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EXPLAINING SME PARTICIPATION AND SUCCESS IN PUBLIC PROCUREMENT USING A CAPABILITY-BASED MODEL OF TENDERING

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ABSTRACT. This paper develops and tests a model for explaining small and medium-size enterprise (SME) participation and success in public procurement. The model is informed by a capability-based view of public sector tendering that includes relational and procedural dimensions. To test the model a survey was carried out on firms competing for contracts with Irish public sector organizations (n = 3010). The survey was repeated one year later to demonstrate reliability (n = 3092). Overall, the results lend support to the model. Procedural capability is associated with frequency of tendering and typical value of contract sought. Relational capability is not. Procedural and relational capabilities are each significant in accounting for success rates in contract competitions and commercial orientation towards the public sector.

INTRODUCTION

Small and medium-size enterprise (SME) involvement in public contracting constitutes an important and growing line of research inquiry. Over the past two decades, scholars from across public administration and management disciplines have examined SMEs' experiences and perceptions of competing for public sector contracts. Successive studies have shown SMEs to be interested in doing business with the public sector but highly critical of procurement procedures and practices. Among U.S. firms MacManus (1991, p. 342) found that only one in three believed public procurement practices were "competitive, efficient, or equitable". Similar negative sentiments have been expressed by firms across Europe (Cabras,

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2011; Fee, Erridge & Hennigan, 2002; Flynn, Davis, McKevitt, & McEvoy, 2013; Loader, 2005, 2015). Findings to emerge from Australia also indicate that firms rate public sector contracting less favourably than private sector contracting across dimensions including profitability and sales volume (Purchase, Goh & Dooley, 2009). The reasons for SMEs' reported difficulties are said to include a lack of professionalism in public sector purchasing, bureaucratic tendering procedures, restrictive entry criteria for contract competitions, buyers' preference for market incumbents, and SMEs' own resource constraints (Loader, 2013). Given such difficulties, it is not surprising that SMEs are under-represented in public sector supply chains (Clark & Moutray, 2004; Nicholas & Fruhmann, 2014).

While the barriers experienced by SMEs are well documented, the same cannot be said of the factors that promote their participation and success in public procurement. We still know more about what hinders SMEs than what enables them to compete for and win business with public sector organizations. Attempts to fill this knowledge gap are being made, however. Some studies have sought to explain SME involvement in public procurement in terms of resource availability within the firm (Karjalainen & Kemppainen, 2008; Temponi & Cui, 2008). Others have employed entrepreneurship and market positioning theories (Reijonen, Tammi & Saastamoinen, 2014; Tammi, Saastamoinen & Reijonen, 2014). Representing a new departure, this study adopts a capability-based view. By capability is meant the capacity of a firm to leverage and deploy its resources, using organizational processes, to achieve a desired goal (Amit & Schoemaker, 1993; Makadok, 2001). The contention is that SMEs need to possess certain capabilities if they are to be active and successful in public procurement.

In the context of public sector tendering we understand capability to have separate relational and procedural dimensions. Relational capability refers to a firm's ability to communicate with, engage and influence public buyers. Procedural capability denotes a firm's ability to manage the technical and formal elements of tendering and contract administration. Both capability types are integral to explaining SME participation and success in contract competitions. The capability-based perspective on SME involvement in public procurement is

intended to add to the aforementioned market positioning, entrepreneurial, and resource-based explanations

already proposed in the literature. At the same time, it extends previous efforts by focusing not only on SME tendering activity but also on their success rates in contract competitions and overall commercial orientation towards the public sector. Public procurement research should strive to be relevant as well as rigorous according to Dimitri (2013). Here the identification of capabilities linked to SME participation and success in contract competitions can inform practice by highlighting areas that managers and enterprise support agencies should target.

The paper takes the following format. Section one explains the rationale for SME involvement in public procurement. Section two puts forward a capability-based model to explain SME participation and success in public contract competitions. The model comprises discrete relational and procedural capability dimensions that are predicted to be related to SME outcomes. Section three deals with research design considerations. Relevant here is the operationalization and measurement of independent, dependent and organizational control variables, the data collection process, response rate, representativeness testing, and a profile of respondents. Section four tests the model using step-wise regression and then presents the results. This is done in respect of data from two cross-sectional surveys. The first survey was carried out in 2013. The second survey is a replication of the first and was carried out in 2015. Section five discusses the results and what they mean for research and knowledge in the public procurement domain. Lessons for practice are drawn from the results. The paper concludes with an acknowledgement of the limitations of the study and identification of actions to take this line of inquiry forward.

LITERATURE REVIEW

Public sector contracts are advantageous to SMEs in both tangible and intangible ways. First, public contracts offer stable and predictable sources of demand (Fee, Erridge & Hennigan, 2002; Pickernell et al., 2011). In turn, stability and predictability afford SMEs a degree of security to plan for the future, invest in new technology or capital equipment and expand their pool of human resources. The reported

views of SMEs bear this out. Studies by Loader (2005) and Cabras (2011) in Britain and MacManus (1991) in the U.S. all found that long-term business opportunities, contract security and revenue stability were among the principal attractions of public contracting. Second, public contracts come with a near guarantee of payment. This factor was cited by over 80% of SMEs surveyed by Loader (2005) as an incentive of supplying to the public sector and was identified by MacManus (1991) as the primary reason why U.S. firms were motivated to act as public sector suppliers.

Besides predictable sources of demand and payment certainty, public sector contracting can bolster SMEs' reputations and help them to emerge from low value market niches and into more profitable marketplaces (Ram & Smallbone, 2003). Public contracting is also recognised as a demand-side stimulant to innovation when buyers insist on technologically-sophisticated products or encourage firms to develop novel service solutions (Georghiou et al., 2014). The same authors found that 67% of the 800 firms they surveyed agreed that public procurement competitions spurred them to innovate.

The benefits of SME participation in the public sector marketplace are not one-way as public sector organizations also stand to gain. SMEs are capable of offering competitive pricing arrangements on account of their minimal administrative overheads and streamlined operations. Having SMEs compete for public contracts intensifies competition and provides buyers with greater choice in the supply marketplace (European Commission, 2008; Ram & Smallbone, 2003). Entrepreneurship, versatility and customer responsiveness are attributes frequently invoked when contemplating SMEs as public sector suppliers (Loader, 2007). SMEs' ability to recognise opportunities and leverage their skills and competencies to create innovative products and services makes them preferred suppliers for many large organizations (Woldesenbet, Ram & Jones, 2012). So too does their willingness to "go the extra mile" in service standards and customer commitment (NERA Economic Consulting, 2005).

Another benefit from a public buyer perspective relates to policy goals and sustainability targets. Using small, locally-based suppliers lessens the environmental footprint of public sector supply chains and

contributes to the economic and social health of a region (Walker & Preuss, 2008; Walker & Brammer, 2009). It is also allied to ideas around fostering entrepreneurship and innovation throughout the wider economy (Preuss, 2011). Like SMEs, public sector organizations can gain in tangible and intangible ways from the relationship.

Given the mutual benefits on offer we should expect SMEs and public sector organizations to have significant commercial interaction. The reality is different. SMEs struggle to access public contract opportunities and are under-represented as public sector suppliers. Data from a number of countries and regions shows this to be the case. In the UK, for example, only 10.5% of direct spend and 9.4% of indirect spend went to SMEs in 2013, which is less than half of their value-added contribution in the economy (Cabinet Office, 2013). Across the EU Single Market, the most recent assessment put SMEs' share of above-threshold contracts[1] at 29% – again only half that of their value-added contribution; although their share of below-threshold contracts was estimated to be in the region of 58-59% (PwC, 2014). Several other studies find small firms to be under-represented in public procurement (Flynn et al., 2013; MacManus, 1991) and less inclined to seek information on public contracts or bid for them (Abdellatif & Zaky, 2015).

The advent of e-procurement has not altered this imbalance. Analysis undertaken by the UK's Office for National Statistics (2012) found that small firms were only half as likely as large firms to access tender related documentation online or sell to public sector organizations online. The very fact that governments feel obliged to roll-out SME-friendly procurement policies and even institute preference programmes is an admission of the on-going difficulties experienced by small firms when competing in the public sector marketplace (Kidalov & Snider, 2011; Loader, 2013).

There is no shortage of commentary on why SMEs are under-represented in public procurement. At an institutional level public procurement is under-professionalized and under-resourced (OECD, 2013). Moreover, it is not uncommon for purchasing to be carried out by non-specialists (Prier & McCue, 2009) and for the procurement function

to have no formal status in the organization hierarchy (Thai, 2001). Firms' complaints that public buyers are too risk averse and unwilling to look beyond market incumbents need to be seen in this context (Loader, 2005). Government directives for public buyers to aggregate their supply requirements in order to achieve economies of scale can also have the effect of excluding small firms from competitions (Loader, 2007; McCue, Prier & Swanson, 2015).

Public tendering systems have also come in for sustained criticism. Identifying opportunities, satisfying onerous qualification criteria, bureaucracy, contract bundling, and prohibitive tendering transaction costs are all believed to impede small firms (Cabras, 2011; Fee, Erridge & Hennigan, 2002; Flynn et al., 2013; Kidalov, 2015; Loader, 2015). Indicative of the latter, the economic cost of assembling a bid for a routine service contract can be as much as £3200 in the EU and £5800 in the UK (Centre for Economic and Business Research, 2013). Admittedly, not all SMEs' problems are institutional or systemic. Some are simply the product of their limited human, capital, administrative, technical and network resources (Flynn, McKevitt & Davis, 2015; Karjalainen & Kemppainen, 2008). This is particularly the case for micro-enterprises (1-9 employees), which account for approximately nine out of ten enterprises in the EU.

Public procurement is undoubtedly a challenging environment for SMEs. It is not surprising, therefore, that scholars have focused on the barriers affecting them (see Loader, 2013 for a full review). Yet it is equally important to understand the factors and processes that promote SME participation and success in contract competitions. Encouragingly, progress on this front is beginning to be made. Tammi, Saastamoinen & Reijonen (2014) demonstrated that SMEs' ability to gather and leverage market-relevant information was associated with searching and bidding for public contracts. In a similar vein, Reijonen, Tammi & Saastamoinen (2014) found that two of the three sub-dimensions of entrepreneurial orientation – proactivity and innovation – were related to contract search and bid submission activity. Karjalainen & Kemppainen (2008) confirmed that the stock of legal, administrative and IT resources at a firm's disposal was linked to their likelihood to tender. Taking an altogether different perspective, Abdellatif & Zaky (2015) showed that perceptions around transparency

and corruption can act as significant predictors of the percentage of public contracts awarded to firms. Thus, the field is moving towards a better understanding of the predictors of SME involvement in public procurement.

MODEL DEVELOPMENT

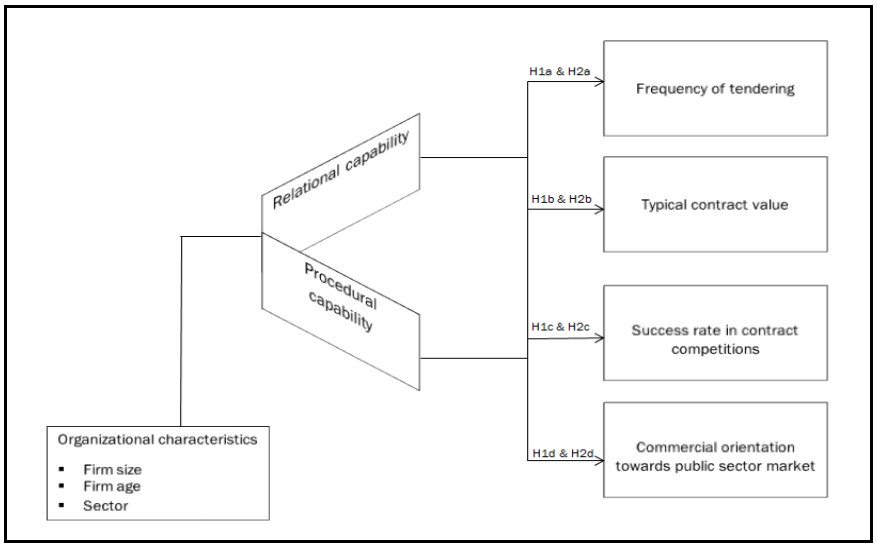
The model put forward here to explain SME involvement in public procurement draws on a capability-based view of the firm. Capabilities are "information-based, tangible or intangible processes that are firm-specific and are developed over time through complex interactions among the firm's resources" (Amit and Schoemaker, 1993, p. 35). Capabilities are distinct from resources insofar as they (i) are firm-specific and (ii) their purpose is to enhance the productivity of resources owned or controlled by the firm (Makadok, 2001). Essentially, capabilities are about the firm being able to exploit its resources - human, technological, financial, administrative, network and reputational - with the aim of securing a competitive advantage over its rivals (Javidan, 1998). As Day (1994, p. 38) puts it, "capabilities are the glue that brings these assets together and enables them to be deployed advantageously". Indicative of their role in supply chain management, Tracey, Lim & Vonderembse (2005) empirically demonstrated that capabilities in such areas as inbound transportation, warehousing and purchasing act as important determinants of firm performance.

We contend that there are particular capabilities that firms require in order to be active and successful in public procurement. What do these capabilities look like? To answer this question we need to be clear on the character of public procurement. Public procurement is heavily influenced by considerations around transparency, accountability and realizing 'best value' for public money (Diggs & Roman, 2012; McCue, Prier & Swanson, 2015; Thai, 2001). As a result, public sector tendering is decidedly legalistic, formalized and bureaucratic; at least from a supplier perspective. Common impediments cited by firms, such as lengthy form filling and requirements for up-front disclosure of company documentation are evidence of this (Cabras, 2011; Flynn et al., 2013; Loader, 2015). If firms are to succeed, they must have the capacity to mobilise their human, social and financial resources in ways

that enable them to navigate the procedural hurdles of public sector tendering and formulate a value proposition that satisfies the expectations of the purchasing organization.

Public procurement is not only about formalized procedures. This lead to the second point, which is that fostering relationships and building social capital - and the sense of trust that comes from it - applies as much to business-to-government (B2G) transactions as it does to business-to-business (B2B) transactions (Ahimbisibwe, Muhwezi & Nangoli, 2012; Maser & Thomson, 2013). For their part, firms must able to interact with public sector employees, convince them of the merits of their products or services and earn their trust and goodwill. All this implies that the capabilities firms require to participate and succeed in public procurement have both relational and procedural dimensions. On this basis we propose an original capability-based model of tendering (see Figure 1). It posits that relational and procedural capabilities are independently related to participation and success in public procurement. The paper now turns to examining relational and procedural capabilities in more detail.

FIGURE 1
A Capability-based Model of Tendering



Relational Capability

Relational capability refers to a firm's ability to communicate with, engage and influence public buyers. Relational capability in public procurement is critical for small firms as it means they can make themselves visible to buyers and end-users and showcase their strengths and competencies. Relational capability is, as Woldesenbet, Ram and Jones (2012) observed, about making links, sharing knowledge, and fostering trust and loyalty with current and prospective clients. It holds particular salience for small firms because lack of awareness of contract opportunities and getting accepted onto approved supplier lists pose problems for them (Loader, 2005, 2015; Walker & Preuss, 2008). The importance of SME relational capability should also be seen in the context of strategic purchasing. It is widely acknowledged that establishing lasting relationships with key suppliers can strengthen organizational competitiveness (Chen, Paulraj & Lado, 2004); hence buyers' interest in adopting a relational approach to contracting where appropriate.

Relational capability goes beyond firms enhancing their profile in the marketplace. It also encompasses the ability to influence the specification of a tender. Making representations to public buyers outside of live competitions is relevant in this respect. Doing so can, for example, help to ensure that bid specifications and contract requirements accommodate small as well as large suppliers. This is crucial because overly prescriptive requirements and narrow bid specifications militate against SME involvement (Loader, 2015). Influencing skills are also important in ensuring that the most economically advantageous tender (MEAT) method is used by buyers rather than lowest bid. The latter is understood to disadvantage small suppliers (Cabras, 2011). Finally, relational capability suggests that suppliers know how to generate interest in their products and services and shape the purchasing intentions of buyers prior to them soliciting bids. Research by McKevitt & Davis (2013) indicates that proactive behaviour of this kind is associated with superior success rates for small suppliers.

There are several ways in which relational capability is predicted to affect SME participation and success in public procurement. The first concerns frequency of tendering. Interacting with public buyers and other procurement decision makers is likely to result in more invitations to tender, additions to shortlists and even consultations about supply needs and product/service specifications at the pre-tender phase. Foregoing empirical research supports such a relationship. Reijonen, Tammi and Saastamoinen (2014) found that proactively engaging with customers is associated with higher rates of tendering by SMEs. Not altogether differently, Tammi, Saastamoinen and Reijonen (2014) confirmed that being able to acquire, share and respond to information on customers and competitors is linked to SMEs searching and bidding for public contracts. The second relationship concerns the typical value of public contracts firms endeavour to win. The ability to cultivate relationships with buyers and other procurement decision makers should widen the range and financial value of contract opportunities that come onto SMEs' radar. Case study insights furnished by Woldesenbet, Ram & Jones (2012) attest to this effect.

Third, relational capability is expected to be related to success in contract competitions. Through networking and establishing personal business contacts, small suppliers can build trust with buyers (Maser & Thomson, 2013). Trust is an important factor in supplier selection (Ahimbisibwe, Muhwezi & Nangoli, 2012) and can help to allay reservations that buyers may have over awarding contracts to small or newly created firms (Reis & Cabral, 2015). Tellingly, small firms have acknowledged that past performance is a primary determinant of future success in public procurement (Withey, 2011). In addition, by influencing buyers' purchasing intentions outside of live competitions, small suppliers will be favourably positioned when the eventual request for tender (RFT) is made public. The fourth predicted impact of relational capability is on commercial orientation towards the public sector. Relational capability enables firms to create a network within the public sector (Woldesenbet, Ram & Jones, 2012). Network connections, in turn, lead to more opportunities to do business with the public sector and to establish a commercial presence therein. The above arguments give the following four hypotheses.

H1a: Relational capability is positively associated with frequency of tendering.

H1b: Relational capability is positively associated with typical value of public contract sought.

H1c: Relational capability is positively associated with success rate in public contract competitions.

H1d: Relational capability is positively associated with commercial orientation towards the public sector market.

Procedural Capability

Procedural capability denotes a firm's ability to manage the technical and formal elements of tendering and contract administration. There are a number of strands to procedural capability. The first is that firms are able to identify what public buyers need from suppliers, as well as the criteria they will use to evaluate them. Obvious as this may seem, suppliers have been criticised for not showing due appreciation of public sector priorities or the legal and regulatory constraints under which public buyers operate (Michaelis, McGuire & Ferguson, 2003). Equally, procedural capability means that firms can confidently demonstrate to procurement decision makers that they meet the standards and stipulations set down in the RFT. Tellingly, this was the number one factor necessary for contracting success according to U.S. small firms in a study carried out by Withey (2011). The second most important factor was following procedures when responding to RFTs. Given the predominantly arms-length character of public procurement, firms need to be proficient in articulating their strengths in the written tender document. This is an area in which small firms are known to struggle, both because of the substantial time and resources that tendering takes (Flynn et al., 2013) and the often specialist knowledge – technical, regulatory and policy - that it demands of firms (Karjalainen & Kemppainen, 2008).

When the competition has officially ended and a contract has been awarded procedural capability is still relevant. Under circumstances in which a firm has failed to secure the contract, they must be able to get a written or preferably face-to-face debriefing from the public buyer. It

is only by doing so that firms can pinpoint areas in which they are performing well and areas that require improvement. Both buyers and suppliers are on record as attesting to the beneficial effect that feedback can have on any subsequent tenders submitted (Flynn et al., 2013). By the same token, suppliers must be capable of searching contract award notices and identifying the contract awardee. Such information is vital for gauging the competitive landscape in public procurement and keeping abreast of the performance of rival firms.

Procedural capability has a critical role to play in contract management (McKevitt & Davis, 2013). Therefore, suppliers must satisfy buyers that they are capable of fulfilling their contractual obligations, whether in relation to invoicing or periodic reporting on service delivery. Demonstrating an ability to professionally manage awarded contracts is particularly apposite for SMEs. Findings adduced by Reis & Cabral (2015) from the Brazilian public procurement market reveal that SMEs more than large firms are vulnerable to early contract termination.

As with relational capability, we expect procedural capability to be linked to SME participation and success in public procurement. First, we expect it to be associated with frequency of tendering. The ability to navigate the technical and administrative aspects of tendering makes it more likely that small firms will feel able and willing to compete for public contracts. Evidence of this, Loader (2005) found that a lack of knowledge of the procurement process constitutes among the main factors impeding SME involvement in public procurement. Furthermore, procedural know-how is conducive to tendering activity to the extent that it enables a more focused and purposeful approach. As a result, the time and resources that firms need to devote to tendering start to reduce (Centre for Economic and Business Research, 2013). Second, we expect procedural capability to be related to the value of public contracts that firms pursue. Procedural capability allows firms to deal with the more rigorous qualification standards and paperwork requirements that come with higher value contracts. It also means that firms will be capable of managing the delivery of a higher value contract should they be awarded it.

Owing to the formalized character of public procurement (McCue, Prier & Swanson, 2015), procedural capability is anticipated to be central to accounting for success in contract competitions. In the first instance it implies that firms can satisfy the qualification thresholds and standards of the contract competition, thus making themselves eligible tenderers (Withey, 2011). After this, procedural capability will determine how well firms perform against the objective and subjective criteria applied at the final evaluation stage. Relevant here is how convincingly firms demonstrate to buyers that their skills and previous experience make them the supplier of choice (Woldesenbet, Ram & Jones, 2012). The final prediction concerns procedural capability and commercial orientation towards the public sector market. As stated already, the transaction costs of tendering are often prohibitive for small firms (Centre for Economic and Business Research, 2013). Procedural capability leads firms to become more efficient in tendering. The cost-benefit ratio of tendering for public contracts improves as a result. Under these conditions we expect there to be a relationship between procedural capability and commercial orientation towards the public sector market. The above arguments lead to the following four hypotheses.

H2a: Procedural capability is positively associated with frequency of tendering.

H2b: Procedural capability is positively associated with typical value of public contract sought.

H2c: Procedural capability is positively associated with success rate in public contract competitions.

H2d: Procedural capability is positively associated with commercial orientation towards the public sector market.

METHOD

Independent Variables

Operational measures of relational and procedural capability were developed specifically for this study. Relational capability has three items. These are (i) ability to influence buyer needs prior to tender (ii)

ability to communicate value proposition to inform tender specification and (iii) ability to promote goods and services to public sector prior to tender. Items 1-2 are about being able to shape what buyers want from the supply marketplace and how they will go about procuring it. Ability of this kind can open up space for SMEs to compete, to begin with, and improve their chances of success thereafter. Item 3 signifies the importance of suppliers being able to promote themselves to buyers and establishing their reputation in the marketplace.

Procedural capability has five items. These are (i) ability to satisfy tender qualification criteria (ii) ability to understand tender evaluation criteria (iii) ability to effectively respond to tender evaluation criteria (iv) ability to receive feedback on submitted bids and search contract award notices and (v) ability to successfully manage an awarded contract. Items 1-3 of the procedural capability construct capture the importance of suppliers being able to interpret and adequately respond to tender evaluation criteria. This is fundamental to competing for public contracts. Items 4-5 reflect the fact that there are procedural tasks that firms must be able to manage even after the tendering process has concluded.

All capability items were measured on a 5-point scale where 1 = very poor and 5 = excellent. Principal component analysis carried out using Varimax Rotation confirmed the presence of single relational and procedural capability constructs in the original study (hereafter referred to as Survey 1) and in the replication study (hereafter referred to as Survey 2). The Cronbach Alpha scores for relational and procedural capability constructs were above .80 in Survey 1 and Survey 2. Table 1 provides further detail on these tests.

TABLE 1
Principal Component Analysis

	Survey 1	Survey 2

	Alpha	Eigenvalue	% variance explained	Factor loading	Communalities	Mean score	Alpha	Eigenvalue	% variance explained	Factor loading	Communalities	Mean score
Relational capability[a]	0.87	2.41	80.39				0.87	2.39	79.66			
Ability to influence buyer needs prior to tender				0.89	0.80	2.59				0.81	0.90	2.69
Ability to communicate value proposition to inform tender specification				0.89	0.80	3.04				0.78	0.88	3.13
Ability to promote goods and services to public sector prior to tender				0.89	0.80	2.83				0.78	0.88	2.92
Procedural capability[b]	0.84	3.13	62.64				0.84	3.16	63.22			
Ability to satisfy tender qualification criteria				0.79	0.62	3.65				0.79	0.63	3.71

TABLE 1 (continued)

	Alpha	Eigenvalue	% variance explained	Factor loading	Communalities	Mean score	Alpha	Eigenvalue	% variance explained	Factor loading	Communalities	Mean score
Ability to understand tender evaluation criteria				0.83	0.69	3.46				0.84	0.71	3.57
Ability to effectively respond to tender evaluation criteria				0.89	0.79	3.58				0.89	0.80	3.67
Ability to				0.71	0.51	3.13				0.70	0.49	3.16

receive feedback on submitted bids and search contract award notices													
Ability to successfully manage an awarded contract				0.70	0.49	4.21				0.71	0.51	4.27

Notes: [a] KMO Measure of Sampling Adequacy = 0.74. Bartlett's Test of Sphericity p < .001 (χ = 4530.67): Survey 1.

[a] KMO Measure of Sampling Adequacy = 0.73. Bartlett's Test of Sphericity p < .001 (χ = 4631.18): Survey 2.

[b] KMO Measure of Sampling Adequacy = 0.83. Bartlett's Test of Sphericity p < .001 (χ = 6134.78): Survey 1.

[b] KMO Measure of Sampling Adequacy = 0.83. Bartlett's Test of Sphericity p < .001 (χ = 6656.40): Survey 2.

Outcome Variables

Four outcome variables are considered in respect of SME participation and success in public procurement. The first of these is frequency of tendering. It is operationalized as the number of public sector contracts that a SME tendered for in the previous 12 months. The second outcome variable is the typical value of a public sector contract that a SME aims to win. Six financial ranges are used here. These are <€25,000; €25-130,000; €130-250,000; €250-500,000; €500-1,000,000; and €1,000,000+. The third variable is success rate in public contract competitions. It is taken as the percentage of public contracts tendered for in the previous 12 months that a SME succeeded in winning. The fourth outcome variable relates to commercial orientation towards the public sector. It is measured as the percentage of a SME's revenue that came from supplying public sector organizations in the previous 12 months.

Organizational Control Variables

Three organizational characteristics are controlled for in the model. These are (i) firm size, (ii) firm age, and (iii) sector. A number of studies have shown that firm size is significant in explaining participation and performance in public procurement (Demidova & Yakolev, 2012; Pickernell et al., 2011; Temponi & Cui, 2008). Size has also been found to correlate with the human and administrative resources that firms have available to them when tendering for public contracts (Flynn, McKevitt & Davis, 2015; Karjalainen & Kemppainen, 2008). Size is approximated by the number of full-time employees. Consistent with the EU definition of a firm, the following four size ranges are used: 1-9 employees (micro enterprise); 10-49 employees (small enterprise); 50-249 employees (medium enterprise); and 250+ employees (large enterprise) (European Commission, 2003).

Age is another significant variable in explaining participation in public procurement. Foregoing research indicates that older firms have higher levels of participation (Pickernell et al., 2013; Reijonen, Tammi & Saastamoinen, 2014). Moreover, firms have been shown to regard experience as conducive to securing contracts (Abdellatif & Zaky, 2015). Age is measured as the number of years a firm has been in existence. Four categories are used: 0-5 years; 6-10 years; 11-20 years; 21+ years. The third control variable is the sector in which a firm competes. Sector is divided into four categories: construction; manufacturing; services; and other industries. There is some evidence to suggest that sector has a role to play in explaining SME involvement in public procurement. For instance, Pickernell et al., (2011) found that firms in the construction sector tend to be comparatively more involved in public contracting.

Data Collection

Data to test the capability-based model was obtained by surveying firms competing for contracts with public sector organizations in Ireland. Email contact details for the population sample were obtained from the registration database of e-Tenders. e-Tenders is the official advertising site for Irish government contracts. At the time of the research approximately 60,000 firms were registered on e-Tenders. All registered firms received an email request to participate in the research

and an embedded hypertext link to the survey instrument. A reminder email notification, also with an embedded link to the survey, was issued one week after the initial mailing. This procedure was adhered to for Survey 1 and Survey 2. Survey 1 was undertaken in December, 2013. Survey 2, the replication study, was carried out in January, 2015.

The original survey instrument was assessed for content validity in the following way. Initially it was presented to 10 SMEs with experience of public sector tendering. These practitioners were asked to examine each question/item and response set and then comment as appropriate. Save for some adjustments to question phrasing, no major changes were requested. The structure and flow of the survey instrument was also adjudged by them to be satisfactory. The survey instrument was then sent to three public procurement academics to be appraised. They recommended some changes to the phrasing of items comprising the relational and procedural capability constructs. At the conclusion of this validation exercise the survey was ready to be administered.

Self-Administered Surveys

Self-administered surveying was deemed the most appropriate method of gathering data. It enabled data to be collected quickly and with minimal resource outlay or financial expense. There is precedent for using self-report data in this area (Flynn, McKevitt & Davis, 2015; Tammi, Reijonen, & Saastamoinen, 2014). Furthermore, methodologists such as Chan (2009) have argued that self-report data is as valid as any other source. Self-reporting does contain potential weaknesses, however, and these cannot be overlooked. Relevant here is the possibility of data contamination through social desirability bias, common method bias and inaccurate recall of performance by respondents. Because of this a number of steps, as recommended by Podsakoff et al., (2003), were followed in this study to ensure data integrity. These included providing respondents with anonymity, inserting questions on participation and performance in public procurement before questions on tendering capabilities, designing concise and easy to interpret scale items, and limiting the total number of scale items to eight.

Response Rate

For Survey 1 a total of 5897 responses were received from the sample population of 60,000 - a response rate of 10%. After removing 595 large firms[2] and 2292 substantially incomplete surveys,[3] we were left with 3010 usable responses. For Survey 2 4747 responses were received from the sample population of 60,000 – a response rate of 8%. The elimination of 530 large firms and 1125 incomplete responses left 3092 usable responses.

Respondent Representativeness

Representativeness in this study is understood in reference to firms active in public procurement rather than the enterprise population per se. This is an important distinction. It is well established that the profile of firms competing for public contracts differs from that of the universal enterprise population. Small firms are under-represented in public procurement and medium and large enterprises are over-represented relative to their actual number in the economy, as data from the U.S. (MacManus, 1991) and Europe confirms (Flynn et al., 2013; Office for National Statistics, 2012; PwC, 2014). The reason for this disparity is that a significant proportion of small firms in industries such as retail, catering and personal services are focused exclusively on business-to-consumer (B2C) transactions and so are absent from the public sector marketplace.

To test for representativeness we followed the advice of Armstrong & Overton (1977) and compared the characteristics of early and late respondents.[4] This extrapolation method assumes that late respondents are proxies for non-respondents. For Survey 1 there were no statistically significant differences between early and late respondent groups on the tested variables of firm size ($p = .43$), firm age ($p = .12$), frequency of tendering ($p = .39$) and contract win ratio ($p = .38$). For Survey 2, excepting firm size ($p < .05$), the other three variables were not statistically different. These results provide some reassurance that the respondents in this study are broadly representative of the population of firms active in public procurement.

Descriptive Data: Respondent Characteristics

The profile of respondent firms is similar across Survey 1 and Survey 2 (see Table 2). In terms of size, micro-enterprises are the predominant group. They constitute 62.8% of the respondent cohort in Survey 1 and 58.8% in Survey 2. Small enterprises comprise 25.2% of respondents in Survey 1 and 27.9% in Survey 2. The remainder is made up of medium-size enterprises (50 and 249 employees). Data of sales revenue reveals that approximately seven out of ten respondents in Survey 1 and Survey 2 earn less than €2 million per annum. Services sector is the main industry group, accounting for 58% of respondents in Survey 1 and 52.3% in Survey 2. The construction sector accounts for slightly under 20% of respondents in Survey 1 and Survey 2 and the manufacturing sector approximately 10%. The remainder of firms are grouped under 'other sectors'. Almost half of respondent firms have a national market focus. The other half is focused on either the sub-national or international market. Respondent firms are dispersed in age. In Survey 1 24% are between 0-5 years, 17.7% are between 6-10 years, 25.5% are between 11-20 years and 32.8% are 21 years or older. The percentages for Survey 2 follow the same pattern. Finally, 79.9% of respondents in Survey 1 and 75.3% in Survey 2 are based in Ireland. The remainder are based in other jurisdictions inside and outside of Europe.

Descriptive Data: Tendering Capabilities and Outcomes

Descriptive data for respondents' tendering capabilities and outcomes in public procurement reveal the following about them (see Table 2). In Survey 1 the mean score for relational capability is 2.82 and for procedural capability 3.60, measured on a 1-5 Likert scale. The corresponding figures for Survey 2 are 2.91 and 3.68 respectively. It is thus clear that respondent firms have higher self-reported procedural capability than relational capability. This is not surprising. As Woldesenbet, Ram & Jones (2012) noted, power asymmetries between large buyers and small suppliers mean that SMEs find it difficult to develop this capability type. Survey 2 respondents report marginally higher tendering-related capabilities

TABLE 2

Descriptive Statistics

Construct	Survey 1 %	Survey 2 %	Construct	Operationa-lization	Survey 1	Survey 2
Size (No. of employees)			*Relational capability*	x 3 items on a 1-5 scale (see Table 1)	2.82	2.91
1-9	62.8	58.8				
10-49	25.2	27.9				
50-249	12	13.3				
Industry			*Procedural capability*	x 5 items on a 1-5 scale (see Table 1)	3.60	3.68
Manufacturing	8.9	10.2				
Services	58	52.3				
Construction	17.3	18.8				
All other	15.8	18.7				
Revenue €			*Frequency of tendering*	No. of contracts tendered for in previous 12 months	8.47 tenders	8.80 tenders
< 2 million	72.8	69.3				
2-10 million	17.9	20.5				
10-49 million	7.8	8.8				
50+ million	1.5	1.4				
Market focus			*Contract value*	€0-25,000	36.1%	27%
Local	15.4	14.3		€25-130,000	39.7%	42%
Regional	18.3	16.7		€130-250,000	10.3%	12.1%
National	48.3	47.1		€250-500,000	6%	7.9%
International	18	21.9		€500-1,000,000	3.9%	5.1%
				€1,000,000+	4%	6%
Firm age			*Success rate in contract competitions*	Percentage of contracts tendered for in the previous 12 months that firm succeeded in winning	23.47%	25.52%
0-5 years	24	21.7				
6-10 years	17.7	16.7				
11-20 years	25.5	26.9				
21+ years	32.8	34.7				
Jurisdiction			*Commercial orientation towards public sector market*	Percentage of annual revenue derived from public sector contracts	19.22%	23.95%
Ireland	79.9	75.3				
UK	15.6	17.2				
Europe	2.7	4.7				
Rest of world	1.8	2.8				

compared to Survey 1 respondents. As regards participation and success in public contract competitions, the following statistics are relevant. The average number of tenders submitted by firms is 8.47 in Survey 1 and 8.80 in Survey 2. The majority of respondents compete for contracts in the lower financial value ranges. The percentage of firms

competing for contracts valued at < €130,000 is 75.8% in Survey 1 and 69% in Survey 2. The average contract win-ratio is 23.47% in Survey 1 and 25.52% in Survey 2. Lastly, the percentage of annual revenue attributable to public sector contracting is 19.22% in Survey 1 and 23.95% in Survey 2.

RESULTS

We tested our capability-based model of tendering using step-wise regression (see Tables 3 and 4). The same procedure was followed for Survey 1 and Survey 2 datasets. The three control variables of firm size, age and sector were entered first. Relational and procedural capability constructs were entered second. This was done in respect of: frequency of tendering (Model 1); typical value of contract sought (Model 2); success rate in contract competitions (Model 3); and commercial orientation towards the public sector market (Model 4). The results of these tests are set out below. Diagnostic checks performed as part of the regression analyses show that multi-collinearity was not present in either Survey 1 or Survey 2 datasets. Evidence of this, the Value Inflation Factor (VIF) did not exceed 1.5^5 in any of the Models 1-4.

Frequency of tendering is the first outcome variable tested (Model 1). H1a and H2a state that relational and procedural capabilities are positively associated with frequency of tendering. The organizational control variables of firm size, age and sector are statistically significant at the first step. Together they explain 16% of the variance in Survey 1 and 15% of the variance in Survey 2. At the second step the capability variables are entered into the model. Relational capability is not statistically significant in Survey 1 ($p = .11$) and significant but negative in Survey 2. This leads to rejection of H1a. Procedural capability is statistically significant and positive ($p < .01$) in Survey 1 and Survey 2. This leads to acceptance of H2a.

Typical value of contract sought is the second outcome variable tested (Model 2). H1b and H2b state that relational and procedural capabilities are positively associated with the typical value of contract sought. The three control variables account for 16% of the variance in Survey 1 and 21% of the variance in Survey 2. Size and sector are significant in Survey 1 and size, age and sector are significant in Survey

2. Relational capability is not found to be significant in explaining typical value of contract sought in either Survey 1 (p = .38) or Survey 2 (p = .51). By contrast, procedural capability is significant and positive in Survey 1 and Survey 2 (p <.01). As such, H1b is rejected and H2b is accepted.

Success rate in contract competitions is the third outcome variable examined (Model 3). H1c and H2c state that relational and procedural capabilities are positively associated with success rate.

TABLE 3
Predictive Test Results – Survey 1

	Frequency of tendering		Contract value		Success rate		Commercial orientation	
	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b
Firm size	.35[a] (.42)	.32[a] (.43)	.35[a] (.03)	.32[a] (.03)	.07[a] (.94)	.02 (.92)	.07[a] (.84)	.02 (.83)
Firm age	.05[a] (.25)	.05[a] (.25)	.03 (.02)	.02 (.02)	.01 (.57)	.01 (.54)	.03[c] (.50)	.03[c] (.49)
Sector: Manufacturing[a]	-.05[a] (.99)	-.04[b] (.99)	.06[a] (.08)	.06[a] (.08)	.03 (2.26)	.02 (2.10)	-.06[a] (1.98)	-.06[a] (1.93)
Sector: Construction[1]	.15[a] (.74)	.16[a] (.73)	.16[a] (.06)	.17[a] (.06)	-.05[a] (1.64)	-.03[b] (1.57)	.05[a] (1.45)	.07[a] (1.41)
Sector: Other[1]	-.04[b] (.77)	-.03[b] (.76)	.03[b] (.06)	.04[b] (.06)	-.01 (1.72)	-.01 (1.64)	.00 (1.52)	.00 (1.48)
Relational capability		-.03 (.29)		-.01 (.02)		.18[a] (.62)		.05[b] (.56)
Procedural capability		.15[a] (.37)		.15[a] (.03)		.16[a] (.79)		.21[a] (.72)
n	2739[b]	2739	2626[b]	2626	2672[2]	2672	2723	2723
Constant	-5.50[a] (.77)	-13.23[a] (1.29)	.93[a] (.06)	.19[c] (.11)	18.49[a] (1.72)	-15.46[a] (2.76)	12.65[a] (1.53)	-13.68[a] (2.51)
F	107.02	87.04	104.87	86.82	6.91	44.71	7.80	30.12
Adjusted R^2	.16	.18	.16	.18	.01	.10	.01	.07

Notes: [a] p <.01; [b] p <.05; [c] p <.10. The std. error is in parentheses.

[1] Sector: services is the referent category.

[2] Does not equal group total, 3010, due to missing values.

TABLE 4
Predictive Test Results – Survey 2

	Frequency of tendering		Contract value		Success rate		Commercial orientation	
	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b
Firm size	.32[a] (.40)	.30[a] (.41)	.38[a] (.03)	.36[a] (.03)	.11[a] (.89)	.06[b] (.88)	.09[a] (.85)	.04[b] (.85)
Firm age	.08[a] (.25)	.08[a] (.25)	.04[b] (.02)	.03[c] (.02)	.04[b] (.55)	.03[c] (.53)	.03 (.53)	.02 (.52)
Sector: Manufacturing[a]	-.02 (.94)	-.02[a] (.94)	.08[a] (.08)	.08[a] (.08)	.03 (2.07)	.02 (2.00)	-.04[b] (1.98)	-.04[b] (1.95)
Sector: Construction[a]	.15[a] (.73)	.15 (.73)	.21[a] (.06)	.21[a] (.06)	-.06[a] (1.59)	-.05[b] (1.53)	.05[b] (1.53)	.06[b] (1.50)
Sector: Other[a]	.01 (.73)	.01 (.73)	.03[c] (.06)	.03[b] (.06)	.01 (1.59)	.01 (1.54)	.00 (1.53)	.00 (1.51)
Relational capability		-.07[a] (.30)		.01 (.02)		.15[a] (.64)		.04[c] (.62)
Procedural capability		.12[a] (.39)		.10[a] (.03)		.15[a] (.82)		.18[a] (.80)
n	2897	2897	2903	2903	2828	2828	2846	2846
Constant	-6.60[a] (.81)	-11.41[a] (1.33)	.89[a] (.07)	.28[b] (.11)	15.13[a] (1.78)	-15.67[a] (2.82)	15.33[a] (1.71)	-8.84[a] (2.77)
F	104.14	80.91	154.89	118.74	15.56	42.89	9.42	24.29
Adjusted R^2	.15	.16	.21	.22	.02	.09	.01	.05

Notes: [a] p <.01; [b] p <.05; [c] p <.10. The std. error is in parentheses.

[a] Sector: services is the referent category.

[b] Does not equal group total, 3092, due to missing values.

Here the control variables account for 1% of the variance in Survey 1 and 2% of the variance in Survey 2. The inclusion of the capability variables increases the predictive power of Model 3 to 10% in Survey 1 and 9% in Survey 2. Relational capability is significant and positive in Survey 1 and Survey 2 (p <.01). Likewise, procedural capability is significant and positive in Survey 1 and Survey 2 (p <.01). Therefore, both H1c and H2c are accepted. In terms of their effect size, relational capability (β = .18) is slightly larger than procedural capability (β = .16) in Survey 1. At β = .15 both have the same effect size in Survey 2.

Commercial orientation towards the public sector market is the fourth outcome variable under consideration (Model 4). H1d and H2d state that relational and procedural capabilities are positively associated with commercial orientation towards the public sector market. In both Survey 1 and Survey 2 the control variables account for 1% of the variance. The inclusion of relational and procedural capability variables improves the predictive validity of the model to 7% in Survey 1 and 5% in Survey 2. Relational capability is significant in Survey 1 ($p < .05$) and partially significant in Survey 2 ($p < .10$). Procedural capability is significant at $p < .01$ in Survey 1 and Survey 2. This allows us to accept H1d and H2d. The effect size of procedural capability is $\beta = .21$ in Survey 1 and $\beta = .18$ in Survey 2. The corresponding effect sizes for relational capability in Survey 1 and Survey 2 are $\beta = .05$ and $\beta = .04$ respectively.

In summary, results from the step-wise regression tests lead to the following insights. Against predictions, relational capability is neither associated with frequency of tendering nor typical value of contract sought. Consistent with predictions, procedural tendering capability is associated with these two indicators of participation in public procurement. However, it does not add substantially to the variance already accounted for by the size and age of the SME and the sector in which it operates. These same organizational characteristics are strongly deterministic of SME participation in public procurement. Where relational and procedural capabilities really have an effect is in performance. Both are significant in explaining success rates in contract competitions and commercial orientation towards the public sector market. Relational capability is slightly more impactful for success rate whereas procedural capability has the greater effect on commercial orientation. These results are discussed next.

DISCUSSION

This study set out to explain and predict SME participation and success in public procurement. Surprisingly, scholars have only recently started to explore this topic. For the most part their efforts have been directed at explicating the barriers SMEs face when competing in the public sector marketplace (Loader, 2013). Real as these barriers are, research needs to move beyond them and provide explanations and

evidence on the factors and processes that enable small firms to compete for and win public sector contracts. It is in this vein that we have drawn on the literature surrounding capabilities (Amit and Schoemaker, 1993; Javidan, 1998; Makadok, 2001) and advanced a capability-based model of tendering, which comprises relational and procedural dimensions. Our results lend credence to this thesis. Specifically, they demonstrate that procedural capability is associated with SME participation and success in public procurement, while relational capability appears to be associated with performance measures only. In the interests of reliability, we replicated our study. The results of the replication mirror those found in the original study, which strengthens the claims made in this paper. We will now discuss the results in greater detail.

Compared to large firms SMEs are less involved in public contract competitions and less likely to pursue high value contracts (Flynn, McKevitt & Davis, 2015; Office for National Statistics, 2012; Pickernell et al., 2013). There are myriad reasons for this, including: poor awareness of available opportunities with public sector organizations; difficulties in satisfying qualification criteria; prohibitive transaction costs associated with compiling a tender; and too large contracts sizes (Cabras, 2011; Kidalov, 2015; Loader, 2005, 2015). Our results indicate that procedural capability has a role to play in boosting how often SMEs tender as well as the value of contracts they go after. In particular, possessing procedural astuteness for the tendering and post-contract award phases means that SMEs can be more active and ambitious in public procurement.

The same relationship does not hold with relational capability. The hypothesis was that ability to communicate with, engage and influence public buyers would enable SMEs to tender for more and higher value contracts. A similar-type relationship has already been shown to exist by Reijonen, Tammi, & Saastamoinen (2014) in respect of proactive marketplace behaviour by Finnish SMEs. Rationalising our negative result, it could be that relational capability causes SMEs to become more discerning and selective in their tendering approach. That is, they confine their efforts to contracts where they already have a relationship with the buyer or in some way feel able to engage and influence them or other procurement decision makers. The net effect is that they

pursue fewer contracts, albeit with more favourable odds of success. The negative β values observed in the model point to such an inverse relationship.

In addition to their under-representation as competitors in public contract competitions, SMEs are also under-represented as eventual winners. Data from both national and international studies shows that the actual number and financial value of public contracts SMEs win is significantly below their weighting in the economy (Cabinet Office, 2013; PwC, 2014). The identification in this study of relational and procedural tendering capabilities as likely drivers of success is, therefore, significant. In the first instance, firms adept at navigating through the formalities of the tendering process, pinpointing public buyers' requirements, responding with a convincing value proposition, and displaying competence in contract management are better placed to realise success. This reflects the fact that public procurement is bureaucratic and legalistic. Success is heavily dependent on firms adhering to its strictures and playing by its idiosyncratic rules.

In the second instance, knowing how and when to interact with public buyers is associated with success in contract competitions. A similar relationship was inferred by McKevitt & Davis (2013) in their investigation of micro-enterprise suppliers. Even allowing for the fact that public procurement is defined mainly by arms-length supply relationships (Diggs & Roman, 2012; McCue, Prier & Swanson, 2015), reputation, familiarity and trust do enter into public buyers' decision making. In fact, these "soft" factors are likely to prove crucial given the tendency of public buyers towards risk aversion (Georghiou et al., 2014; Loader, 2005). Small firms can enhance their prospects to the extent that they recognise this reality and start to build social capital with public buyers, product end-users and other organizational stakeholders. Admittedly, the stance taken by the purchasing organization towards the supply marketplace – proactive and engaged or reactive and disengaged - is likely to moderate the extent to which SMEs' relational capability can impact performance outcomes. As findings by Walker & Brammer (2009) and Flynn & Davis (2015) indicate, some public sector organizations, particularly local

government authorities, are more willing to contract with SMEs than other types of public sector organizations.

The final point of discussion relates to SMEs' commercial orientation towards the public sector. Diversifying their operations beyond low value market niches and into more lucrative mainstream markets invariably proves challenging for small and newly established firms (Ram & Smallbone, 2003). By consequence, this can put a brake on their growth and professionalization. The results presented here imply that tendering capabilities have a role to play in enabling SMEs to orient themselves to the public sector market and make public contracting a bigger part of their revenue stream. This is logical for a number of reasons. Firms possessing strong relational capabilities will be able to expand their business network to include public sector organizations. Network connections provide SMEs with the opportunity and the incentive to go after contracts in the public sector. Procedural capabilities have the effect of reducing the transaction costs and increasing the potential benefits of tendering for public sector contracts. In this way, public procurement starts to look relatively more attractive to SMEs and they end up devoting greater time, effort and resources to competing in it.

Practitioner Implications

The results of this study have implications for practitioners. For SMEs it is advisable that they strengthen their tendering-specific capabilities, both relational and procedural, if they are serious about staying competitive in public procurement. Inter alia, this will involve devoting time and resources into researching the supply needs and spend patterns of potential client organizations, formulating strategies to engage public sector actors, building a repository of materials that can be used when tendering, and becoming expert in understanding and responding to tender evaluation criteria. In essence, SMEs need to develop the capabilities that public procurement demands of firms, whether through in-house initiatives or externally sourcing them through third party collaborations (Whittaker, Fath & Fiedler, 2014). Awareness of the way in which tendering-related capabilities can offer them a competitive edge over their rivals is the starting point in this development process.

For enterprise support agencies the findings highlight the need for training programmes to cover both the relational and the procedural-technical sides of public sector tendering. Evidently, relational capability can be just as important in securing contracts as procedural capability. Moreover, SMEs, by their own admission, are weaker on the relational than the procedural side of tendering. Hence, this is where training providers are likely to effect the largest improvement in SMEs' capabilities. The corollary to SMEs strengthening their capabilities is that public buyers must be willing to engage with them. If public buyers are reluctant to engage, and there are indications that this is so (Flynn et al., 2013), then SMEs' efforts will be frustrated.

Limitations and Future Directions

There are several limitations to this study. First, the research relied on a single source – SMEs – in gathering data on tendering capabilities and associated involvement and performance-related outcomes. As referred to in the Method section, reliance on a single source to report their own behaviours is subject to potential weaknesses, including inaccurate recall and social desirability bias. In the interests of validity and robustness of research design, future research may wish to explore options for collecting data from archival sources - published contract award notices on e-procurement sites, for example. Second, the research confined itself to the population of firms competing for Irish public sector contracts. While there is a high level of institutional commonality in national public procurement systems, particularly within Europe, it is desirable that the capability-based model of tendering is tested in other jurisdictions. That way its predictive validity can be assessed across countries and regions.

Third, while the predictive validity of our model is reasonable, the fact remains that most of the variance in SMEs' participation and success in public procurement goes unaccounted for. Thus, researchers should consider alternative theoretical perspectives and models, such as strategic planning and decision making, which may have more explanatory power. Fourth, granular insights into how tendering capabilities lead to increased SME participation and success in public procurement do not form part of this study. To fill this gap, we advise

researchers to employ qualitative research methods capable of unearthing the nuances of the relationships in question.

CONCLUSION

Explaining SME involvement in public procurement represents a nascent line of inquiry. Our study makes an important and original contribution to it by advancing a capability-based model of public sector tendering. The results offer support to our hypothesised predictions that firm-level capabilities, both of a relational and procedural nature, are associated with indicators of participation and success in public procurement. The fact that we replicated our study adds to the credibility and reliability of the results. At a more overarching level our study contributes to previous work that has been undertaken on the role of capabilities in supply chain management (Tracey, Lim & Vonderembse, 2005). What is more, it serves to strengthen the conceptual and theoretical foundations of public procurement – something which Flynn & Davis's (2014) systematic review of the field highlighted as a priority for researchers.

Going forward, there is scope to delve deeper into the mechanics of tendering capabilities, identify how they enable firms to participate and succeed in public contract competitions, and refine the model accordingly. The results generated from such inquiry are likely to benefit not only academic scholarship but also procurement practice, as should be the case (Dimitri, 2013). Lastly, as well as being of direct interest to the public procurement community the threads of this study extend to current debates around SME competitiveness and the capabilities that underpin it (Barbero, Casillas & Feldman, 2011; Raymond & St-Pierre, 2013). Therefore, we encourage SME and entrepreneurship scholars to take a closer look at public procurement and examine the object of their interest – the small firm – competing, failing and succeeding in this uniquely challenging environment.

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NOTES

1. Above-threshold contracts refer to Supplies and Services contracts valued at €134,000 (or €207,000 for public sector entities other than central government) and Works contracts valued at €5,186,000. These contracts must be advertised in the Official Journal of the European Union (OJEU) and procured in accordance with EU Procurement Directives.
2. Large firms were removed as the focus of the study was on SMEs.
3. Responses that did not progress past the first page of the survey instrument.
4. In Survey 1 and Survey 2 the early group comprised the first 100 firms to respond. Their responses were received approximately 3 hours after the survey went live. The late group comprised the final 100 firms to respond. Their responses were received approximately 10 days after the survey was launched, and then only after a reminder notification had been issued. As such, there is a clear demarcation between early and late respondent groups.
5. VIFs above 10 indicate the presence of multi-collinearity among the predictor variables.

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