Comments by Hayato Kato, **on Competition Effects and Industrial Productivity: Lessons from Japanese Industry**

Hayato Kato: Masahito Ambashi asks a fundamental question in the modern economy: Is product market competition good or bad for productivity growth? He empirically tackles this question by focusing on Japanese industry.

The author clearly reviews the theoretical underpinnings and states that the relationship between competition and productivity growth could be positive, negative, or even non-monotonic. Technologically laggard firms have stronger incentives to innovate than monopoly firms to achieve monopoly status. Thus, competition among technologically leading and laggard firms may foster innovation in the economy (the "replacement effect"). On the other hand, monopoly power and the resulting profits may be necessary for firms to engage in investment on technological innovation (the "Schumpeterian hypothesis"). Furthermore, considering the fact that firms with different technological levels have different degrees of incentive to innovate, the relationship may be non-monotonic (Aghion et al. 2005).

With mixed theoretical predictions in mind, it is an empirical issue to evaluate how competition affects productivity growth. Using Japanese industry-level panel data, the author

constructs a measure of competition based on the Learner index (i.e., the price cost margin) and examines its impact on TFP growth. The novelty of his study is to divide the whole industries into two groups: manufacturing and non-manufacturing industries.

His main findings are summarized as follows.

- In the manufacturing industries, competition promotes TFP growth in both the whole (1980–2008) and sub-sample periods. In the non-manufacturing industries, on the other hand, competition may reduce TFP growth in a sub-sample period (1995–2008).
- In the whole industries, TFP growth has an inverted-U relationship with competition.

The author interprets these results taking into account the Japanese context and cautions against drawing decisive policy implications from his analysis. The paper is well organized and the issue is crucial for the Japan's stagnating economy. Nevertheless, some reservations may be proposed.

My points are twofold. First, it is not perfectly clear what is the channel through which competition affects TFP growth. From the theoretical perspectives reviewed in the paper, intense competition may dis-incentivize firms to make an effort to improve their TFP. The empirical counterparts of the effort for innovation should be R&D and IT investment. The author puts these investments and measures of competition all into the same regression model as independent variables. A "partialling out" interpretation of multiple regressions (e.g., Wooldridge 2015, chapter 3), however, tells us that the coefficients of competition measures represent the effect on TFP growth, holding R&D and IT investments fixed. In other words, the coefficients do not capture the effect of competition through innovation effort so that the arguments based on the previous theoretical studies seem inconsistent with the econometric specification. In fact, Aghion et al. (2005), who first proposed the inverted-U theory, do not include both measures of competition and those of innovation effort as independent variables to be consistent with their theory.

What is the direct effect of competition on TFP growth, not the indirect one through innovation effort? The coefficients of competition measures may capture a "spillover effect," which is close to the one found in the literature studying the impact of foreign direct investment on local firms (e.g., Crespo and Fontoura 2007). One such example is that competitive pressure surrounding firms may motivate or discourage managers to restructure their organizations. The interpretation of results needs more careful examination.

Second, it is worth investigating dividing industries not just by manufacturing vs. non-manufacturing, but also by other industry characteristics. Some examples include exposure to international trade, and the degree of regulation and the technological distance from the

world's frontier (e.g., U.S. industries). By dividing industries according to how technologically distant a Japanese industry is from its U.S. counterpart, one could capture technologically leading and laggard industries. As the inverted-U theory by Aghion et al. (2005) suggests, neck-and-neck industries and laggard ones respond differently to competition. Accordingly, one could clearly understand the regression results based on the theoretical predictions.

References

Aghion, P., N. Bloom, R. Blundell, R. Griffith, and P. Howitt. 2005. Competition and Innovation: An Inverted-U Relationship. *Quarterly Journal of Economics 120*(2):701–728.

Crespo, N., and M. P. Fontoura. 2007. Determinant Factors of FDI Spillovers—What Do We Really Know? *World Development 35*(3):410–425.

Wooldridge, Jeffrey M. 2015. *Introductory Econometrics: A Modern Approach*. Boston, MA: Nelson Education.

doi:10.1162/ASEP_a_00571