Stimulating demand for innovation

Rationale and objectives

Demand-side innovation policy is often understood as a set of public measures to increase public and private demand for innovations, to improve conditions for their uptake or to improve the articulation of demand in order to spur innovation and facilitate diffusion (Edler, 2007). It usually aims at lowering barriers to the market introduction and diffusion of innovations (Uyarra, 2014).

Recently, governments have focused attention on a range of demand-side innovation policies –from public procurement of innovations, to standards and regulations, to lead markets and user-/consumer-driven innovation initiatives – to “pull” innovation (see the policy profile on the “Policy mix for business R&D and innovation”). This reflects the adoption of a broader approach to innovation policy that addresses the full extent of the innovation system and cycle. In a context of fiscal consolidation, there is also interest in using demand-side policies to leverage demand for innovation without creating new public spending. An additional goal of public policies for demand-side innovation is to boost innovation capacity in sectors with strong societal demand for innovation such as the health, environment and energy sectors (see the policy profiles on “Innovation for social challenges” and “Green innovation”).

The rationale for demand-side innovation policies is to stimulate innovation in areas of pressing societal need for which government action can complement market mechanisms, ideally with minimal financial outlays. However, individual demand-side instruments have specific rationales. For example, procurement processes can help accelerate the emergence of technologies for which there is an urgent societal need. Innovation-oriented public procurement can also be designed to help lessen gaps in the supply of risk finance for small early-stage ventures. By contrast, the rationale for government action in the area of technical standards corresponds to the public-good characteristics of standards and the spillovers generated from the sharing of technical knowledge. By itself, the market may provide too few standards or inappropriate ones (e.g. they may be anti-competitive). Governments can catalyse industry-led standards setting that are not anti-competitive through its role as large consumer and as regulator. The process by which standards typically are set, involving the development of consensus among producers, requires the sharing of knowledge and accelerates the diffusion of technology.

Major aspects and instruments

Demand-side innovation policies take a variety of forms, with innovation-oriented public procurement, innovation-related regulations and standards the key instruments. User-driven innovation, design-driven innovation and eco-labelling initiatives also fall into the category of demand-side innovation as they seek to respond to consumer needs. Small business R&D grant programmes such as the SBIR scheme in the United States and variants in Australia, the Netherlands Public Procurement Bill and the United Kingdom fund R&D in the early stages of product development and as such are supply-side programmes. However, the competitive call for solution element of such schemes places them close to “pre-competitive procurement of innovation”. Environmental regulations, which have been a key driver of technological innovation to reduce CO2 emissions and a range of industrial pollutants, are another example of demand-side innovation policies. In addition, consumer policies or tax policies that affect demand for innovation (e.g. for green innovation) are also important. Pricing of environmental externalities and markets for carbon (i.e. carbon pricing) can also increase demand for innovation. Some governments have reintroduced prizes and competitions to induce R&D and innovation activities.

However, demand-side innovation policies, notably public procurement of innovation, are not without risk, as they may favour large firms over small firms or specify certain technologies and lead to technology lock-in. Public procurement agencies also often seek efficiency goals such as “value for money” that are not easily reconcilable with innovative solutions, although many public procurement agencies have recently broadened their missions to include such criteria. Public procurement is also highly fragmented across city, regional and national agencies and much policy action focuses on improving communication for procurement. Awareness-raising initiatives and the training of civil servants in public procurement agencies are used in many countries to foster “innovation-friendly” procurement. The limits of using public procurement as an innovation policy instrument (i.e. favouring domestic firms) are due to WTO rules, which exclude national preferences, and the possible supplementary cost and higher risk of innovative solutions compared with existing ones.

There are relatively few evaluations of demand-side innovation policies except for pre-commercial procurement schemes. This is due both to technical challenges associated with evaluation and the relative novelty of demand-side innovation policies. Evaluation is further complicated by the fact that policies that can be considered demand-side have innovation as one – sometimes secondary – goal among a number of objectives. For example, most studies of regulations on minimum fuel economy standards for vehicles do not focus on innovation but (understandably) seek instead to assess the overall costs and benefits of the regulations. Another issue is that the data are often inadequate to assess both the impact on innovation and the impact on the programme goal. In the case of public procurement although a majority of countries have special provisions to encourage participation by SMEs, 61% of OECD member countries do not track the number or value of contracts awarded to SMEs. Without such data, measuring effectiveness is extremely difficult (OECD, 2015). Furthermore, while existing data on firm innovation activity (e.g. Community Innovation Surveys) provide a partial picture of potential links between R&D, innovation and procurement activity, it has not been possible to distinguish general procurement from innovation-oriented procurement. The OECD is currently working on measuring the links between R&D, innovation and procurement with a view to better measuring the scale, extent and impact of this demand-side policy tool (OECD, 2014). Closely related to this effort, some countries are beginning to release new survey-based indicators highlighting whether innovations were introduced as part of procurement contracts. Efforts are also on-going to use public procurement databases as a source of evidence linked to innovation data.

Recent policy trends

Governments at national and supranational level, notably at EU level, have increasingly made policy statements and implemented demand-side innovation policies. However, most measures have been centred on public procurement of innovation, often oriented towards green growth objectives. For example:

- The European Commission has fostered several lead market initiatives at EU level, and the European Research Area Committee has called for the EU to dedicate 2% of public procurement budgets to innovation.
- Finland, the Netherlands, the Russian Federation, and Spain have retained and confirmed policy “targets” for public procurement of innovation. Austria and France have suggested the potential for targets in policy documents or statements. Policy targets range between 2% and 5% of public procurement budgets, a significant amount, given that public procurement accounts for 13% of GDP in OECD countries. In Germany alone, public procurement in 2013 totalled around USD 497 billion PPP (EUR 300 billion). In Sweden, a strategy for public procurement is under preparation and announced for 2016.
- Austria’s innovation-related public procurement concept (*Leitkonzept für eine innovationsfördernde öffentliche Beschaffung*, IÖB) aims to encourage industry to deliver innovative goods and services and to supply public bodies and citizens with advanced and (eco-) efficient goods and services. In 2013, implementation of the concept began through the establishment of a service centre (PPPI Service Point; PPPI = “Public Procurement

Promoting Innovation") in the Austrian Procurement Agency; the amendment of the Austrian Public Procurement Law which makes innovation an additional procurement criterion; and the start of pilot projects in the field of pre-competitive procurement and public procurement of innovation. An evaluation is scheduled for 2016.

- In February 2013 the Norwegian Ministry of Trade and Industry and the Ministry of Government Administration, Reform and Church Affairs launched the Strategy for Enhancing the Innovation Effect of Public Procurement. The Norwegian public procurement amounts to more than USD 442 million PPP (NOK 400 billion), 14,5% of GNP. Stimulating public procurement of innovation has been identified as key to better services, increased public sector cost efficiency and business growth.
- In 2014, Croatia launched a new strategy for fostering innovation with a special emphasis on the application of innovation through the public procurement system. Existing legislation on public procurement has been reviewed in order to prevent fraud. Again, application of new rules was linked to green public procurement and ecological innovation.

Smart public procurement initiatives such as improved dialogue between procurers and suppliers or subsidies to help suppliers and procurers to design and respond to innovation-friendly public tenders have sprung up in a range of countries.

- Canada launched the military component of the Build in Canada Innovation Programme (BCIP) in 2013. Through BCIP, federal departments test prototypes developed by Canadian businesses and provide feedback to help improve these innovative products before they are marketed to customers.
- Denmark's new Market Development Fund (arising from the merger of the Fund for Green Transformation and Commercial Innovation) aims to make it easier for public-sector institutions to obtain innovative solutions by specifying requirements in new ways. The public sector can help to target enterprise innovation so as to enable enterprises to develop better and less costly solutions.
- The German Centre of Excellence for Innovative Procurement (KO-INNO) aims to foster the awareness, readiness and skills public procurers need to procure innovative products and services. Under the responsibility of the German Federal Ministry for Economic Affairs and Energy (BMWi), KO-INNO organises workshops, strategic dialogue and advisory services. An Internet-based project database provides information about innovative products, services and procedures as well as areas in which innovative solutions are required. Best practice examples show how innovation-oriented procurement can function successfully.
- The Netherlands' public procurement expertise centre PIANOO offers guidelines and training to governmental bodies.
- Ireland introduced a new programme on "Small Business Innovation Research (SBIR)" in 2014 that enabled public sector bodies to address challenges by connecting with businesses to procure research and development on innovative solutions. The "Challenge-led Innovation" initiative was added in 2015 to spur demand for innovative products and services.

Some countries are also offering financial support to bridge the gap between procurement and innovation:

- Following a pilot project, Finland's Tekes provides R&D subsidies to public procurers and to SMEs via the Innovations in Public Procurement programme.
- Korea maintains an insurance-based scheme to reduce risks from innovative procurement. In 2015, it introduced a new public procurement strategy based on the "2015 Public Procurement Innovation Plan". Main targets of the plan comprise a wider application of public notification of procurement standards in advance, 20% discount of procurement fee for high quality products, higher ratings for items that can replace imports, and enhancing competitiveness of small /mid sized software companies through quality maintenance of commercial softwares.
- The United Kingdom operates a Forward Commitment Procurement programme in which public agencies commit to buy non-existing products or services at a specified future date,

performance level and cost. Communication of early-user needs and supplier engagement are central features of the scheme.

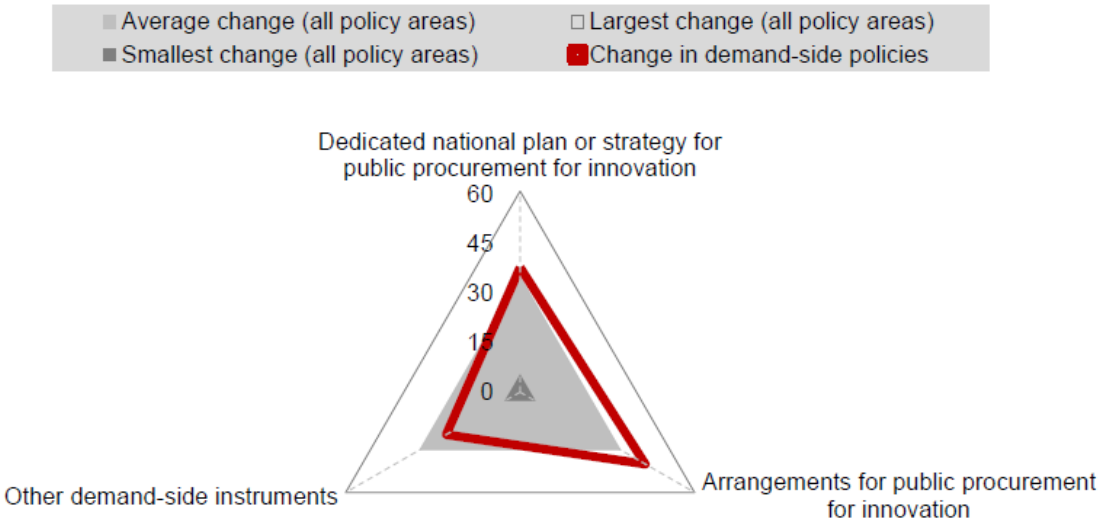
The Czech Republic implemented a pre-commercial public procurement programme within its "Operational Programme Enterprise and Innovation for Competitiveness 2014-20" that enables to finance the development of innovative public sector solutions. Simplifying and facilitating innovation-friendly procurement is another trend in many countries. Costa Rica's Merlink integrates the government's procurement activities in one e-platform. In Colombia, regulation rules (Decree 1510 of 2013, Article 155 on technological disaggregation) allow state entities to disaggregate investment projects to allow the participation of nationals and foreigners and the assimilation of technology by nationals. Technological disaggregation makes it possible to support innovation by Colombian businesses. The Finnish government adopted a Decision-in- Principle in June 2013 on the promotion of sustainable environmental and energy solutions (cleantech solutions) in public procurement.

With a view to balancing procurement and competition goals, the Swedish Competition Authority (KKV) will take over the main responsibility for support for public procurement, including innovation procurement, from July 2014. The Swedish Innovation Agency VINNOVA will continue to retain partial responsibility. The European Commission has established the Multi Stakeholder Platform whose aim is to propose actions for a European standardisation landscape in support of innovation.

Beyond procurement of innovation, standards, and lead market initiatives, prizes have re-emerged as an incentive for governments (and private companies) to procure R&D and innovation-based solutions. In 2012, the United Kingdom's NESTA established a Centre for Challenge Prizes to design, run and facilitate inducement prizes. In Germany, the Centre of Excellence for Innovative Procurement (KOINNO) honours exemplary achievements of contracting authorities with regard to rapid development and implementation of innovative solutions with the annual prize "Innovation creates a competitive edge".

Figure 1. Initiatives to stimulate demand for innovation among other areas of STI policy change, 2014-16

Percentage of policy initiatives that have been newly introduced, revised or repealed over the period



Note: The EC/OECD STI Policy survey 2016 aims to review major changes in national policy portfolio and governance arrangements for STI. The survey builds on the conceptual work carried on under the aegis of the OECD Committee for Scientific and Technological Policy (CSTP) for mapping the policy mix for innovation and therefore covers a broad range of policy areas (Kergroach et al., forthcoming-a). 52 economies participated in 2016, including OECD countries, key emerging economies (e.g. Argentina, Brazil, the People's Republic of China, Colombia, Costa Rica, Egypt, India, Indonesia, Malaysia, Peru, the Russian Federation, South Africa and Thailand), non-OECD EU Member States, and the European Commission. Taken together, the countries covered in the STIP survey 2016 account for an estimated 98% of global R&D. The responses are provided by CSTP Delegates and European Research and Innovation Committee (ERAC) Delegates for EU non-OECD countries.

This is an experimental indicator that accounts for the number of major policy initiatives implemented, repealed or substantially revised during 2014-16 as a share of total policy initiatives active at the beginning of the period. Although simple counts do not account for the magnitude and impact of policy changes, this ratio reflects STI policy focus and activity in specific policy areas and over specific periods of time. The chart above shows the intensity of changes in the policy area(s) under review as compared to the whole policy mi for innovation. Changes in the whole mapping are represented by the smallest, the largest and the average changes observed in all policy areas taken together.

Source: Based on EC/OECD (forthcoming), International Database on STI Policies (STIP); and Kergroach et al. (forthcoming-b).

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Links
[1] http://dx.doi.org/10.1787/888933445047
[2] http://www.innovationpolicyplatform.org/sti-policy-database
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