

令和 5 年 6 月 19 日現在

機関番号：37503

研究種目：基盤研究(C) (一般)

研究期間：2017～2022

課題番号：17K03745

研究課題名(和文) Analysis on TFP Sources of Growth to Enhance Competitiveness

研究課題名(英文) Analysis on TFP Sources of Growth to Enhance Competitiveness

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交付決定額(研究期間全体)：(直接経費) 3,300,000円

研究成果の概要(和文)：本研究では、日本の製造業の全要素生産性と動的生産構造を推定するための回帰モデルを開発しました。この調査では、全要素生産性の伸びの源泉における企業の異質性を推定しました。動的要因モデルを利用して、動的生産性の伸び、動的な生産構造、および産業政策が生産性の伸びに与える影響を推定しました。本研究の実証結果は、日本経済の生産性向上に必要な様々な政策提言を提供するものである。私は国際査読付きジャーナルに6つの論文を公表し、25の国際会議でワーキングペーパーを公表しました。

研究成果の学術的意義や社会的意義

This research provides information about temporal pattern of productivity growth for the Japanese economy and new perspectives on the productivity growth. The research provides some guideline in implementing industrial policy to boost productivity growth.

研究成果の概要(英文)：This research has developed regression models to estimate total factor productivity and dynamic production structure for the Japanese manufacturing industry. The research estimated firm heterogeneity in sources of total factor productivity growth. It utilized a dynamic factor model to estimate dynamic productivity growth, a dynamic production structure and impacts of industrial policy on productivity growth. Empirical results of the research provide various policy suggestions required to boost productivity growth for the Japanese economy. I published six papers in internationally refereed journal and presented working papers at 25 international conferences.

研究分野：Applied econometrics

キーワード：factor adjustment production structure productivity growth firm heterogeneity corporate tax reduction Japanese manufacturing

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## 1. 研究開始当初の背景

The Japanese government has been pursuing structural reform to boost its competitiveness. In this regard, this study attempts to devise and estimate a model that explains productivity dynamics for the Japanese economy. The study investigates impacts of macroeconomic policy and other determinant factors on TFP growth for the Japanese manufacturing industry to recommend policies that will be effective in improving the overall productivity of the Japanese economy. The study can recommend policies that are effective in improving the overall productivity of the Japanese economy.

## 2. 研究の目的

This research is to estimate the effects of demand shocks driven by industrial policy on technology shocks. Measuring dynamic effects of demand shocks enable us to better understand impacts of expansionary policies, actively used to boost the economy. The study can provide information about temporal pattern of productivity growth for the Japanese economy. This research tries to provide new perspectives on the productivity growth. The research attempts to provide some guideline in implementing industrial policy to boost productivity growth. The research provides some insight on policy priorities for the Japanese economy to sustain its growth in the future. The study delivered policy guidelines tailor-made for specific firm groups and industries.

## 3. 研究の方法

This research developed three regression models and applied them to Japanese manufacturing data for empirical analysis. First, a model was developed to decompose TFP growth as measured by the Solow residual into technical change, scale economies, technical efficiency change, and allocation efficiency change in AY2017. This model was applied to the Japan Industrial Productivity Database to estimate firm heterogeneity in productivity growth. Secondly, a dynamic factor model was designed to estimate in AY 2017-20 (i) the production structure of the Japanese manufacturing industry and temporal change in factor adjustment, (ii) impacts of corporate tax reduction on factor adjustment.

## 4. 研究成果

This study applied regression models to Japanese manufacturing survey data and the JIP database in AY 2017-22 to analyze the Japanese manufacturing industry. Empirical findings of the study are as follows:

1) After decomposing productivity sources and relating them with various firm characteristics, the study finds that firm heterogeneity in productivity growth shows that large firms are more productive largely because they are more innovative, despite operating at less-than-efficient scales. The beneficial impacts of exports are realized most when firms become exporters, and intrafirm trade cause inefficiency after a certain threshold. I presented this research at five international conferences and seminars and published it in a SSCI-indexed journal in AY 2017.

2) When I investigated dynamic factor adjustment and corporate tax reduction in Japanese manufacturing industry using a dynamic dual approach. Empirical estimations show that a tax reduction as an incentive to firms for raising wage turns out to boost not only capital investment but also employment. This research utilizes data compiled from the JIP database. I presented this research at seven international conferences and seminars and published it in a SSCI-indexed journal in AY 2018.

3) Estimations on dynamic factor adjustment show that factor adjustments of labor and capital are very slow in adjusting toward new the equilibrium when shocks changed steady-state equilibrium. However, the estimations show that the factor adjustment of labor and capital gets faster over the years. It suggests that Japanese manufacturers have become more flexible in hiring workers and faster in making investments due to intensified international competition and the introduction of information technology (IT). I produced three working papers on this topic and presented them at six international conferences and published them at refereed journals in AY2020-22.

4) Estimations on dynamic productivity growth in the Japanese manufacturing industry

show that disequilibrium effects of quasi-fixed factors are positively biased toward productivity growth measured in a static equilibrium model. The bias results largely from negative adjustment costs related to the decreasing investment in the factors. There is an almost steady decrease in returns to scale, causing negative scale effects on productivity growth. I presented this research at four international conferences and published it in a SSCI-indexed journal in AY 2020.

5. 主な発表論文等

〔雑誌論文〕 計6件（うち査読付論文 5件/うち国際共著 3件/うちオープンアクセス 1件）

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〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織

	氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考
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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関
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