

Direct Support vs. Indirect Support

: Towards an Optimal Policy Mix for R&D Investment of Korean SMEs

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I. Introduction

As the real New Normal age arrives, the importance of SMEs (small and medium-sized enterprises) tends to be more strongly emphasized. South Korea also has reinforced the support for them, for economic growth and job creation. In particular, it searches for a variety of policy measures, including expansion of the tax incentive system and national R&D projects in order to promote R&D investment and technological innovation. Researchers' opinions on the efficiency of direct/indirect support for the complement of private R&D investment are differed, but there is little discussion on the effective combination between two policy measures. Now, it may be time to discuss policy mix of direct/indirect support as well as long-term directivity, where the ministry in charge of policies for SMEs is upgraded and the scale of government's R&D expenditure supporting them continues to be increased in South Korea. Over the past 50 years, South Korean exhibited rapid and successful economic prosperity by supporting for SMEs technological innovation. The process of exploring the optimal technological innovation supporting policy based on cases in South Korea can thus suggest an important example to various countries aiming for learning relevant policies.

II. Method and Result

This study attempted a systematic literature review and a meta-analysis, by collecting 32 related studies which have been presented by Korean academic circles. Such a process has an

implication in that it summarizes related debates and empirically arranges them, beyond mere verification of government's policy support results in crowding-in of SMEs' own R&D investment. Findings from the systematic literature review were in disarray, yet indirect support showed more consistent complementary effects than direct support in terms of corporate R&D investment.

Descriptive statistics approach through the systematic review of literature can draw partial conclusions. The author attempted to conduct meta-analysis in order to draw quantified and empirical conclusion by overcoming these limitations. Meta-analysis is a statistical approach that integrates individual empirical analysis results to organize general knowledge in a certain field. In this study, this analysis was carried out to compare crowding-in effects of direct supports with indirect supports investigated in earlier studies.

There are 24 studies capable of producing effect size of correlation (r) among 32 studies used in the systematic literature review and these studies were set to subjects for meta-analysis. The meta-analysis found that crowding-in effects of indirect support (.192) were higher than direct support (.143) in the model containing all enterprises. The analysis on large enterprises showed that effect size of indirect support (.250) was more prevalent than direct support (.080). Direct support (.124) was more effective than indirect support (.098) to induce R&D investments by SMEs. This result shows that tax incentive is more effective for large enterprises, while subsidy is effective for SMEs.

However, Korean SMEs' R&D support currently has the excessively high proportion of direct support. Official statistics released by the South Korean government revealed that the current ratio of direct support to indirect support from government funds for SMEs turned out 72.7 : 27.3. Compared to 55.9: 44.1 relative ratio of effect size resulting from this meta-analysis, this ratio suggests that the proportion of direct support was excessive in terms of investing actual finance. Findings suggest that the proportion of direct subsidies should be

diminished, while tax support should be progressively enlarged to promote the corporate technological innovation.

III. Conclusion: Policy Suggestions

First, it is important to set up alternatives for supporting R&D tax to SMEs. The previous R&D tax system may serve as a barrier to give tax benefits to these enterprises. This defective factor should be identified and improved. In addition, incentives should be provided for enterprises to receive tax benefits on technological innovation. For instance, a solution can be considered to give extra points in supporting R&D tax when it comes to hiring new researchers.

Second, portfolio on long-term financial supports for R&D in SMEs should be established. Over the past years, the domestic technological innovation policies have focused on direct supports centered in national R&D project. On the contrary, indirect supports were slightly neglected. If financial portfolio encompassing both direct and indirect supports is regularly established, attempts to explore the optimal policy combination will be performed systematically in terms of supporting technological innovation and leads to boosting investment strategies.

Finally, official data for R&D taxation needs to be established and transparently opened among those who are involved. One of major causes of lack of systematic analysis on crowding-in effects of indirect supports was the lack of valid data in the academic field. As R&D tax support can play significant roles in promoting technological innovation of SMEs as much as R&D subsidies. Therefore, plenty of R&D taxation data needs to be established equivalent to national R&D project.

Key words: SMEs, R&D investment, crowding-in effect, complementary effect, policy mix