

## MaCCI Letter 2021

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### // Research Highlights in 2021

#### LEONARDO GIUFFRIDA ON BUYER'S ROLE IN INNOVATION PROCUREMENT: EVIDENCE FROM US

Public procurement meets an agency's demand for goods and services as a primary policy. To achieve these functions, bureaucrats working as procurers must appropriately handle a multitude of complex tasks, including choosing the tender specifications, drafting the contract and monitoring its execution. The multifaceted nature of procurement makes the role of the procurers pivotal for a public organization's functioning and objectives. Indeed, policy-makers worldwide increasingly recognize the importance of improving procurement efficiency by using specialized skills and competencies of related human resources. Considering, in addition, the trend towards a more strategic role for public procurement to pursue other goals - like achieving sustainable and inclusive growth - measuring and enhancing the role of public buyers is of utter importance. This work studies the impact of the buyers' role on innovation procurement (also known as pre-commercial procurement). When it comes to procuring innovation, public buyers are even more critical to the project's success as they need to translate abstract needs into specific contract requirements; further, the contract execution usually lasts much longer.

At the same time, however, when a contract's goal is innovation, quantifying the role of buyers' competence as a determinant of procurement outcomes is a very elusive research question. While in the procurement of standardized items or works and services, measurement problems are usually solved by looking at unit prices or at time/cost overruns to proxy transaction costs, respectively, those have limited value in the innovation context.

We combine the procurement data with records of federally funded patents to address this problem. This database links information on patented inventions (i.e., the number of patents, their associated citations, and claims) to the U.S. federal procurement contract of R&D that originated it. Although only a small share of contracts involve R&D produce patents (5.34 percent), a few of them (31.7 percent) produce more than one patent. Thus, the number of patents, as well as their citations and claims, are the main outcomes that we use to evaluate the role of public buyers by exploiting the information on the public workforce produced by both the Office of Personnel Management, and the Federal Employee Viewpoint Survey (FEVS), measuring government employees' perceptions of several characteristics of their agency and specific office.

We exploit the unexpected death events of "relevant employees" - as determined by age and salary figures for managerial positions - as a source of exogenous disruption in the purchasing unit's activity. The focus is primarily on the Department of Defense, representing about 85 percent of the innovative procurement process in the data. The analysis indicates that the main source of disruption is associated with death events that occur in the six months leading up to the contract

award. These events have a significant, negative impact on the innovation outcome indicators: a 1% increase in relevant employee fatalities results in a decrease of 32.3% in patents per contract, 20.5% in patent citations per contract, and 34.3% in patent claims per contract. Unexpected managers' deaths occurring during the contract management phase following the contract's award, on the other hand, have a smaller effect, although still statistically significant. No consequences are observed when mortality events occur among individuals who are less likely to cover managerial jobs. These findings show that the death of a manager causes a loss of specialized human capital that is difficult to replace. This interpretation is consistent with practitioners' views that high technical skill is required for project management in innovation procurement. When comparing the Army and Air Force to the Navy, for example, the consequences of mortality on innovation results are more relevant. This finding is in line with the fact that the latter department relies less than the other two on project managers with technical knowledge.

We look into what features qualify a bureau as “competent” to investigate the channels of our estimates. By exploiting a series of questions in the FEVS data, they classify three main components of bureau competence that are observable through these survey data: staff cooperation, incentives, and skills. More in detail, the data allow us to measure features like the intra-office cooperation, incentives, and self-perceived level of the bureau's talents.

We find evidence of a relationship between cooperation and improved procurement outcomes, no effects of skills or incentives, either directly or indirectly, through their interaction with death events. The importance of cooperation is in line with the belief that successful procurement involves the ability to effectively manage and coordinate a variety of tasks involving many personnel and offices. These ancillary findings suggest that better working environments will not be enough to compensate for the loss of specialized human capital at the workplace. While some of these are likely to be unique to the federal agencies in the sample, the conclusion on the importance of the pre-award period is consistent with the core characteristics of complex procurement. Future research may investigate further why and through what other channels procures matter, directly or indirectly, for procuring innovation successfully.

De Rassenfosse, Gaétan, Francesco Decarolis, Leonardo Maria Giuffrida, Elisabetta Iossa, Vincenzo Mollisi, Emilio Raiteri and Giancarlo Spagnolo, “Buyers' role in innovation procurement: Evidence from US military R&D contracts”, *Journal of Economics & Management Strategy*, 2021, 1–24.

## JENS-UWE FRANCK ON GERMANY'S ‘LEX APPLE PAY’

As of January 2020, Section 58a of the German Payment Services Supervisory Act (PSSA) provides a right for payment service providers and e-money issuers to access technical infrastructure that contributes to mobile and internet-based payment services. This right of access is intended to promote technological innovation and competition in the consumers' interests in having a wide choice among payment services, including competing solutions for mobile and internet-based payments. The provision has been dubbed ‘Lex Apple Pay’ as it seems to have been saliently motivated by the objective to give payment service providers the right of direct access to the NFC interfaces of Apple's mobile devices. However, its regulatory effects go much further as it may also affect, for example, payment services rendered via voice command devices, devices connected to the internet of things or in-car payments. Together with Dimitrios Linardatos, Jens-Uwe Franck has analyzed the regulatory framework of this new access right and has elaborated on its technical details, in particular its scope of application, statutory requirements and available defenses.

It is concluded that Section 58a PSSA will at any rate affect payment service providers' and e-money issuers' conditions for accessing technical infrastructure and that, consequently, there will be benefits for their customers. Therefore, the new access right will contribute to lower barriers to entry and, thus, to generating some competitive pressure and creating incentives for operators of infrastructure for mobile or internet-based payment services not to let up on innovation and product quality. However, it is difficult to estimate how strong this effect will be, whether the provision will indeed have a significant effect on the market structure and, more specifically, whether it will actually facilitate the entry of new players that offer innovative solutions.

Remarkably, by enacting the 'Lex Apple Pay', the German legislature has rushed forwards, overtaking the EU Commission's ongoing competition investigation into Apple Pay as well as the reform of the German Competition Act (which was pending at the time), which is aimed precisely at operators of technological platforms, which enjoy a gatekeeper position. Franck and Linardatos point out that, to restore a level playing field in the internal market, the natural option would be to provide for harmonized EU law on the access to technical infrastructure for mobile and internet-based payment services, a development that is actually now indeed emerging through the Digital Markets Act.

To support the current consultations on section 58a PSSA, Linardatos and Franck have submitted a response letter to the German Ministry of Finance.

Franck, Jens-Uwe and Dimitrios Linardatos, "Germany's 'Lex Apple Pay': Payment Services Regulation Overtakes Competition Enforcement", *Journal of European Competition Law & Practice [JECLAP]*, 2021, 12, 68–81.

Franck, Jens-Uwe and Dimitrios Linardatos, *Stellungnahme zur Evaluierung von § 58a ZAG, 2021. (Response to the Consultation on Section 58a PSSA – the German 'Lex Apple Pay')*

## NICOLAS SCHUTZ ON OLIGOPOLIES WITH PRODUCTION IN ADVANCE

The theoretical industrial-organization literature has focused, by and large, on industries in which firms produce to order—that is, firms first set their prices, then observe how much demand is directed to them, and finally produce to satisfy that demand. Yet, many industries are characterized by production in advance, as firms source inventories from suppliers before setting their prices and observing how much demand they receive. As rivals' inventories are typically hard to observe, firms must make price and inventory choices without knowledge of rivals' choices.

Montez and Schutz (2021) introduce a class of games, dubbed all-pay oligopolies, to study such market settings. Their framework allows for asymmetries between firms, heterogeneity in consumer tastes, and the coexistence of informed and uninformed consumers. It also allows unsold inventories to have a positive salvage value, for instance through outlet-stores sales, buyback contracts with manufacturers, or future sales. Classic production-to-order models are nested as limiting cases (as unsold inventories become fully salvageable).

Using tools from the all-pay contests literature, Montez and Schutz show that all-pay oligopolies generically have a unique equilibrium, which they characterize in closed form. In equilibrium, each firm randomizes its price, ordering a low inventory when it sets a high price, and a high inventory when it holds a sale. In the limit as unsold inventories become fully salvageable, there is no downside to holding excess inventories and firms' behaviour therefore converges to the equilibrium of the resulting production-to-order game. Thus, away from that limit, Montez and Schutz's work

generalizes classic production-to-order analysis to production-in-advance industries in which the salvage value of inventories falls short of their acquisition value.

Firms' uncoordinated behaviour in all-pay oligopolies implies that the aggregate inventory level often exceeds total demand, resulting in costly unsold inventories. Thus, in addition to the classic deadweight-loss and output-misallocation distortions, there is also a novel wasted-inventory distortion. That latter distortion can be so severe that consumers and society at large may benefit from letting firms coordinate their inventory choices—despite such coordination being typically viewed with suspicion by competition authorities. Indeed, Montez and Schutz find that, when inventory costs are high and the salvage value of unsold inventories is low, a horizontal merger without synergies, or the creation of an industry body that collects and shares information on inventory holdings, raises both consumer surplus and social welfare.

Montez, Joao and Nicolas Schutz, “All-Pay Oligopolies: Price Competition with Unobservable Inventory Choices”, *Review of Economic Studies*, 2021, 88(5), 2407-2438.

## // Selected MaCCI News in 2021

### NOVEMBER 2021: ECONOMICS OF PUBLIC PROCUREMENT

On November 4 and 5, 2021, the third edition of the ZEW Workshop Economics of Public Procurement took place at the premises of ZEW Mannheim. This year's edition was jointly organized with the VATT Institute for Economic Research. The event provided a forum for current, high quality research on the economic analysis of public procurement by bringing together empirical and theoretical economists from different backgrounds working in this area. The format consisted of four sessions, each with two presentations, followed by discussion and Q&A with the audience. Topics ranged from the efficient design of awarding mechanisms to the analysis of the role of competition and the evaluation of direct and indirect policies related to government purchases.

### OCTOBER 2021: TENTH MACCI LAW AND ECONOMICS CONFERENCE

The tenth MaCCI Law and Economics Conference took place on 18. /19. November 2021 at the premises of ZEW. This year's topic was competition and the regulation of financial innovation.

### AUGUST 2021: MACCI SUMMER INSTITUTE IN COMPETITION POLICY

The Summer Institute in Competition Policy was the first major in-person organized by MaCCI event since the outbreak of the COVID-19 pandemic. During the 2021 MaCCI Summer Institute in Competition Policy MaCCI researchers and invited scholars presented recent work in industrial economics that informs the competition policy debate. In particular, several presentations addressed competition and consumer protection concerns around digital advertising markets. The summer institute also provided ample opportunity to start and continue collaborative research projects.

### JUNE 2021: MANNHEIM VIRTUAL IO WORKSHOP “SECRECYP AND DISCOLUSRE IN INNOVATION”

On 16 and 17 June 2021, MaCCI hosted - in collaboration with the Collaborative Research Center CRC TR 224 of the University of Bonn, the University of Mannheim, and ZEW - the Mannheim Virtual IO Workshop "Secrecy and Disclosure in Innovation." Speakers and commentators from Europe, North America, and South America virtually gathered to present and discuss their latest theoretical and empirical work on trade secrets,

patenting strategy, and disclosure in science. The goal of the workshop was to bring together scholars who work at the frontier of an otherwise understudied area of research and provide them with a forum of discussion and exchange.

## // Selected Upcoming Events in 2022

» 17.02.2022

**CEPR/MaCCI Virtual Workshop on Regulating E-Commerce Platforms**

» 24.03.2022–25.03.2022

**MaCCI Annual Conference**

» 29.04.2022

**MaCCI IO Day**

» 19.05.2022

**CRC/EPoS/MaCCI Fireside Talk**

» 06.06.2022–10.06.2022

**MaCCI Summer Institute**

» 06.07.2022–08.07.2022

**Economics of ICT Conference**

» 10.11.2022–11.11.2022

**MaCCI Law & Economics Conference**



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