The potential for public procurement to drive decarbonization

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The potential for public procurement to drive decarbonization

Green Public Procurement has potential as a decarbonization policy

- Public procurement accounts for 12% of GDP in developed economies (OECD 2019)
 - leverage procurement spending to achieve policy goals
- Green Public Procurement (GPP) values the environmental quality of bids in the award of public contracts
 - reduce the environmental impact of public sector activities
 - create demand for (and incentives for investments in) green options
- In material-intensive sectors such as transportation and construction, public buyers have large shares of carbon footprint but also of markets
 - Germany: government construction accounts for 28% sector emissions (Chiappinelli et al. 2019) and for 27% of sector sales (HBD 2019)

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Implementation of climate-friendly GPP: examples from infrastructure

- Technical requirements: environmental quality dimensions are specified as technical requirements in the call for tenders
 - Examples: recycling requirements (e.g., concrete), Environmental Product Declaration (e.g., low-carbon materials)
- Functional requirements: only environmental performance requirement is specified but not how to implement it
 - Swedish Transport Administration and Anglian Water: x% emission reduction wrt BAU baseline (increasing over time in line with targets)
- > Award criteria: environmental performance is part of the award criteria
 - Dutch Infrastructure Authority uses a shadow carbon price to monetize LCC and grant bid discounts

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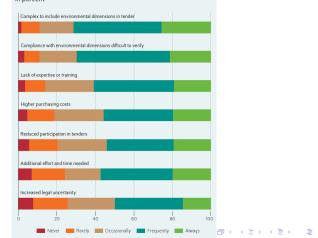
The role of GPP for industrial decarbonization

- GPP created incentives for climate-friendly material use
 - Infrastructure GPP in SWE, NL, UK triggered large emission reduction via material efficiency (in design and construction) and material choice, also via enhanced supply-chain coordination (Kadefors et al. 2021)
- Can/should GPP create incentives for climate-friendly material production?
 - Scale, long-term credibility and fragmentation of public demand
 - Instruments complementarity in presence of supply side measures e.g., Carbon Contracts for Differences (Richstein 2017, Neuhoff et al. 2019)
 - Incentives for material efficiency when clean materials available

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Barriers to implementation of GPP

Chiappinelli et al. (2019) Green Public Procurement: Climate provisions..., DIW Weekly Report, 51/2019



 $\label{eq:main_state} \begin{array}{l} \mbox{Main barriers limiting the adoption of Green Public Procurement} \\ \mbox{In percent} \end{array}$

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Is Green Public Procurement more expensive than standard procurement?

Chiappinelli, O. and Seres, G. (2021), Optimal discounts in Green Public Procurement, DIW DP 1983

- Perception that GPP increases purchase price relative to standard procurement (e.g., Brammer and Walker 2011, Chiappinelli et al. 2019)
- Higher production cost of green technology is reflected in offers
 - greener but more expensive offers are given an advantage
 price increase
- So there seems to be a trade-off between environmental performance and purchasing price...
- ... but this effect is not clear ex-ante, as GPP can trigger investment in green technology and change the relevant pool of suppliers
 - lower-cost firms invest in green technology and bid more aggressively
 price decrease

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Is Green Public Procurement more expensive than standard procurement? (2)

Chiappinelli, O. and Seres, G. (2021), Optimal discounts in Green Public Procurement, DIW DP 1983

- Research question: What is the net price effect of GPP?
 - When does GPP reduce purchasing price?
 - To what extent should a procurer implement GPP?
- Model: dynamic game of GPP
 - GPP auction gives preferential treatement (bid discount) to green firms
 - Firms have private cost and are initially brown
 - Before GPP auction firms can invest to become green
 - Investment is costly and observable
- Main results
 - GPP triggers green investment by cost-efficient firms
 - Signalling efficiency via investment can steepen competition between investing firms and decrease price
 - Also a procurer with weak environmental preference is better off with GPP

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Chiappinelli, O., Optimal delegation of complex procurement (in progress)

- Green procurement is complex to implement
 - Ex-ante: include green dimensions in tender and assess offers
 - Ex-post: verify compliance of winner with green dimensions
- Authorities (especially at local level) lack human and technical resources
- Complex green procurement might be mandated from government to capacity-constrained authority
 - asymmetry of information and misalignment of preferences between government and authority
- Research question: (How) should complex procurement decisions be delegated?
- Model: Three-player delegation model of quality procurement (government, authority, company)

Policy needs

- Standardization might facilitate the adoption of GPP, especially for local authorities
 - Circularity and carbon requirements
 - LCC methods and tools for its quantification, monitoring, ex-post verification and reporting practices
- More and more specific climate-friendly GPP training
- Technical assistance while capacity gets built
 - Guidelines and handbooks & Procurement competence centers
- More political commitment
 - Gradual introduction of mandatory requirements and targets

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Dedicated funding to support GPP

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