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How to measure procurement with innovation surveys: recommendations for the UK Innovation Survey

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Research brief no. 12/2024 – Paper 6

Publication Date: 12/24

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IPEC Research

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Executive Summary

Public procurement represents a significant portion of government expenditure and plays a vital role in driving innovation within the private sector. Despite its importance, empirical evidence on the link between public procurement and innovation remains limited. Innovation surveys are key source of evidence on innovation dynamics in enterprises, providing comprehensive data on how businesses innovate, what drives their innovation activities, and what obstacles they face. This research brief focuses on the importance of including procurement-related questions in innovation surveys such as the Community Innovation Survey (CIS) and the UK Innovation Survey (UKIS), in order to generate valuable data for understanding the role of public sector contracts encourage on private sector innovation practices.

- Public procurement can drive innovation, especially when innovation is explicitly required or encouraged within public sector contracts.

- Current innovation surveys, including the UKIS, provide limited information on the role of procurement in fostering innovation, often focusing on cooperation with public sector entities without explicitly capturing innovative procurement activities.

- Expanding procurement-related questions in surveys will enable policymakers to better evaluate how procurement stimulates innovation across different sectors, particularly in areas aligned with government missions such as environmental sustainability and healthcare improvements.

- Recommendations include reintroducing and expanding procurement-related questions in the UKIS to capture data on firm revenue from public contracts, innovation requirements within those contracts, and the nature of public sector clients.

Introduction

This research brief underscores the importance of enhancing data collection practices to better capture public procurement's role in fostering innovation. Current innovation surveys, including the Community Innovation Survey (CIS) and the UK Innovation Survey (UKIS), are instrumental in examining firm-level innovation activities.

However, they often lack comprehensive questions on procurement, limiting policymakers' ability to assess how public contracts contribute to innovation across sectors, including mission-driven areas like net-zero initiatives, healthcare, and economic resilience (Appelt and Galindo-Rueda, 2016; Edquist and Zabala-Iturriagagoitia, 2012).

Recent studies indicate that in countries where such data is systematically captured, public procurement has shown a measurable impact on firm innovation, though this varies by sector, firm size, and type of innovation involved (Divella and Sterlacchini, 2021; Douglas et al., 2017; Krieger and Zipperer, 2022; Stojčić et al., 2020). A targeted refinement of procurement-related questions could enable policymakers to gauge the influence of public contracts on innovation outcomes more effectively, particularly in sustainability and high-impact areas. In this brief, we review existing approaches, identify specific gaps within UKIS, and propose recommendations for improved survey design.

Public Procurement in Innovation Surveys

The Community Innovation Survey (CIS)

The CIS remains one of the most significant cross-country sources for innovation data, covering EU nations, Norway, Iceland, and the UK. Its role in tracking trends and identifying innovation drivers is crucial, yet the consistency of procurement-related questions has varied. The studies using 2012-2014 CIS, which included questions on whether public contracts mandated innovation (Box 1), generated insights into procurement's role in firms' innovation strategies (e.g. Appelt and Galindo-Rueda, 2016; Caravella and Crespi, 2020, 2020; Divella and Sterlacchini, 2021).

However, these questions were later omitted, which limited the survey's ability to evaluate the long-term impact of procurement on innovation. Only a few countries, such as the Netherlands, have continued the inclusion of questions related to contracting with the public sector and its effects on innovation. In subsequent editions of the CIS, firms have been asked whether they introduced innovations with environmental benefits, with CIS 2020 adding a question about drivers,

Box 1. The question on provision of innovations as part of public sector contracts in CIS 2012 edition

10.2 Did your enterprise undertake any innovation activities as part of a procurement contract to provide goods or services to a public sector organisation? *(Include activities for product, process, organisational and marketing innovations)*

(If your enterprise had several procurement contracts, tick all that apply)

- Yes and innovation required as part of the contract ☐
- Yes but innovation *not* required as part of the contract ☐
- No ☐

including public procurement requirements.

Other surveys

Besides the CIS, there are other examples of surveys trying to measure innovation effects of public procurement that offer valuable insights. Below are just some selected examples:

- **The Mannheim Innovation Panel**. This survey has systematically included questions on public procurement, providing insights into how procurement affects innovation. This has led to findings that underscore public procurement's impact on firms' R&D activities, especially in promoting incremental rather than radical innovations (Blind et al., 2020; Czarnitzki et al., 2020)
- **Survey of Innovation in Peru**. Peru's 2018 National Survey of Innovation of Manufacturing Sector and Knowledge-Intensive Services included two questions regarding firms' involvement in public contracts and the extent of innovation within these engagements. Findings from this survey illustrate that public procurement can foster innovation (particularly when compared to traditional supply-side approaches), but only when procurement requirements involve developing new solutions (Crespi and Castillo, 2022).
- **Innobarometer**. The 2012 and 2014 editions of this survey asked firms about public procurement contracts they have been awarded and whether this procurement contract provided them with the opportunity to sell their innovations. The 2014 Innobarometer revealed that approximately one-third of companies successful in public procurement tenders had sold innovative products or services as part of them. Analysis of the 2011-2014 data by Radicic (2019) demonstrated that public procurement had a stronger positive effect on both product and process innovations compared to traditional supply-side policy measures.
- **Bespoke surveys created for research purposes**. The Underpinn project survey (Georghiou et al., 2014) provided detailed insights into innovation among UK public sector suppliers. Respondents were asked about innovation outcomes, including R&D investments and sales growth (both domestic and international) resulting from procurement contracts. The survey also assessed their perceptions of procurement practices' innovation-friendliness and frequency. Findings revealed that while certain practices, such as outcome-based specifications, effectively supported innovation, they were rarely implemented. Additionally, the survey identified key barriers to innovation procurement, including risk aversion and insufficient pre-market engagement (Uyarra et al., 2014).

Procurement in the UK Innovation Survey (UKIS)

The UKIS, modelled on the CIS, is the UK's primary tool for monitoring innovation trends. Although early UKIS iterations, such as UKIS 8, asked directly about public procurement as a driver of innovation, recent versions have limited procurement-related questions to firms that report cooperation with public sector organisations.

The absence of detailed questions on procurement in the UKIS has also led to a lack of nuanced data regarding the type of innovations that public procurement may influence. For instance, studies find that procurement often influences non-technological innovations more than technological ones (e.g. Douglas et al., 2017). The influence of public procurement also varies by firm-size: innovation capacity of small firms is more dependent on public procurement (Krieger and Zipperer, 2022),but it is the larger firms that are more likely to secure government contracts (Divella and Sterlacchini, 2021; Uyarra et al., 2014). These nuances are not captured effectively in the current UKIS survey.

Survey Limitations in Measuring Public Procurement-Innovation Links

Historical Data and Comparability Across Subsequent Surveys

The inconsistent inclusion of procurement questions in CIS and UKIS surveys complicates historical comparisons and longitudinal studies. For instance, in the 2012 CIS, 14%-36% of firms involved in public procurement reported undertaking innovation activities (Appelt and Galindo-Rueda, 2016). Yet, it is difficult to determine whether these levels have been sustained without follow-up data in subsequent surveys. Additionally, procurement policies do not exist in isolation but are part of a broader policy mix (Guerzoni and Raiteri, 2015). Comparing data across multiple years enables the identification of potential complementarities between public procurement and other policy measures. For instance, a study by Caravella and Crespi (2020), which used data from two CIS, found that the innovation effects of public procurement are enhanced when supply-side measures complemented them and when innovation was explicitly required in tenders.

Underreporting

The UKIS's reliance on conditional questions has likely resulted in substantial underreporting of procurement's role in driving innovation. Since only firms that explicitly identify cooperation with the public sector are asked about procurement, many firms engaging in public contracts might be missed. This underreporting limits the visibility of public procurement as a strategic innovation tool, particularly for firms that rely on these contracts for developing new technologies or processes (Divella and Sterlacchini, 2021; Krieger and Zipperer, 2022; Uyarra et al., 2014).

Lack of Focus on Green Innovation and Sustainability

The CIS and UKIS both include general questions on environmental or "green" innovations but lack procurement-specific questions tied to sustainability. With the UK's net-zero targets and increased emphasis on green policies, this omission restricts policymakers' understanding of how public contracts might stimulate environmentally friendly innovations. Including procurement questions related to green innovation can potentially yield valuable data on the drivers and challenges for aligning public procurement with environmental objectives (AlNuaimi and Khan, 2019; Krieger and Zipperer, 2022; Ntsondé and Aggeri, 2021; Testa et al., 2016).

Recommendations for Improving Procurement Questions in UKIS

To address the described data gaps, we put forward recommendations that can enhance UKIS's ability to capture public procurement's impact on innovation:

- **Reintroduce Procurement Questions:** Bringing back questions from earlier surveys on firm involvement in public procurement could improve data quality. Specifically, these questions should inquire about whether contracts encouraged or required innovation, perhaps with a follow up on the types of innovation, and whether procurement directly led to R&D efforts. Firms should also be asked not only whether they participated in public procurement but also whether they applied but did not get contracts. That way we can compare winning firms and non-winnings and and understand the innovation impact of bidding for public contracts regardless of the outcome.
- **Differentiate Domestic and International Procurement:** by distinguishing between domestic and international procurement, the UKIS could help identify if international public contracts stimulate different innovations compared to domestic contracts. This change would support comparability with other countries and help identify whether the effects are related to domestic or foreign procurement practices.
- **Capture Revenue from Public Procurement**: adding questions about the

revenue share derived from public procurement would provide insights into the economic significance of procurement for firms. This could further reveal the extent to which reliance on public contracts impacts the firm's innovation performance.

- **Incorporate Questions on Green Procurement:** to align with sustainability policies, UKIS should include questions linking procurement to green innovations. Firms could indicate if contracts required environmentally friendly products or services, improving the evidence on the role of green procurement in mission-focused innovation policy.
- **Ask All Firms About Procurement:** expanding procurement-related questions to all firms, regardless of reported cooperation with public entities, would reduce underreporting. This would support access to a more complete picture of participation in public procurement and public procurement's role in driving innovation.
- **Explore Barriers to Innovation in Procurement:** including questions on barriers to innovation in procurement would provide insights into potential challenges faced by suppliers, such as contract complexity or competition, particularly for SMEs. As SMEs often face more barriers in participating in public tenders and the impact of public procurement on their innovativeness is more significant, this would inform the reform of UK procurement regime to maximise innovation outcomes.

Conclusion

Public procurement increasingly influences innovation, but the UKIS in its current shape lacks sufficient data to assess its full impact. By slightly improving the UKIS and incorporating more detailed procurement-related questions, additional evidence can be drawn to support policymakers and practitioners in observing the channels through which public contracts stimulate innovation. This would support the UK's broader policy goals around economic resilience, sustainability, productivity and technological advancement in critical sectors

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