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Policy instruments for public procurement of innovation: Choice, design and assessment[☆]

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ABSTRACT

Public procurement is increasingly seen as an important potential instrument of innovation policy. However, policy design has been underpinned largely by anecdotal evidence and without a clear theoretical or empirical basis for understanding how supplying to the public sector actually influences a firm's innovation capabilities and performance and in what ways desirable behaviour and outcomes can be promoted. This paper seeks to address the basis of innovation procurement policy. It establishes a broad taxonomy of procurement policies and instruments that have emerged in OECD countries in response to perceived deficiencies and then compares these with the perceptions of firms using an analysis of a dedicated survey of 800 public sector suppliers in the UK.

It is observed that policy measures include the creation of framework conditions, establishing organisational frameworks and developing capabilities, identifying, specifying and signalling needs, and incentivising innovative solutions. The survey findings confirm that the barriers encountered by firms correspond to the deficiencies addressed by policies but do not address them sufficiently. This arises from lack of coverage, lack of ownership by purchasers, failure to address the whole cycle of acquisition and to address risk aversion. The scope of policy measures needs to be extended in time, breadth of reach and depth.

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1. Introduction

Public procurement accounts for a significant proportion of overall demand for goods and services and is increasingly seen as an attractive and feasible instrument for furthering the goals of innovation policy [1]. While the interest in the use of procurement as an industrial and technology policy instrument or tool is not new [see [2,3]] there has been a renewed focus on this underexploited 'demand side' approach

in recent years [4,5]. Policy aspirations in relation to the use of public procurement in support of innovation have been backed by the recommendations of a number of inquiries, reports and policy documents, both at EU [e.g. [6–8]] and at national levels [e.g. [9]], most notably in the UK [e.g. [10,11]]. Some of those exclusively targeted public procurement to push innovation [6,8,9], while others had a broader remit and situated public procurement within the overall policy toolbox, often as cornerstone of Lead Market Strategies [12–14]. However, despite this policy interest, there is little empirical evidence on the implementation of such policy aspirations and on whether policy measures reflect the principal difficulties faced by firms seeking to innovate in the context of the procurement process.

Moreover, the use of public procurement as an instrument of innovation policy has posed fresh challenges to policymakers. Most had their experiences founded in a universe of supply-side policies which typically sought to address deficiencies in the

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resources or capabilities available to potential innovating firms. Resource issues remain the dominant mode, focussed heavily on the upstream part of the innovation process and in particular upon the supply of knowledge. More traditional policies then give grants, soft loans or fiscal incentives to firms to develop new technologies underpinned by Arrow/Nelson market failure arguments about social returns exceeding private returns. Grants at least may also address information failures and issues of uncertainty by encouraging firms to pursue longer term R&D or specific new technologies that they might be averse to exploring with their own resources. On top of this, the same instruments can be used to promote behavioural changes by incentivising collaboration with knowledge producing organisations or with other firms. For smaller firms, where capability gaps may be greater, perceived behavioural deficiencies are also addressed by measures designed to improve their capabilities in management of innovation. With the advent of open innovation policies to improve the supply of knowledge by making intellectual property or public data more available are becoming increasingly common. Taking this whole package together, what can be said is that almost the whole edifice of innovation policy has been built upon enhancing the supply of knowledge to the firm in one way or another. Not surprisingly, this has meant that innovation policy is often treated as a branch of technology policy and in governance terms generally rests with ministries and agencies responsible for R&D policy. As we shall discuss later, this may have influenced the selection and prioritisation of policies.

While today it is widely understood that innovation is an interactive rather than a linear process and that both technology (or knowledge) push and market pull have a role, the predominance or traditional market failure rationales rooted in neoclassical economics have dissuaded governments from intervening in so-called near-market stages where customers interact with suppliers. There are of course attractive arguments for this position – in a static situation customers should be best aware of their needs and competition to satisfy those needs should drive towards the best solution. System failure rationales have been less inhibited in relation to which parts of the innovation process they act upon but at their essence is an emphasis upon linkages and institutions and hence a focus on policies to improve networking and information flows. Both sets of rationales can be marshalled in support of the use of procurement for innovation [see [4]] but in their current articulations they do not offer explicit guidance for the design and selection of demand-side policies and in particular procurement-related interventions. As we will see remedying gaps in resources and capabilities remain an important part of the picture. But the crux of demand side interventions is, first, to increase the *incentives* for firms to innovate, that is to make the return to the innovating organisation sufficiently large or more certain such that it is motivated to supply the innovation; and second, to make buyers more willing and able to demand and absorb innovation. To deconstruct demand-side policies we first need to understand what is going on in public procurement. While this area has increased in profile in policy debates for good reasons and is the most prominent of demand-side measures [5,15], the impression is that policy measures at present lack a systematic basis for their design. It is therefore important at this stage to make sense of the variety of approaches already adopted and to relate them to a framework

that goes beyond the merely simplistic. In so doing we will also argue that success in innovation procurement requires a shared vision of the future between purchasers and suppliers and that systematic ways of identifying and characterising those possible futures are an important means to achieve this.

This article investigates the range of policy interventions to support the use of procurement for innovation and assesses the degree to which they correspond to corrections of identified deficiencies in the process. We do this from two directions. In the first part of the paper we review the policy framework logic for current policy (Section 2.1) and the current policy measures as well as the deficiencies they are intended to remedy (Section 2.2). By doing so we develop a taxonomy of innovation procurement policy. In the second part we test the current assumptions about these deficiencies by analysing relevant aspects of 800 responses to a survey of firms supplying the UK government (Section 3). In the third part, we then compare the two to draw conclusions on whether the design and balance of measures is appropriate to support the development of this approach as integral part of a modern innovation policy (Section 4).

2. Remedying deficiencies – a policy taxonomy for innovation procurement

2.1. The policy framework logic

The use of public procurement as innovation policy tool must accommodate the *raison d'être* of procurement, which is that a public organisation purchases goods or services that it needs to perform its function. Such purchases occur in a wide range of sectors but construction, health and transport are all domains where public buying is prominent (in addition of course to the special case of defence and security¹). The fundamental innovation-related activity comes when a public purchaser, in making its choice of what to buy, either seeks to *trigger* innovation by demanding goods or services that do yet exist, or *responds* to it by favouring goods or services which have innovative characteristics. No matter what policy goals are formulated, to design public procurement as an innovation policy tool still means that it is necessary to improve the cost–benefit of a public organisation performing its function.

We build our analysis of public procurement of innovation around a functional approach to procurement, which can track the sequence of events involved (often called the procurement cycle) but is not identical to it. We plot the various policy instruments designed for public procurement of innovation against the various functions they seek to support and the deficiencies they seek to remedy.

We take as the starting point what might be described as the *framework conditions* for procurement, including the legislative background, and the broader governance that determines, for example, the degree of centralisation, autonomy or devolution that applies in public bodies for particular types or sizes of purchase. The framework conditions thus determine the

¹ We exclude defence procurement from our analysis as it is operated under a different regulatory framework.

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