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**Sustainable procurement practice in the public sector:
An international comparative study**

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**Sustainable procurement practice in the public sector:
An international comparative study**

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**Sustainable procurement practice in the public sector:
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Abstract

Public procurement is a significant and yet understudied phenomenon. In light of debates concerning the transparency of public procurement, growing interest in sustainable public procurement as a means to stimulate corporate social responsibility in the private sector, and concerns regarding the competitive impacts of public procurement policies, we explore sustainable procurement practice internationally. In particular, we report the findings of a survey of sustainable procurement practices within a sample of over 280 public procurement practitioners from 20 countries and with collective responsibility for expenditure totalling \$45bn. Building upon a conceptual model that emphasises the importance of national policy environments regarding sustainable procurement mediated by a range of organisational contextual factors, our analysis shows that a wide range of sustainable procurement practices are embedded to some degree in public sector procurement practice around the world and that the extent and nature of sustainable procurement practices varies significantly across countries.

Sustainable procurement practice in the public sector:

An international comparative study

Introduction

Public expenditure is a complex phenomenon of growing global importance (Afonso et al., 2005; Evenett and Hoekman, 2005). Numerous empirical studies have charted the evolving level and composition of public expenditure, made international comparisons of the nature of public finances, and studied the impacts and outcomes associated with public expenditures (Tanzi and Schuknecht, 2000; Musgrave and Musgrave, 1984; Stiglitz, 2000; Devarajan, et al., 1996; Mueller, 2003). Recent studies indicate that public expenditures account for around 45% of GDP among developed countries, albeit with considerable variation in the level and composition of expenditures (Afonso et al., 2005). For example, public expenditure in Australia amounted to an average of only 36.7% of GDP during the 1990s, only 8.6 % of which was spent on social transfers, and 5.1% of which was attributable to education spending. In Sweden, by contrast, public expenditure averaged 63.5% of GDP over the same period, with spending on social transfers and education accounting for 20.4% and 7.6% of GDP respectively (Afonso et al., 2005). The importance of public expenditures within the world economy has stimulated an established interest in how public money is spent, with an emphasis on transparency and openness within public expenditure processes (Heald, 2003; Midwinter and McGarvey, 2001), the scope for privatising public sector activities (see e.g., Mueller (1997), Persson and Tabellini (2001), Shleifer and Vishny (1998), Strauch and Von Hagen (2000), Tanzi and Schuknecht (1997, 2000)), and the stabilisation, allocation and distribution effects of public expenditure.

Within the overall pattern of public expenditure, that portion of public expenditure attributable to purchases of goods and services, has been the subject of significant recent attention (Fernandez-Martín, 1996; Trionfetti, 2000; McCrudden, 2004; Brülhart and Trionfetti, 2004). As with total public expenditure, this interest arises in part from the absolute scale of public procurement with between 8% and 25% of the GDP of OECD countries and 16% of EU GDP being attributable to government purchases of goods or services (OECD, 2000; European Commission, 2006; Afonso et al., 2005). Furthermore, public procurement is also a significant activity in the developing world with a study of 106 developing countries finding that the purchases of their governments accounted for ‘approximately 5.1 percent of their combined national outputs’ (Evenett and Hoekman, 2005). Beyond issues associated with the scale of public procurement, the existing literature has focused attention on a number of important issues including the tendency of public procurement to favour relatively local companies with possible impacts on efficiency and effectiveness, the growing importance of collaborative partnerships between the private and public sectors, and the processes of tendering and contracting for government contracts often in the context of particular products or services (Cox et al., 2005; Martin et al., 1999; Bovaird, 2006; Gelderman, et al., 2006).

Within evolving discussions concerning public procurement, the role of government purchases as a stimulus for sustainable development has been a topic of particular interest in recent years (McCrudden, 2004; Weiss & Thurbon, 2006). Sustainable procurement is procurement that is consistent with the principles of sustainable development, such as ensuring a strong, healthy and just society, living within environmental limits, and promoting good governance and, as McCrudden (2004:257) notes, sustainable procurement places government in two roles by

“participating in the market as purchaser and at the same time regulating it through the use of its purchasing power to advance conceptions of social justice”. Discussions of sustainable procurement have had particular salience among supranational organisations and these have prompted the initiation of significant responses among some governments, the EU and UK among them. For example, the World Summit on Sustainable Development in 2002 called for governments to "promote public procurement policies that encourage development and diffusion of environmentally sound goods and services" (WSSD, 2002), and, in response, the UK government, in 2005, stated its goal to be amongst the leaders in Europe on sustainable procurement by 2009 (DEFRA, 2005).

Although sustainable procurement has an increasingly high profile in policy circles around the world, very little is known about the extent to which SP policies and practices are embedded within the practice of public procurement professionals globally. One notable exception is the European Commission's (2005) 'status overview' of sustainable public procurement in Europe (European Commission, 2005). This study analysed tender documents from member states and required personnel working in public procurement to complete a questionnaire concerned with the inclusion of environmental criteria in purchasing, barriers to implementing greener public procurement, best practice and how policies are communicated within the organisation (ibid). In addition, only life-cycle analysis of the environmental impacts of products and services, and the procurement of environmentally favourable products are addressed as stand alone issues forming part of environmental sustainable procurement in the EC report (ibid). It is clear from an analysis of this definition that the EC study was only concerned with a narrow range of environmental issues and did not take into account any social aspects of sustainable procurement. Nevertheless, the

EC's 'status overview' of 'Green Public Procurement in Europe', based on an analysis of tender documents and questionnaires, revealed that there was significant cross-national variation in the degree of development of sustainable public procurement with seven European countries standing out above the rest (European Commission 2005). These countries were assessed through a self-administered questionnaire completed by procurement professionals and the evaluation of the number of tender documents that included 'green criteria' (ibid). The seven outstanding countries were Austria, Denmark, Finland, Germany, the Netherlands, Sweden and the United Kingdom (ibid).

In this paper, we provide the first systematic and comprehensive insight into the state of sustainable procurement (SP) practice globally. Given the scale and importance of public procurement, the lack of earlier research in to public procurement practice, and the capacity for sustainable procurement to play an important role in delivering social benefits both directly and by influencing the activities of private sector organisations, it is important to shed greater light on how public money is spent (McCrudden, 2004; Weiss & Thurbon, 2006). Drawing upon a sample over 280 organisations from across the public sector globally, we highlight the nature and extent of current SP practice, how this varies across countries, and the factors perceived to be the most important facilitators and retardants of the further development of sustainable public procurement. We make two particular contributions. First, our analysis provides an insight into the progress made in respect of the policy commitments made concerning sustainable procurement globally and, through this, the policies and interventions necessary to further develop SP practice. Second, our analysis focuses on the character of SP in public sector organisations and, by comparison with existing research in the private sector, we are able to illuminate

the particular nature of SP in the public sector and the challenges faced by these organisations when compared to their private sector counterparts.

The remainder of the paper is structured as follows. In the next section we introduce our conceptual background and discuss the variation globally in the pattern of sustainable public procurement policies. The subsequent section outlines our empirical method, including a discussion of the sample before we discuss our research findings. A final section discusses our findings and concludes.

Conceptual background and policy context

This section addresses two objectives. First, we develop a conceptual framework that provides a lens through which to explore cross-national variation in sustainable public procurement. Second, reflecting the importance of the extent and nature of government policies concerning socially responsible public procurement, we provide an overview of the character of such policies within the principal regions and countries within our subsequent empirical analysis. Our conceptual framework (see figure 1, below) draws upon the framework developed by Gelderman et al., (2006) and is informed by three conceptual paradigms that have been applied to issues concerned with procurement: the stakeholder, resource-based, and the power-dependence perspective (Preston and Donaldson, 1999; Worthington et al., 2007; Srivastava, 2007; Barney, 1991; De Bakker and Nijhof, 2002; Cox, 1999; Gerrefi, 1999). These perspectives respectively emphasise the importance of pressures on the organisation, often with a focus on the relationship between the organisation and external actors, the capabilities, skills, and knowledge at the organisation's disposal, and the detail of the relationship between supply-chain partners with a particular interest in the distribution of power within those relations (Hall, 2000; Sobszak, 2006;

Worthington et al., 2007; Srivastava, 2007; De Bakker and Nijhof, 2002). Gelderman et al.'s (2006) framework was developed in the context of examining the influences upon compliance with EU tendering directives but, given its relatively general framing, provides a useful framework for examining the influences on the degree to which any aspect of public procurement policy translates into practice. However, given the cross-national character of our research, it is necessary for us to explicitly include the importance of the national policy context, and variation in this across countries, as a driver of sustainable public procurement.

Figure 1 here

The conceptual model, described in figure 1 above, begins from the starting point that sustainable public procurement arises primarily because of pressures on the organisation to undertake it. In the context of public procurement, the key pressures stem directly from the character of the policy environment with respect to sustainable public procurement, including a sense of how these relate to other objectives of public procurement such as obtaining value for money, defined as the “optimum combination of whole life cost and quality (fitness for purpose) to meet the user’s requirement” (HM Treasury, 2000). A further pressure is the need to abide by EU procurement directives that support open competition across the EU. Beyond the character of an organisation’s policy environment regarding SP, the framework proposes four factors that influence the degree to which particular organisations implement SP practices. We will briefly discuss each of these in turn.

The first factor focuses on the informational aspects to implementation of SP. In order for an organisation to be able to effectively implement SP activities, it is vital

that organisations understand the concept of SP and government policies with respect to it and that they have the skills, competencies and tools necessary to make SP happen. Sustainability is itself a contested and complex concept suggesting that it may be the case that procurement professionals lack the skills and knowledge necessary to successfully implement SP, a fact underlined by a recent survey which found that 83% of purchasing professionals considered themselves ill equipped to deliver sustainability through procurement.

The second factor emphasises the role of financial aspects of SP. In particular, perceptions of the financial viability of implementing SP are expected to play a crucial role in shaping the degree to which SP policies are acted upon since green/socially responsible production methods are often perceived of as being inherently more expensive than other methods. Given the tight budget constraints and countervailing objectives faced by most public sector organisations, perceptions regarding the cost-effectiveness of SP are expected to play a particularly important role. This discussion suggests that organisations are likely to pursue SP in contexts where they perceive of win-win situations but may be significantly more reluctant to embark upon SP in contexts where the payoffs are unclear and where it comes into conflict with the directives to maintain competition and deliver value for money.

The third influence on the degree to which SP is implemented in organisations concerns organisational attitudes and incentives for SP. In part, this is a matter of organisational culture and the degree to which the prevailing climate in an organisation is supportive of sustainability and/or of change in general. In other respects, this dimension includes the extent to which there is support for SP at senior levels in an organisation and the degree to which organisational processes and structures support, or retard, the development of SP. Concerning the importance of

organisational culture, earlier studies have suggested that public sector organisations, particularly NHS organisations, can exhibit cultures that are highly resistant to change (Cox, Chicksand, & Ireland, 2005). This suggests that these cultures, where they exist, may have adverse consequences for the implementation of SP.

The final driver of SP implementation centres on the supply-side of the SP transaction by emphasising the importance of the availability sustainably-produced goods and services for the ability of public sector organisations implementation of SP. Given that many of the goods and services procured by the public sector are highly specialist, it is possible that identifying sustainable sources of supply may be very challenging in some contexts.

Sustainable procurement policy frameworks around the world

In light of the observation made above that the policy environment regarding sustainable public procurement is likely to be a key driver of cross-national variation in sustainable public procurement practice, this section discusses the character of these frameworks for a set of countries and regions relevant to our subsequent empirical analysis. The aim is not to be exhaustive since a complete analysis of the policy frameworks concerning public procurement lies outside the scope of this article. Instead, we aim to provide a flavour of the variation in these important institutional contexts internationally.

The policy context concerning public procurement in the United Kingdom is based on a set of guiding principles, including transparency, competitiveness, accountability, efficiency, legality, and integrity, that have the ultimate aim of supporting the delivery of “best value for money” in public procurement (HM Treasury, 2000). “Best value for money” is defined as “the optimum combination of

whole life cost and quality (or fitness for purpose) to meet the customer's requirements" (HM Treasury, 2000). Significantly, through the focus on whole life costing, the definition of best value of money gives scope to public bodies to take social and environmental policy objectives into account in their procurement activities. To further support and encourage this recognition, the UK Government, as part of the implementation of its 2005 Sustainable Development Strategy, stated its ambitious goal to be amongst the leaders in the EU on sustainable procurement by 2009. In order to stimulate the development of sustainable public procurement, a Sustainable Procurement Task Force was established in 2005 and since then regions of the United Kingdom (Northern Ireland, Scotland, Wales) and various areas of the public sector (Education, Health) have provided sustainable procurement guidance and policy that reflects their interpretation of how principles of sustainability can be applied to their particular contexts.

Public procurement in the European Union is governed by a set of similar national policy frameworks concerning the objectives of public procurement to those described for the UK, coupled with an overall policy framework that is designed to open up the EU's public procurement market to competition, outlawing "buy national" policies and to promote the free movement of goods and services. Regarding the state of policies in EU countries concerning sustainable public procurement, there is considerable variation both in the extent to which countries have developed and implemented policy, and in the character and focus of such policy frameworks where they exist. Steurer and Konrad (2007) examined the state of development of national action plans regarding green or sustainable public procurement in the EU, arguing that these are "not only one of the most comprehensive instruments fostering green or sustainable public procurement; they are also the type of instrument applied most

often in EU Member States". Of the 27 EU member states, their analysis showed that only a third of governments had adopted an action plan concerning sustainable public procurement by April 2007, with a further 5 countries having a draft policy concerning sustainable public procurement that hadn't yet been adopted. Countries with relatively well-developed plans included the Netherlands, Denmark and the United Kingdom, while countries still in the early stages of developing national action plans included Germany, Greece, the Slovak Republic and Malta. The emphasis of much of the policy that has been implemented in the EU is environmental rather than social in character. For example, in Italy there is a mandate that 30% of goods purchased by public administration complies with ecological criteria, Denmark, France, Netherlands and the United Kingdom have public procurement policies specifically for wood and paper products, and in Belgium there is an initiative to ensure that 50% of government vehicles comply with specific environmental criteria.

In contrast to the predominantly environmental character of policy discussions concerning sustainable procurement in the UK and Europe, sustainable procurement policy frameworks in the United States, have, consistent with the constitution, a particular emphasis on avoiding discrimination and providing equal opportunities (McCrudden, 2004). For the United States, these issues have most clearly been crystallised in the development of federal policies that promote procurement from women and minority owned businesses with some emphasis on purchasing from indigenous peoples. The focus on issues of discrimination also played an important role in shaping US government policies in respect of purchases from overseas in that procurement (or non-procurement) from Northern Ireland and South Africa were used as a lever to place pressure on the UK government to stop religious discrimination, and upon the South African government to end apartheid (McCrudden, 2004).

Canadian federal government procurement policies include emphasise similar economically-oriented aspects of purchasing as those found in Europe including mandates concerning promotion of competition and value for money. However, in addition to these, Canadian public procurement policies include foci on non-discrimination and ensuring procurement opportunities for Aboriginal businesses. The Canadian federal government founded the Office of Greening Government Operations (OGGO) in 2005, which developed the Policy on Green Procurement in 2006. Through this policy, all government bodies need to formulate green procurement targets and all personnel responsible for procurement need to be trained in green procurement. The OGGO provides purchasers with a decision making toolkit and a checklist on their website to encourage them to consider sustainability. In the state of Manitoba the government decided that social issues such as opportunities for ethnic minorities also need to be considered in public procurement.

In Japan, moves to integrate environmental and social criteria in public procurement practices have so far emphasised environmental aspects. For example, a law on Green Purchasing was passed in 2001 that compelled all government bodies to develop and implement green purchasing policy (ECCJ, 2007). The law requires government agencies to establish annual goals, integrate these with purchasing decisions and to report on performance relative to goals. Earlier research has highlighted the case study of Sendai city which has formulated an environmental purchasing policy in which the city attempts to establish itself as a beacon for the wider community and thereby stimulate broader demand for environmentally sensitive goods and services. Sendai aimed to have 90 percent of all purchases in the city to be sustainable for ten product groups (ECCJ, 2007).

In South Africa, as in the United States, public procurement was seen as an important policy lever in the post apartheid world. Specifically, the Black Economic Empowerment initiative means the public sector prioritises buying from black-owned businesses in order to redress the economic advantages of white-owned businesses attributable to apartheid. In Australia, local businesses were supported by state-based schemes such as "Buy Queensland".

Methods

Since there is no global database of public procurement professionals, our sampling strategy employed began from a wide list of contacts in public procurement around the world encountered in our earlier research. We made an initial approach to each contact asking them if they would be willing to forward our survey throughout their professional network including contacts they had in other countries and asking their contacts to do similarly where they were willing. This “snowballing” sampling strategy is relatively commonly used in contexts, such as ours, that are characterised by there being relatively small numbers of appropriate respondents who are members of well developed professional groups (Kalton and Anderson, 1986). With the support of these contacts, we directly emailed our survey instrument to over 1,000 public procurement professionals in 25 countries. Given that we can’t be absolutely sure how many purchasing professionals our survey ultimately reached, it is difficult to be precise regarding the final rate of response. However, after conducting some follow-up analysis we estimate that the 283 responses drawn from 20 countries that we ultimately received represents an overall response rate in the region of 18%.

Table 1, below, provides a detailed description of our sample. Panel A describes the distribution of the sample across regions. A little more than a third of the

sample comes from the UK with the remainder of the sample comprising significant sub-samples of organisations from the United States/Canada (18.4% of the sample), Western Europe (17.3%), Eastern Europe (12.7%), and Scandinavia (10.2%). A small group of observations came from the rest of the world. Panel B describes the sectoral composition of the sample, again broken down by country. General public service providers, typically local authorities or regional governments, make up the largest sub-sample of organisations in our sample, with bodies involved with education and healthcare also strongly represented. It is apparent that there is some variation in the composition of the sample across countries with comparatively few organisations involved in “other” aspects of the public sector in the UK, and relatively more in the Western European sub-sample.

Concerning the extent to which our sample is representative of global public sector organisations, it’s clear that we over-sample UK-based organisations and under-sample those from the rest of the world. Regarding the sectoral composition of the sample, our sample draws on the full breadth of public sector activity with significant sub-samples of organisations involved in healthcare, education, public order and justice, transport, and the provision of general public services. Hence, while not overall strictly representative, our sample is certainly inclusive of the breadth of organisations comprising the global public sector and should, therefore, provide a good basis for establishing the depth and breadth of engagement with SP practice. Furthermore, the total spending of sample organisations is approximately £45BN. For the UK sub-sample, this represents about 17% of the estimated procurement spend of the public sector of £150 BN (DEFRA, 2006) and roughly 10% of the public sector’s annually managed expenditure (which was £249.5 BN in 2005/6).

Table 1 here.

The remainder of table 1 provides sample descriptive statistics for a range of other variables that collectively characterise the procurement climate. These figures show, for example, that the average organisation in our sample had about 4,000 active suppliers, that the average contract lasted approximately 3 years, that the largest 3 suppliers typically account for around 22% of an organisation's spending, and that 40% of our sample organisations had a wider supplier base than they had 10 years ago.

In order to investigate SP, we used scales developed in a previous study of Purchasing Social Responsibility (PSR) (Carter and Jennings, 2004). PSR embodies a wide range of aspects of purchasing that relate to social and environmental improvements. Making use of the PSR scale has the advantage of making use of a scale with proven reliability and validity. As Carter and Jennings (2004) demonstrate PSR is a higher-order construct consisting of five unique dimensions: the environment, diversity, human rights, philanthropy, and safety. In order to reflect the breadth of the concept of sustainability as applied to the context of procurement, we drew on the PSR scale items, and added two on buying from small and local suppliers. The questionnaire was reviewed by an expert panel and piloted with 10 public sector procurement officers, to ensure the face validity and efficacy of the items in a public sector context.

We also sought qualitative data to understand issues concerning SP practice in more depth. Participants were asked to describe barriers and enablers to SP. The qualitative data were coded by categorising and counting the incidence of respondent's listed barriers and facilitators. The qualitative data was coded until there was a 'saturation of categories' (Miles & Huberman, 1994) and no further categories

occurred. Two researchers conducted the analysis separately to help ensure the categorisation was valid. The qualitative data are summarized in incidence tables in the findings section.

Findings

In this section we present our findings concerning the state of sustainable public procurement in our sample organisations. We begin by analysing the pattern of sustainable procurement as revealed in answers to a question adapted from an instrument developed by Carter and Jennings (2004) concerning the degree to which 16 aspects of sustainable procurement were currently embedded in an organisations procurement practices. Respondents were asked to indicate on a five-point scale ranging from ‘disagree strongly’ (scored 1) to ‘agree strongly’ (scored 5) that each aspect of sustainable procurement was currently being practiced. Table 2, below, provides averages for organisations grouped according to region.

The final column of table 2 provides an overview of the general prevalence of sustainable procurement practices in public sector organisations through an overall average for all sample organisations. Our findings indicate a wide degree of variation in the extent to which sample organisations adopt particular aspects of sustainable procurement. Some facets, such as purchasing from local suppliers, buying from small and medium sized companies, and ensuring the safe incoming movement of product to an organisation’s facilities are adopted by the majority of the organisations - by 65.4 per cent, 68.1 per cent and 55.5 per cent respectively. Other areas of sustainable purchasing are embedded in far fewer organisations. For example, only 5.5 per cent participated in the design of products for disassembly, 13 per cent had a formal

programme for making purchases from minority groups, and 15.8 per cent donated to philanthropic organisations. Perhaps surprisingly given the environmental orientation of sustainable procurement policy in most countries, our findings suggest parts of sustainable procurement concerned with purchasing from small/local companies, and those focused on employee health and safety, rather than environmental practices are those most commonly embedded.

Table 2 here

However, these observations concerning the general prevalence of sustainable procurement activities mask considerable variation between countries and regions in both the extent to which sustainable criteria are embedded in procurement practice in general and in the aspects of it that are most important in specific countries or regions. Overall, the sustainable procurement activities were most developed among the UK organisations we surveyed, along with organisations in Eastern Europe. This means the UK may indeed meet its target of being among the leaders in Europe by 2009. Organisations from Western Europe, the US, and Scandinavia exhibited generally lower engagement.

Looking at the different emphasis of sustainable procurement across countries/regions, in the UK it is focused on purchasing from small/local companies, and worker safety. Almost 80 per cent of UK organisations buy from small companies, compared with 60 per cent elsewhere, while almost 70 per cent buy from local suppliers compared with 60 per cent elsewhere. Formally, the mean scores for the UK are statistically significantly greater than those for other sample organisations on five aspects of sustainable procurement: purchasing from small suppliers ($p=0.001$),

asking suppliers to pay a living wage ($p=0.008$), ensuring suppliers' locations are operated in a safe manner ($p=0.000$), ensuring that suppliers' comply with child labour laws ($p=0.000$), and purchasing from local suppliers ($p=0.008$).

Sustainable procurement practices are relatively similar in Western Europe, Eastern Europe and Scandinavia, with a greater emphasis on environmental aspects of procurement than in other countries. For example, 48 per cent of continental European organisations ask suppliers to commit to waste reduction goals and 45.9 per cent ask suppliers to reduce use of packaging materials compared to less than a third of organisations in other countries/regions. Scandinavian organisations are significantly more likely than other organisations to ask suppliers to commit to waste reduction goals ($p=0.086$), while significantly more Eastern European organisations participate in the design of products for disassembly ($p=0.020$) than is true elsewhere.

In contrast to Europe and consistent with the emphasis in government policy discussed above, sustainable procurement practice in the US is characterised by a much greater adoption of buying programmes oriented to providing opportunities for businesses owned and operated by ethnic minorities and women. Specifically, 63.5 per cent of US organisations purchase from minority and women-owned businesses and 38.5 per cent have a formal programme for buying from minorities compared with only 10.9 per cent and 6.5 per cent of organisations in other geographical areas.

Having provided an overview of the way in which the strength and focus of sustainable procurement practices vary across regions, we now turn our attention to trying to explain this variation. Reflecting the conceptual discussion above, a number of factors could potentially mediate the relationship between national policy environment with respect to sustainable procurement and sustainable procurement practice in particular organisations. In order to evaluate this idea, we asked

respondents two open-ended questions relating to respondent's perceptions of barriers to and facilitators of sustainable procurement activities in their organisation. We will consider each of these in turn.

Table 3 provides an insight into the most commonly identified difficulties encountered in implementing sustainable procurement. In general, financial constraints were by far the most regularly cited barrier to sustainable procurement with around a third of organisations highlighting that sustainably produced products were often, or were often thought to be, more expensive than competitor products and that their budgets wouldn't permit widening of SP practices. Two typical respondents from the United Kingdom and the Republic of Ireland highlighted that:

As a public funded organisation it is frequently difficult to put the business case to justify the additional cost of purchasing the option that is preferred from a sustainable perspective (as the sustainable option usually carries a premium).

While we award contracts that make sustainable produces available, client Departments choose which products to draw from them. Cost factors play a role in that choice. Cost can be a barrier to selection of green options

Other important blockers of SP related to managerial/structural and informational issues. The former are primarily concerned with the absence of support from senior managers for SP and the fact that implementing SP policies is often thwarted by the devolved form that procurement takes in many organisations. A local government procurer in Hungary commented that:

First of all, the main problem is the lack of information about the market opportunities and the back office personnel's resistance in connection with it. We do not want to prescribe impossible environmental conditions, because the tenderers can not fulfil them, but if we want to prescribe

environmental conditions as one of the valuation provisions (which can be the most effective), we shall have the appropriate information. We need to have a clear and transparent database about goods produced by tenderers (materials used, manufacturing process, recycling facilities (life-cycle))

Similarly, a Swedish procurer from the transport sector pointed out that

The top management has not issued explicit directives regarding sustainable development. Thus, people in charge of procurement do not have a clear "mandate" to introduce e.g. ethical criteria which might entail increased overall costs. Hence, in order to get a higher focus on overall sustainability, top management might have to become more dedicated to the so-called "triple bottom line" concept. Furthermore, purchasing is decentralised in the organisation. This makes it more difficult and time consuming to introduce "novelties" when it comes to long-term purchasing strategies

Some perceived barriers are disproportionately significant in certain regions. For example, concerns with product quality and the availability of sustainably produced alternatives ranked relatively highly in the United States and the rest of the world.

Table 3 here

We now turn to facilitators of greater engagement with sustainable procurement. Table 4, below, describes the incidence of respondent perceptions of those factors that facilitate the implementation of SP practices. The most frequently highlighted stimulants of SP practices were support for SP among an organisation's leadership, a supportive/conducive governmental/legislative climate and the implementation of concrete strategies and plans within which SP goals were articulated and enshrined. These sentiments are typified by the comments of this regional government procurer in the United States who stated that

Express upper management support, and develop of related goals by upper management that specifically relate to this type of activity. If there are no goals established by upper management, the tendency is for using departments to gravitate toward price-only competitive criteria.

The importance of government and legislative support for sustainable procurement is typified by this response from a Maltese central government procurement professional:

It is one of Government's top priorities and therefore support is forthcoming to facilitate sustainable procurement in my organisation.

Table 4 here

Discussion and conclusion

In this paper, we have reported the findings of the first large-scale study of sustainable procurement practice globally. Building upon a conceptual model that emphasises the importance of national policy environments regarding sustainable procurement mediated by a range of organisational contextual factors, our analysis shows that a wide range of sustainable procurement practices are embedded to some degree in public sector procurement practice around the world. This finding confirms earlier suggestions in the literature (McCrudden, 2004) that governments are widely using the power embodied in public procurement activities to further social and environmental policy goals. Our analysis also reveals significant variation across countries in the extent and emphasis of sustainable procurement practices and highlights a set of factors that are perceived to play important roles in shaping the

propensity for individual organisations to more deeply embed sustainable procurement activities.

Both the cross-country variation in the SP activities of organisations and the observation that government/legislative support for SP is among the most frequently cited facilitators of SP suggest that national and international policy environments regarding SP are a primary determinant of the extent to which organisations engage in SP. Where concrete policy and legislation exists with respect to aspects of sustainable procurement, it appears to be widely and successfully implemented. However, where directives are less concrete and more voluntary in character, competing necessities and priorities often dominate. For example, the imperative to stimulate competition and efficiency by widely tendering within the European Union often competes, or is inconsistent, with the goal of widening participation in sustainable procurement. Sustainable procurement activities also often fall foul of tight departmental budgets in contexts where there is a perception that taking the next steps concerning sustainability will raise costs. This discussion suggests that if governments are committed to more widely and deeply embedding sustainability in procurement practice, they need to continue to provide clear legislative and regulatory support for SP, and they need to provide sufficient budgetary flexibility for organisations to make investments in SP that may be financially efficient only when viewed from a long-run perspective.

Other evidence, however, suggests that policy frameworks are only part of the picture concerning the stimuli for SP. Perhaps surprisingly, given their significance in most national policy frameworks, environmental aspects of sustainable procurement are not the most prominent. Instead, buying from small and local businesses and aspects concerned with responsible labour and safety practices are most widely and

deeply implemented. In part, this observation may reflect the relative inapplicability of some of the environmental aspects of SP to the public sector/services context when compared to private sector and manufacturing organisations. However, it does suggest that more deeply embedded, “relationship”, aspects of procurement whereby public procurers actively engage with suppliers in order to reduce the overall environmental impact of their activities are relatively rare.

Given the relative absence of earlier research regarding sustainability practices, it is difficult to make concrete comparisons between procurement practices in the private versus the public sector or to identify trends in the development of SP practices. Nevertheless, some tentative conclusions can be made. First, by comparison with the extant literature on ethical/responsible purchasing in private sector organisations, the emphasis in the public sector appears to be oriented towards social aspects of SP to a greater extent. Partly because of the focus on manufacturing industries with integrated processes such as the automotive sector, the focus in the private sector literature lies with environmental and green aspects of procurement (Srivastava, 2007). Second, there appears to be more substantial variation across countries in SP practices in the public sector than has been documented for private sector organisations. This perhaps reflects the greater salience of national policy frameworks in the public sector coupled with the growing similarity of practice at the sectoral level in the private sector that has arisen from competitive pressures associated with globalisation.

The study suffers from a number of limitations that future work might seek to remedy. First, inherent in the survey method is the fact that our respondents are volunteers and hence may to some degree be more interested in or engaged with sustainable procurement than other organisations. Second, our analysis is cross-

sectional and therefore provides only a snapshot of sustainable procurement practice in the organisations we study. Future work that extends our analysis to incorporate a longitudinal analysis of changing practice with respect to sustainable procurement would add considerably to our understanding of the processes by which such practices become more embedded in organisations.

References

- Afonso, A., Schuknecht, L., & Tanzi, V. (2005). Public sector efficiency: an international comparison. *Public Choice*, 123, 321–347.
- Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17, 1: 99-120
- Bovaird, T. (2006) Developing New Forms of Partnership with the ‘Market’ in the Procurement of Public Services, *Public Administration*, 84(1), 81–102
- Brühlhart, M and Trionfetti, F (2004) Public expenditure, international specialisation and agglomeration. *European Economic Review*, Aug2004, Vol. 48 Issue 4, p851-881
- Carter, C. R., & Carter, J. R. 1998. Interorganizational determinants of environmental purchasing: initial evidence from the consumer products industry., *Decision Sciences*, 29: 28-38
- Carter, C.R. and M. Dresner. (2001) “Environmental Purchasing and Supply Management: Cross-Functional Development of Grounded Theory,” *The Journal of Supply Chain Management*, (37:3), 2001, pp. 12-27.

- Carter, C. R., & Jennings, M. 2004. The role of purchasing in corporate social responsibility: a structural equation analysis. *Journal of Business Logistics*, 25(1): 145-186.
- Cox, A. 1999. Power, value and supply chain management. *Supply Chain Management: An International Journal*, 4, 4: 167-175
- Cox, A., Chicksand, D., and Ireland, P. (2005) Sub-Optimality in NHS Sourcing in the UK: Demand-Side Constraints on Supply-Side Improvement, *Public Administration*, 83(2), 367-392
- De Bakker, F. & Nijhof, A. 2002. Responsible chain management: A capability assessment framework *Business Strategy and the Environment*, 11, 1: 63-75
- DEFRA. 2005. Sustainable Development Strategy. London: DEFRA.
- DEFRA. 2006. Procuring the Future - The Sustainable Procurement Task Force National Action Plan. Department for Environment, Food and Rural Affairs, London.
- <http://www.sustainable-development.gov.uk/publications/procurement-action-plan/documents/full-document.pdf>.
- DEFRA. 2007. Securing the future: UK Government Sustainable Procurement Action Plan Incorporating the Government response to the report of the Sustainable Procurement Task Force. London: DEFRA.
- Devarajan, S, Swaroop, V., and Zou, H. 1996. "The Composition of Public Expenditure and Economic Growth." *Journal of Monetary Economics* 37(2):313-44.
- ECCJ (2007) Sustainable Procurement in the European Union Proposals and Recommendations to the European Commission and the European Parliament. European Coalition for Corporate Justice, Brussels.

- Evenett, S. and Hoekman, B. (2005), "Government procurement: market access, transparency, and multilateral trade rules," *European Journal of Political Economy*, Elsevier, 21(1), 163-183.
- European Commission. (2005). *Green Public Procurement in Europe*. Available: http://ec.europa.eu/environment/pdf/report_facts.pdf. Last accessed 20th August 2006
- European Commission. (2006). *Handbook on Green Public Procurement*. Available: <http://ec.europa.eu/environment/gpp/pdf/int.pdf>. Last accessed 4th August 2006.
- Fernandez Martín, J. (1996) *The EC Public Procurement Rules: A Critical Analysis*, Oxford: Clarendon Press.
- Gelderman, C. J., Ghijsen, P. W., & Brugman, M. J. 2006. Public procurement and EU tendering directives - explaining non-compliance. *International Journal of Public Sector Management*, 19(7): 702-714
- Gerrefi, G. 1999. International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics*, 48: 37-70
- Hall, J. 2000. Environmental supply chain dynamics. *Cleaner Production*, 8: 455-471
- Heald, D. A. 2003. 'Fiscal Transparency: Concepts, Measurement and UK Practice', *Public Administration*, 81, 4, 723 – 59
- HM Treasury. 2000. *Government Accounting 2000*. <http://www.Government-accounting.gov.uk>.
- HM Treasury. 2007. *Transforming Government Procurement*. London: HM Treasury.
- Kalton, G. and D.W. Anderson (1986), 'Sampling Rare Populations', *Journal of the Royal Statistical Society (A)* 149, 65–82.

- Martin, S., Hartley, K. and Cox, A. (1999), 'Public procurement directives in the European Union: a study of local authority purchasing', *Public Administration*, 77: 2, 387–406.
- McCrudden, C. 2004. Using public procurement to achieve social outcomes. *Natural Resources Forum*, 28(4): 257-267.
- Midwinter, A and N. McGarvey, 2001, 'The New Accountability? Devolution and Expenditure Politics in Scotland', *Public Money and Management*, 21/3, pp.47–55
- Miles, M., & Huberman, A. 1994. *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Edition ed.). Thousand Oaks CA: Sage Publications.
- Mueller, D. (Ed.). (1997). *Perspectives on public choice: A handbook*. Cambridge: Cambridge University Press.
- Mueller, D.C., 2003. *Public Choice III*. Cambridge University Press, Cambridge
- Musgrave, R.A. and P.B. Musgrave, 1984, *Public Finance in Theory and Practice*, 4th edn, New York, NY: McGraw-Hill.
- OECD. (2000). *Greener Public Purchasing - Issues and Practical Solutions*. Available: <http://www1.oecd.org/publications/e-book/9700041E.pdf>. Last accessed 24th August 2006
- OECD. 2006. *OECD Factbook*. Paris: OECD.
- Persson, T., & Tabellini, G. (2001). *Political institutions and policy outcomes: What are the stylized facts?* (Mimeo).
- Preston, L.E. & Donaldson, T. 1999. Stakeholder management and organizational wealth. *The Academy of Management Review*, 24, 4: 619-625
- Shleifer, A., & Vishny, R. (1998). *The grabbing hand: Government pathologies and their cures*. Cambridge: Harvard University Press.

- Sobczak, A. 2006. Are codes of conduct in global supply chains really voluntary? From soft law regulation of labour relations to consumer law. *Business Ethics Quarterly*, 16: 167-184
- Srivastava, S. K. 2007. Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Reviews*, 9(1): 53-80.
- Stiglitz, J.E. (2000) *Economics of the Public Sector*. 3rd ed. Norton
- Strauch, R. & Hagen, J. von (eds) (2000). *Institutions, politics and fiscal policy*. London: Kluwer Academic.
- Tanzi, V., & Schuknecht, L. (1997). Reconsidering the fiscal role of government: The international perspective. *American Economic Review*, 87(2), 164–168.
- Tanzi, V and Schuknecht, L. (2000) *Public Spending in the 20th Century: A Global Perspective*, International Monetary Fund Institute, Washington DC
- Trionfetti, F. (2000), “Discriminatory Public Procurement and International Trade”, *The World Economy*, Vol. 23, pp. 57-76.
- Weiss, L., & Thurbon, E. 2006. The business of buying American: Public procurement as trade strategy in the USA. *Review of International Political Economy*, 13(5): 701-724.
- Worthington, I., Ram, M., Boyal, H., & Shah., M. 2007. Researching the Drivers of Socially Responsible Purchasing: A Cross-National Study of Supplier Diversity Initiatives. *Journal of Business Ethics*, [In Press]
- WSSD. 2002. *Plan of Implementation of the World Summit on Sustainable Development*. New York: United Nations.

Figure 1: A conceptual model of the influences upon sustainable public procurement

(adapted from Gelderman et al., 2006)

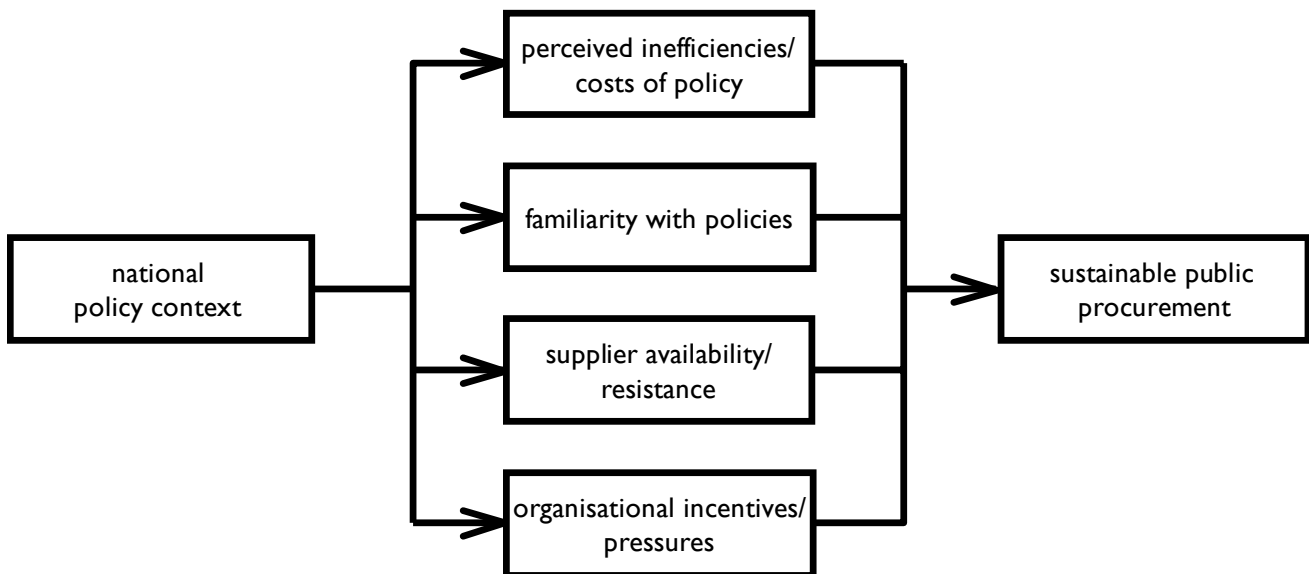


Table 1: Sample characteristics and descriptive statistics

	United Kingdom	Western Europe	Eastern Europe	Scandinavia	United States/ Canada	Rest of the World	All Countries
Panel A - Geographic Composition of Sample							
Number of organisations	106	49	36	29	52	11	283
Percentage of Sample	37.5%	17.3%	12.7%	10.2%	18.4%	3.9%	100.0%

Panel B - Sectoral Composition of Sample							
General Public Services	38.7%	35.4%	16.7%	51.7%	46.2%	36.4%	37.9%
Health	26.4%	10.4%	16.7%	3.4%	0.0%	0.0%	14.2%
Education	19.8%	8.3%	38.9%	17.2%	23.1%	0.0%	19.9%
Justice & Public Order	8.5%	0.0%	2.8%	0.0%	3.8%	0.0%	4.3%
Other Sectors	6.6%	46.9%	25.0%	27.6%	26.9%	63.6%	24.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Panel C - Descriptive Statistics for numbers of suppliers and contract length							
Average Contract Length (years)	3.5	2.4	1.4	3.2	3.2	2.3	2.9
Average No. of suppliers	3,726	1,603	740	1,558	7,107	17,545	3,898

In the last 10 years, our total number of suppliers has:

Stayed the same	28.3%	31.9%	25.7%	34.5%	31.9%	20.0%	29.6%
Reduced	42.4%	27.7%	11.4%	24.1%	14.9%	40.0%	28.8%
Increased	29.3%	40.4%	62.9%	41.4%	53.2%	40.0%	41.6%
% Change up or down	18.3	5.0	44.7	44.0	24.1	-11.0	21.9

Panel D - Descriptive statistics for expenditure and supplier concentration							
Average expenditure (£M)	238.3	165.2	3.0	47.3	157.8	136.0	156.8
% Spend with top 3 suppliers	21.6	23.6	39.2	23.8	17.8	36.5	24.9

Table 2: International variation in Sustainable Procurement practice

	Variable Means on 5-point Likert scales where 1 = Disagree Strongly - 5 = Agree Strongly						
	United Kingdom	Western Europe	Eastern Europe	Scandinavia	United States/ Canada	ROW	All countries
	106	49	36	28	52	11	282
<i>Sustainable Procurement</i>							
Uses a life-cycle analysis to evaluate the environmental friendliness of products and packaging	2.79	2.52	2.94	2.75	2.63	1.82	2.69
Has a formal MWBE supplier purchase programme	2.17	2.02	2.44	1.86	3.04	2.82	2.32
Participates in the design of products for recycling or reuse	2.39	2.42	2.60	2.07	2.64	2.64	2.44
Ensures the safe, incoming movement of product to our facilities	3.44	3.30	3.81	3.07	3.35	3.00	3.40
Purchases from MWBE suppliers	2.53	2.17	2.64	2.00	3.70	3.00	2.64
Volunteers at local charities	2.66	2.40	2.79	1.75	2.76	2.36	2.54
Asks suppliers to commit to waste reduction goals	2.99	3.22	3.29	3.39	2.80	2.64	3.06
Purchases from small suppliers	3.96	3.44	3.64	3.32	3.72	4.09	3.73
Visits suppliers' plants to ensure that they are not using sweatshop labour	2.50	2.30	2.78	1.89	2.39	2.64	2.42
Participates in the design of products for disassembly	2.27	2.19	2.47	2.04	2.15	2.27	2.23
Asks suppliers to pay a 'living wage' greater than a country's or region's minimum wage	2.64	2.09	2.50	2.11	2.46	2.55	2.43
Donates to philanthropic organizations	2.46	2.32	2.76	1.68	2.54	2.82	2.42
Ensures that suppliers' locations are operated in a safe manner	3.32	2.69	2.97	2.68	2.65	2.91	2.97
Ensures that suppliers comply with child labour laws	3.39	3.00	2.97	2.64	2.78	2.82	3.06
Purchases from local suppliers	3.81	3.50	3.14	3.04	3.93	4.18	3.62
Reduces packaging material	3.30	3.33	3.29	3.46	2.69	2.91	3.21

Table 3: Perceived barriers to implementing sustainable procurement

	United Kingdom	Western Europe	Eastern Europe	Scandinavia	United States/ Canada	Rest of the World	All Countries
Financial	48.1%	16.3%	11.1%	10.3%	34.6%	18.2%	30.4%
Informational	12.3%	12.2%	5.6%	6.9%	7.7%	9.1%	9.9%
Legal	1.9%	8.2%	2.8%	6.9%	7.7%	0.0%	4.6%
Managerial/ Structural	21.7%	8.2%	2.8%	3.4%	5.8%	9.1%	11.7%
Political/ Cultural	5.7%	8.2%	2.8%	0.0%	5.8%	18.2%	5.7%
Product/ Quality	5.7%	4.1%	2.8%	0.0%	9.6%	27.3%	6.0%
Priority	8.5%	2.0%	0.0%	0.0%	3.8%	0.0%	4.2%

Table 4: Perceived facilitators of sustainable procurement

	United Kingdom	Western Europe	Eastern Europe	Scandinavia	United States/ Canada	Rest of the World	All Countries
Knowledge/expertise	9.4%	6.1%	2.8%	3.4%	3.8%	9.1%	6.4%
Leadership	22.6%	8.2%	2.8%	3.4%	13.5%	0.0%	13.1%
Individual/personal commitment	13.2%	0.0%	0.0%	0.0%	5.8%	0.0%	6.0%
Legislation/ government support	14.2%	16.3%	8.3%	3.4%	11.5%	36.4%	13.1%
Absence of a financial hurdle	5.7%	0.0%	2.8%	3.4%	11.5%	0.0%	4.9%
Presence of planning, strategies & goal setting	17.0%	6.1%	5.6%	3.4%	3.8%	36.4%	10.6%

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