

The potential for public procurement to drive decarbonization

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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)

- ▶ **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

- ▶ 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

Barriers to implementation of GPP

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



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**

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 treatment (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

How to address complexity of GPP implementation?

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)

- ▶ 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
- ▶ Dedicated funding to support GPP

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