Public procurement for innovation

Public procurement can support innovative businesses in several ways: it can stimulate innovation by creating a demand for innovative products or services, help innovative firms bridge the pre-commercialisation gap for their innovative products and services by awarding contracts for pre-commercial innovations (i.e. first sales of technology), help them achieve the critical mass needed to bring prices down and be competitive, and contribute to making access to private third-party funding easier. Evidence of the impacts of public procurement on innovation is still scarce, and the conclusions are mixed . Many OECD countries have shown a growing interest in public procurement policies in recent years. Thus, public procurement can provide critical support to investments in innovation and complement other types of finance. . Public policy can foster innovative businesses by reducing developing expertise and integrating new competencies within public administration to design and monitor innovation-oriented procurement, and by stimulating innovation-oriented public procurement within public agencies. Public policy should also address the risks associated with innovation-oriented public procurement and balance the multiple goals of public procurement in order to sustain its support of innovative businesses.

What is public procurement?

Public procurement refers to the conditions involved in the acquisition of products and services by the public sector. Public procurement may encourage innovation in three ways:

- First, regular public procurement, which occurs when public sector organisations buy readymade products for which no R&D is required, can incorporate innovation-related criteria in tender specifications and in assessment of tender documents.
- Second, public procurement may strategically create a demand for technologies or services that do not exist. This procurement involves purchasing a not-yet-existing product or systems.
- Third, public procurement may target the purchase of **research and development services** to support the activities and decisions of government and public authorities. This is the case for pre-commercial procurement of R&D (with no guarantee that the public sector will buy the goods or services developed).

How does public procurement affect innovative businesses?

- Innovation-oriented public procurement **stimulates innovation by creating a demand for innovative products or services.** Demand-pull theories suggest that the ability to produce innovations often requires market opportunity (i.e. demand). Demand then directs resources and capabilities to innovations to meet market needs (Schmookler, 1966; Rosenberg, 1969).
- Innovation-oriented public procurement can help firms **with easier access to private third-party funding.** Indeed, the provision of a market through the awarding of a contract and positive evaluation by a public agency can help attract additional financing from private sources.
- Public procurement can also help innovative businesses **bridge the pre-commercialisation gap** for their innovative products and services by awarding contracts for

pre-commercial innovations (i.e. first sales of technology). Pre-commercial contracts allow innovative companies to **get testing and feedback** from public organizations on the performance of their products and services. These tests and feedback may be essential to improving the products and services, and provide firms with the opportunity to **enter the marketplace with a successful application** of their new products and services. Overall, public procurement **reduces possible concerns** about the perceived risk of adopting a new technology. Customer concerns about a firm's or innovation's viability often prevent innovative companies from selling their products, even if the product, process or service is technically superior to that of their rivals (Georghiou, 2007).

- Public procurement can help innovative firms achieve the critical mass and competitiveness needed to bring prices down, which may be a key factor in the commercialisation and adoption of an innovation.

Evidence on the importance of public procurement to the success of firm innovation businesses

Public procurement has sparked a number of major technological innovations, including Internet Protocol technology and the Global Positioning System, and has played a central role in the emergence of a number of high-technology sectors in various countries, such as in the United States, Japan and France. However, evaluative evidence about of the impacts of public procurement on innovation and entrepreneurship **is scarce**, and the conclusions are **mixed.**

Evidence on the importance of public procurement to the success of innovative entrepreneurship

Evaluations of public procurement designed to support innovative entrepreneurship have highlighted multiple positive effects. One evaluation has shown that Small Business Innovation Research Program awards stimulated the **creation of new firms** in the United States (NRC, 2000). The evaluation of the SBIR programme in the Netherlands in 2007 confirmed the positive effect of such programmes on the creation of new companies. Moreover, awardees grew significantly faster in terms of employment and growth, and were more likely to attract venture financing than comparable firms (Lerner, 1999). An assessment of the United Kingdom's Small Business Research Initiative (SBRI) by Bound and Puttick (2010) confirms that SBRI-type programmes offer credibility for potential follow-on investments from the private sector.

However, other evaluations of SBIR-type programmes have raised doubts about the programmes' effectiveness. Data showed that, in the United States, SBIR awards did **not lead to an increase in employment** in firms and appeared to **crowd out private money** that companies previously spent on R&D (Wallsten, 2000). The analysis also pointed to a selection process geared toward selecting firms that had the greatest likelihood of commercial success (**"picking winners"**).

Other evidence suggests that the impact of innovation-oriented procurement programmes depends on the targeted segments. Based on a survey of 1,100 innovative firms in Germany, Aschhoff and Sofka (2008) find that public procurement is especially effective for smaller firms in regions under economic stress, as well as in distributive and technological services.

What is the evidence on public procurement and innovative businesses?

Some countries have pursued active procurement policies fostering innovation for decades. In recent years, public procurement has received renewed impetus, as such OECD countries as Australia, Finland, Germany, Sweden and the United Kingdom, as well as the European Commission, have stressed public procurement as a key means to drive innovation. For instance, Germany has created a new Agreement on Public Procurement of Innovation by which six federal ministries (interior, economics, defence, transport, environment and research) will promote innovative procurement. All six ministries will publish long-term demand forecasts, engage in continuous market analysis to identify potential new solutions, offer professional training on legal options to promote innovation,

and foster a strategic dialogue and exchange of experiences between procuring agencies, end-users, and industry and procurement agencies on all state levels.

The growing interest in public procurement policies reflects a greater awareness of the importance of feedback linkages between supply and demand in the innovation process. It also reflects a frequent perception that traditional supply-side policies have not succeeded in bringing about desired improvements in innovation performance. Furthermore, budget pressures create incentives to explore how innovation and entrepreneurship might be further fostered without increasing public spending.

What other topics relate to public procurement and innovative businesses?

R&D and other investments in innovation (see R&D and other investments in innovation [1]). Through R&D contracts, governments provide direct support to innovative firms' investments in innovation.

State of competition (see State of competition [2]). When procurement policies and procedures are discriminatory, not competitive or suffer from a lack of transparency, some agents, such as in-house providers, may benefit from undue preferential treatment. Incumbency advantages, including information concerning service levels and costs, and stronger positions to pre-qualify, may also deter the entry of competitors.

Other types of finance (see Other types of finance [3]). Public procurement may be designed to help fill gaps in the supply of risk finance for innovative ventures. For instance, pre-commercial procurement of R&D (with no guarantee that the public sector will buy the goods or services developed) directly provides finance to businesses that conduct R&D for the government and public authorities.

What policies relate to public procurement and innovative businesses?

Public policy can help public procurement foster innovative businesses by:

Developing expertise and integrating new competencies within public administration, to design and monitor innovation-oriented procurement (e.g. developing the skills to evaluate bids for innovative solutions based on qualitative award criteria).

Mitigating the risks associated with innovation-oriented public procurement.
Public procurement of innovation entails risks beyond those associated with traditional procurement. A report for the European Commission (Tsipouri et al., 2010) identified major risks associated with the procurement of innovation, including:

- **Technological risks**, which are the risks of non-completion owing to technical features of the procured good or service. One way to mitigate this risk is through contract design (e.g. using cost-reimbursement contracts). Vendors might also be asked to analyse risks associated with their proposals and assess how these could best be managed in the bid submission. Additionally, market intelligence capacities can be developed through structured exchanges with industry experts.

- **Organisational risks,** which refer to risks stemming from within the procuring organisation and to risks related to the adoption of the goods and services by users. These might result from inadequate absorptive capacities in procuring institutions or incompatibilities with existing technologies and routines. These risks can be mitigated through early user involvement in the procurement process and user training schemes.

Balancing the multiple goals of public procurement in order to secure the sustainability of public procurement programs that encourage innovation.
Public procurement programs targeting innovationraise important issues of governance and coherence between their primary goal, which is to purchase quality products and services for the public sector, and their secondary goal, which is to support innovation. Finding the right balance between both is essential to securing the sustainability of public procurement programs.

Stimulating innovation-oriented public procurement within public agencies.
Providing adequate resources, such as clear guidance, tools and support, can help public agencies use innovation-oriented public procurement. This involves providing documented examples of best practices, preparing sample documents and providing tools for tasks such as calculation of lifecycle costs (OECD, 2011b).

What are specific policy approaches when it comes to innovative entrepreneurship?

Public policy can help public procurement foster innovative entrepreneurship in particular by:

Reducing barriers for SMEs in accessing public procurement.
The large size of contracts is generally the most important barrier preventing SMEs from accessing public procurement (European Commission, 2010). Other important obstacles that disproportionately affect SMEs in accessing public procurement include overly complicated procedures that have to be carried out just to qualify for the tender, limited information, lack of clarity on how tender documents are written and lack of appropriate debriefing.

Policies and tools to allow SMEs better access to the market of public procurement include cutting tenders into lots, setting proportionate qualification levels and financial requirements, improving information about and publication of public procurement, and allowing SMEs to bid jointly (i.e. to rely on the economic and financial standing, and technical ability, of other undertakings).

Evaluating the effects of public procurement on innovative entrepreneurship in order to improve public procurement programs.
To date, there are few evaluations of public procurement programs targeting newly established innovative firms. Yet such evaluation is essential for increasing the effectiveness and efficiency of policies. Evaluation metrics and methodologies should be developed and used to explore the outcomes of public procurement policies on innovative entrepreneurship. Possible approaches include using data on patents to assess the innovation-related impacts of public procurement. Patterns of debt and equity financing might also be compared to get insight into the impact of public procurement on credibility for follow-on investors (OECD, 2011a).

Public procurement may support more specifically innovative entrepreneurs, including SMEs, by reserving a share of the total procurement budget for contracts or direct grants to small businesses.

References

- Aschhoff, B. and W. Sofka (2008), “Innovation on demand – can public procurement drive market success of innovations”, ZEW Discussion Paper, No. 08-052, Centre for European Economic Research.
- Bound, K. and R. Puttick (2010), “Buying power? Is the Small Business Research Initiative for procuring R&D driving innovation in the UK?”, Research report, June 2010, National Endowment for Science, Technology and the Arts, United Kingdom.
- European Commission (2010), “Evaluation of SMEs’ access to public procurement markets in the EU”, DG Enterprise and Industry, European Commission, Brussels.

- Georghiou, L. (2007), Demanding Innovation: Lead Markets, Public Procurement and Innovation, A NESTA Publication, London.
- Lerner, J. (1999), “The government as venture capitalist: the long-run impact of the SBIR program”, Journal of Business, Vol. 72, issue 3, pp. 285-318.
- National Research Council (2000), The Small Business Innovation Research Program: An Assessment of the Department of Defense Fast Track Initiative, Charles W. Wessner (ed.), National Academy Press, Arlington, VA.
- OECD (2012), ”Scores and methodology", SME Policy Index: Eastern Partner Countries 2012: Progress in the Implementation of the Small Business Act for Europe, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264178847-en [4]
- OECD (2011), Business Innovation Policies: Selected Country Comparisons, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264115668-en [5]
- OECD (2011), Demand-side Innovation Policies, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264098886-en [6]
- OECD (2011a), “Evaluating public support for innovation in business: Methodologies and metrics”, in Business Innovation Policies: Selected Country Comparisons, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264115668-7-en [7]
- OECD (2011b), “Demand-side innovation policies: theory and practice in OECD countries”, in Demand-side Innovation Policies, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264098886-en [6]
- Rosenberg, N. (1969), “The direction of technological change: Inducement mechanisms and focusing devices”, reprinted in N. Rosenberg (1976), Perspectives on Technology, Cambridge University Press, New York, NY, pp. 108-125.
- Schmookler, J. (1966), Invention and Economic Growth, Harvard University Press, Cambridge, MA.
- Tsipouri, L., Banciu, D., Bodewes, H., Creese, S., Edler, J., Hargeskog, S.E., Kalvet, T., Rolfstam, M., Sylvest, J., Thevissen, P., Uyarra, E., Vass, I. (2010), “Risk management in the procurement of innovation”, Report of an Expert Group for the EU Commission, Brussels.
- Wallsten, S. (2000), “The effects of government-industry R&D programmes on private R&D: The case of the Small Business Innovation Research Program”, Rand Journal of Economics, Vol. 31, No. 1 (Spring 2000).

Related Link: Innovation procurement schemes
Standards and certification
Environmental and safety regulations
Demand-side policy instruments for innovative entrepreneurship
Product market regulation

Links
[1] https://www.innovationpolicyplatform.org/content/rd-and-other-investments-innovation?topic-filters=12062

[2] https://www.innovationpolicyplatform.org/content/state-competition?topic-filters=12026
[3] https://www.innovationpolicyplatform.org/content/other-types-finance?topic-filters=12110
[4] http://dx.doi.org/10.1787/9789264178847-en
[5] http://dx.doi.org/10.1787/9789264115668-en
[6] http://dx.doi.org/10.1787/9789264098886-en
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