on Determinants and Measurements of Productivity

（生産性の決定要因と計測方法に関する研究）

In this dissertation, I theoretically and empirically examine effects of new entry, resource misallocation and economic policies on firm-level and region-level productivity, and I try to measure real technical improvement more precisely when observed productivity changes arise from both supply and demand factors. More specifically, I propose a theoretical approach to examine the entry effect on productivity and to distinguish the physical productivity improvement and revenue productivity change. I also use Chinese firm-level data to examine to what extent resource misallocation accounts for observed regional productivity differences between Beijing and Shanghai. The main contributions of this dissertation are threefold. The first contribution is to improve our understanding of sources and mechanisms that determine productivity. The second one is to propose a methodology of measuring technical efficiency improvement more precisely. The third one is to provide policy implications for fostering economic efficiency at the regional level.

In Chapter 2, I examine how new entry influences incumbent firm's measured productivity when the highest quality product is introduced to the market by incorporating both demand and supply factors into a single analytical framework. First I build a theoretical model by extending the model of Johnson and Myatt (2003) where both consumers and firms take product quality into account when they decide their optimal behaviors. The extended model allows me to link physical productivity and revenue

productivity under several types of new entry. The key insight from this analysis is that incumbent firm's revenue productivity can be affected by both business stealing effects and technical improvement effects. Based on the results from this theoretical model, I discuss potential problems of using revenue productivity measures, and the importance of distinguishing physical productivity improvement and revenue productivity improvement in an empirical analysis. The separation of revenue productivity from physical productivity is critical for understanding the sources of an observed productivity change accurately.

In Chapter 3, I use firm-level Chinese manufacturing data to investigate how input market distortions affect the aggregate productivity differences between two major cities in China, Beijing and Shanghai. In this empirical analysis, I use an extended version of Hsieh and Klenow (2009) approach and an alternative approach developed from Midrigan and Xu (2014) to estimate productivity losses from resource distortions. This empirical analysis reveals that the aggregate productivity level is lower in Beijing than that in Shanghai, and the input market distortions, especially the capital misallocation is more severe in Beijing than that in Shanghai.

In Chapter 4, I attempt to offer a possible mechanism through which regional productivity are affected by labor market misallocation between Beijing and Shanghai. In doing so, I construct a theoretical model and investigate a possible role of Hukou allocation system (a unique household registration policy in China) in influencing regional productivity through firm's strategic behavior with respect to the retention of workers. The theoretical analysis shows that a firm has an incentive to retain inefficient match between the firm and workers under some Hukou system and this theoretical insight indicates that the level of regional productivity is low due to inefficient labor market allocation arising from Hukou system. This analysis offers a new explanation for an observed regional productivity difference between Beijing and Shanghai.