

Buying green in U.S. local government: Internal commitment and responsiveness to external pressures

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Abstract

This study investigates how green purchasing in local governments varies as a function of the organization's internal commitment, operationalized by the stage of institutionalization of green public procurement (GPP), and external pressures from various stakeholder groups. GPP, a value-based innovation justified on the grounds of intergenerational equity, is an important tool governments can use to mitigate the adverse effects of climate change. Survey data from 210 U.S. local governments reveal that while both external and internal factors are strong predictors of buying green, internal commitment matters relatively more. We also find that earlier stages of GPP institutionalization are more conducive to external influence, albeit the effect differs among stakeholders. Local governments tend to be more likely to buy green when nudged by nonprofits and interest groups, and less so when offered financial incentives by the federal government.

Abstract (Romanian)

Acest studiu analizează modul în care achizițiile verzi realizate în cadrul administrațiilor locale variază în funcție de angajamentul intern al organizației, măsurat prin etapele instituționalizării achizițiilor publice verzi (APV), și de presiunile externe exercitate de diverse grupuri de părți interesate. APV, o inovație bazată pe valori, justificată prin echitatea intergenerațională, reprezintă o strategie importantă pe care guvernele o pot utiliza pentru a atenua efectele adverse ale schimbărilor climatice. Datele unui

sondaj realizat în rândul a 210 administrații locale din SUA relevă faptul că în timp ce atât factorii externi, cât și cei interni sunt indicatori-cheie ai achizițiilor verzi, angajamentul intern are o importanță sporită. De asemenea, se constată că etapele incipiente instituționalizării APV sunt mai predispuse influenței externe, cu toate că efectul diferă în funcție de grupurile de părți interesate. Administrațiile locale sunt mai predispuse să facă achiziții verzi atunci când sunt influențate de organizații non-profit și de grupuri de interes, și mai puțin predispuse în situația în care primesc stimulente financiare de la guvernul federal.

Abstract (Bulgarian)

Статията изследва как купуването на еко-съобразни стоки и услуги от местната държавна администрация зависи от вътрешната мотивация на службата, измервана със степента на институционализиране на зелените обществени поръчки (ЗОП), и външния натиск от различни заинтересовани страни. Като ценностно-мотивирана иновация, обоснована на идеята за равен достъп до природните ресурси от бъдещите поколения, ЗОП е важен инструмент, който публичната администрация може да използва, за да намали отрицателните ефекти, свързани с изменението на климата. Анализът на данни от допитване до 210 местни административни органи в САЩ показва, че купуването на зелени стоки и услуги се обуславя и от външни, и от вътрешни фактори, но все пак вътрешната мотивация има относително по-голямо значение. Установяваме също така, че по-ранните етапи на институционализиране на ЗОП са по-благоприятни за външни влияния, като силата на тези влияния зависи от произхода им. Местните власти са по-склонни да купуват зелени стоки и услуги, когато са повлияни от организации с нестопанска цел и групи по интереси, и по-малко в резултат на финансови стимули от страна на федералното правителство.

1 | INTRODUCTION

Governments increasingly innovate and change the way they do business (Clausen et al., 2020; Osborne & Brown, 2011). Public procurement has long been used as a tool to reduce government inefficiency by outsourcing goods

and services to third parties. Yet, the traditional goal of creating quasi-markets for public goods has begun to give way to values different than efficiency. Green public procurement (GPP) is a value-based innovation aiming to improve the intertemporal allocation of shared resources, such as the environment, and thus enhance intergenerational equity. Defined as “purchasing which reduces environmental impacts across product or service life cycles” (Rainville, 2017, p. 1029), GPP is part of sustainable public procurement (SPP) that uses purchasing to further social equity and mitigate climate change (Brammer & Walker, 2011; Hafsa et al., 2022). Other SPP examples include quotas for small businesses and those owned by women and minorities, ‘buy local’ requirements, and using socially responsible supply chains.

Led initially by scientists and advocacy groups, the calls to reduce ecological neglect have recently amplified (Bosso & Guber, 2005; Song et al., 2019). Governments, nonprofits, and businesses have been under pressure to commit to sustainable production and purchasing. Given the long-standing state and federal inaction on climate change in the United States, local governments have taken the lead in sustainability initiatives (Dimand & Cheng, 2022; Krause, 2011). With about \$1.72 trillion spent on goods and services yearly (Stritch et al., 2020), the local level can steer the market toward more sustainable products and services (Georghiou et al., 2014). Yet, the drivers of buying green in local government remain less understood (Dimand, 2022; Terman & Smith, 2018).

Prior research has provided valuable insights into how external, organizational, individual, and innovation-specific factors affect the adoption of new practices and processes (Clausen et al., 2020; de Vries et al., 2016; Fernandez & Wise, 2010; Walker, 2014). Yet, we know little about the relative importance of each and how they interplay. Our study takes upon this task by first testing which matters more—the pressures from external stakeholders or the organization's internal commitment and, second, whether the effect of external pressures is conditional on the internal processes. We posit that value-based innovations such as GPP are likely to enter administrative practice quicker than market-oriented innovations, for example, because they spread through individual and organizational value systems. In this sense, some green purchasing might occur before formal GPP adoption. This study focuses on local government procurement practice and considers GPP adoption a stage in the institutionalization process that might or might not affect daily purchasing routines. Specifically, GPP institutionalization, as we term the organization's internal commitment to environment-friendly purchasing, unfolds in four stages—green predisposition, familiarity with GPP, adoption of GPP policy, and inclusion of GPP in strategic planning. Among the external pressures, we account for the influences of four main stakeholders, each of whom has unique mechanisms at their disposal to shape procurement practice at the local level—the federal government, community residents, interest groups, and nonprofit organizations. Data from 210 local governments across the United States reveal that external and internal factors are strong predictors of buying green, yet internal commitment matters relatively more. We also find that the early stages of institutionalization—those before GPP formal adoption—are more conducive to external influences, albeit the effect varies by stakeholder.

This article makes a trifold contribution. First, we draw on GPP to develop the concept of value-based innovation as opposed to market-oriented traditional procurement. We conceptualize GPP as a policy on the grounds of intergenerational equity and explain how such value-based innovations might organically permeate administrative practice. Second, we theorize the stages of GPP institutionalization and discuss why stakeholders might be more influential at the early stages that are dominated by administrative rather than political actors. Third, the analysis reveals how public organizations respond to external pressures to innovate and which stakeholders take priority. While the study focuses on U.S. local governments, it provides useful references for other countries considering sustainable procurement. Our findings underscore the importance of creating a procurement culture that shifts the focus from securing the lowest bidder to ensuring sustainable acquisitions that minimize environmental footprint.

2 | PROCUREMENT AND THE ENVIRONMENT: PRIOR RESEARCH AND HYPOTHESES

Scholars have used various terms to denote the government process of acquiring goods and services from third parties, including purchasing, outsourcing, and contracting out. The public sector mainly refers to it as procurement¹—one of

the most important economic activities of governments (Thai, 2001; Trammell et al., 2020). Traditionally considered purely transactional, public procurement nowadays pursues larger goals pertaining to sustainability and social welfare (Alkadry et al., 2019; Georghiou et al., 2014; Grandia & Meehan, 2017). GPP is defined as purchasing that seeks to reduce environmental harm. Specifically, it is “the approach by which public authorities integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole life cycle” (Bouwer et al., 2005, p. 16).

2.1 | GPP as a value-based innovation for intergenerational equity

Innovations are new products, processes, or practices that an organization uses for the first time (Aiken & Hage, 1971; Kimberly & Evanisko, 1981; Krause, 2011; Rogers, 1995; Walker, 2006, 2014). Innovations do not need to be new ideas altogether like inventions (Berry & Berry, 2018). GPP is an organizational innovation that transforms the purchasing process from “brown” and “gray” into environmentally friendly.

The New Public Management movement of the 1980s resurfaced public procurement as a tool to improve the inefficiency of government supply by injecting market mechanisms into the production and delivery of public goods and services (Kettl, 2005). Efficiency was premised on creating quasi-markets and introducing competition among suppliers. Competitive bids for governmental contracts are just one example. Yet, public procurement has recently shifted from a tool to increase efficiency to one that enhances sustainability. Along with social equity policies that set aside contracts for small businesses and firms owned by women and minorities, GPP aims to improve equity by considering the rights of generations coming after us. While supplier diversity programs provide preferential treatment to specific disadvantaged groups and do so contemporaneously, GPP is justified on the grounds of intergenerational equity.

Specifically, buying green can improve intergenerational equity in two ways. First, common pool resources, such as clean air or the wilderness, might be overconsumed unless policies are in place to ensure their preservation (Kemkes et al., 2010; Weimer & Vining, 2017). Given that markets are often myopic and might not adequately account for the preferences of future generations, GPP is a policy that improves the intertemporal allocation of shared resources (Smith, 2014). Second, the pricing of brown products in the market might not account for the cost of pollution or other externalities resulting in their undervaluation (Solow, 1974; Westin, 1992). Yet, these costs will be borne by future generations and governments, who will likely face even larger negative externalities from continuous ecological decay. In this sense, green products and services might come at a price premium in the short run but might be less costly in the long run. Engaging in GPP and paying the full cost of environmental impact throughout the whole life cycle of a product or service frees the next generations from paying bills they did not incur. Along with a range of pressing policy issues that involve fairness and equity between generations like social security, health care, and national deficit (Frederickson, 1994; Kotlikoff & Raffelhueschen, 1999; Smith, 2014), accounting for the long-term effects of government purchasing choices is a step in the right direction.

Such a shift from market-efficient to value-laden purchasing also entails moving from tangible monetary benefits to less tangible ones that further the good of all. The benefits from increased competition among contractors are more easily captured through low prices and cost savings. By contrast, the benefits from green purchasing are rather diffused and hard to monetize because they come in the form of positive global externality beyond any local jurisdiction. While efficiency remains a goal of public procurement, the emphasis on environmental sustainability and intergenerational equity makes GPP a value-based policy that contrasts with the traditional market orientation of procurement systems.

Prior scholarship has extensively debated the difference between individual and public values, what constitutes public value, and how to create it (Bozeman, 2007; Jørgensen & Bozeman, 2007; Moore, 1995). Whereas individual values are complex cognitive and emotive pillars that guide human behavior, public values are collective judgments

that form the basis of public policies (Nabatchi, 2012). Public values also guide the conduct of government officials in pursuing organizational and societal goals. Public value creation, on the other hand, refers to what the government creates for the common good. Protecting the environment can transpire simultaneously as *an individual value* shared by elected and appointed officials, *a public value* reflected in organizational policies, and *a public value creation* by delivering collective benefits globally and ensuring access to a clean environment for the generations coming after us. Moreover, the movement to reduce environmental neglect has gained momentum as public support for government action has increased (McCright et al., 2013). The reasons range from cultural and generational to “just the right thing to do.”

Both political and bureaucratic actors could spearhead value-based innovations such as GPP. While elected officials mainly pursue sustainability initiatives for credit claiming before the electorate, for some, they coincide with their sincere policy preferences. Faced with prolonged state and federal inaction on climate issues, many progressive mayors joined local climate protection agreements (Bulkeley & Betsill, 2013). Public administrators, on the other hand, might support GPP based on professional norms (Lubell et al., 2009) as well as individual preferences. Prior research has also linked the pursuit of sustainable initiatives to bureaucratic incentives for career advancement (Deslatte & Swann, 2016; Teodoro, 2009). Another explanation of why bureaucratic actors could advance sustainable purchasing comes from the recent literature expanding representation beyond electoral representation to include unelected civil servants and other actors (Rehfeld, 2009). As public representatives, procurement officials seek to advance the common good as they and their constituents understand it, albeit without the pressure of electoral sanctions. For Rehfeld (2009, p. 223), administrators act this way “because they believe that is simply the right thing to do.”

As green purchasing is motivated by equity rather than efficiency considerations (as is traditional public procurement) or profit (as is most private sector innovation), it might spread through various channels. Scholars have depicted policy diffusion as occurring bottom-up, with antismoking laws being an example (Shipan & Volden, 2006), top-down as in curbside recycling programs (Feiock & West, 1993), or horizontally like state lottery adoption (Berry & Berry, 2018). Given the broad public support for protecting the environment, GPP could spread bottom-up (starting from within individual organizations), top-down (through incentives by the federal government), and horizontally (propelled by government contractors or local communities).

2.2 | Antecedents of buying green

de Vries et al. (2016) identify four antecedents of innovation: environmental (external), organizational (internal), innovation-specific, and individual (innovator-specific). We focus on the first two categories. Specifically, we examine the relative importance of each and their interplay.

2.2.1 | Internal commitment: Stages of GPP institutionalization

Institutionalization occurs when a new policy becomes routine in an organization. The process prompts organizational learning and requires structural and operational changes. Crossan et al. (1999) depict the innovation learning process as evolving in four stages—intuiting, interpreting, integrating, and institutionalizing. Similarly, we conceptualize GPP institutionalization as passing through four stages—green predisposition, familiarity with GPP, adoption of GPP policy, and inclusion of GPP in strategic planning.

Green predisposition

Crossan et al. (1999, p. 525) define the first stage, intuiting, as “the preconscious recognition of the pattern and/or possibilities in a personal stream of experience.” In the procurement context, at this stage, managers use intuition to

decide if a product is needed and how to fulfill the need. While the literature on contracting has long focused on the classic “make or buy” decision (Brown et al., 2013; Brunjes, 2020), GPP adds a new layer to both alternatives. While it enforces green requirements for the buy decision, it also transforms the decision because it no longer involves just making a product in-house but either making new green products or reusing, recycling, and repurposing existing products the entity already owns. When environmentally conscious public managers cut down on procurement, their decisions should positively impact the environment. For example, a public entity may use a computer as a fax machine instead of purchasing new hardware (Bolton, 2008). Thus, in the classic makes or buy context, managers with green predisposition would likely opt for the make option, which can be even greener than the buy option in two ways. First, if deciding on making a new product in-house, managers can seek to create a product that can be reused or recycled later. Second, the make option might not involve an actual new product at all, because managers can resort to reusing or repurposing old products they have at their disposal. Overall, the initial stage of institutionalization is characterized by low regulation and high discretion by procurement professionals.

Familiarity with GPP

The second stage, interpreting, refers to “explaining, through words and/or actions, of an insight or idea to one’s self and others” (Crossan et al., 1999, p. 525). It entails analyzing the applicability of new ideas and their effect on organizational structure and operation. At this stage, the organization assesses the potential impact of GPP and the extent of change it requires. To judge the relevance of GPP to their entity, managers should be familiar with it.

Adoption of GPP policy

The next stage of organizational learning, integrating, pertains to “the process of developing a shared understanding among individuals, and the taking of coordinated action through mutual adjustment” (Crossan et al., 1999, p. 525). At this level, organizations formally adopt new ideas. In the case of GPP, local legislative bodies pass the green requirements as an ordinance. Yet, the adopted policy can remain an empty shell if not implemented.

Inclusion of GPP in strategic planning

The last phase, institutionalizing, refers to embedding innovation into organizational systems and structures (Crossan et al., 1999). The GPP institutionalization is complete when green purchasing becomes part of the organization’s performance measurement system. “What gets measured gets done” is a popular saying among public managers. The policy formalization in the strategic plan marks the end of the process.

As each stage of the institutionalization process implies a higher level of organizational learning, we expect governments to practice more green purchasing as they move up. The higher the stage, the more committed the organization is. The commitment should pick up at the policy adoption stage because the organization formally ends its older routines and further intensify when green requirements enter its strategic plan. Thus, we formulate the following hypothesis:

Hypothesis 1. Agencies at higher stages of GPP institutionalization are more likely to buy green.

This theoretical expectation, however, might not hold in practice. Policies are often adopted for symbolic reasons, with no intention to be used. Moreover, implementation can fail for multiple reasons—political, financial, or technical—even if the decision-makers intend to follow through. The assumption that implementation comes after policy adoption may not hold, either. Enacted policies often catch up with already established practices. In a sense, implementation can precede adoption. Local entities could utilize sustainable purchasing without a formal policy in place. One such example is the city of Orlando, which has a long history of buying green before officially passing a green/sustainable purchasing policy in April 2020 (City of Orlando, 2020).

2.2.2 | External pressures from stakeholders

The environment in which organizations operate may either enable or hinder innovation. Per contingency theory, it is a contingency that affects organizational behavior. Public entities adapt to the environment and adjust their behavior when it changes (Donaldson, 2001; Walker, 2014). Local governments interact with multiple constituencies with varying needs and demands. In the case of a value-based innovation such as GPP, these include residents as users of goods and services, higher-level governments as sources of funding, and businesses and nonprofit organizations as suppliers of those goods and services on behalf of governments (Behravesch et al., 2022; Roman, 2017).

In a democracy, policies should reflect public preferences. Therefore, local governments will be more likely to pursue sustainable procurement if it is consistent with the priorities of their constituents. Extant studies show that self-identity with environmental values drives the preference for buying green, especially among younger and educated residents (Alkadry et al., 2019; Terman & Smith, 2018). More knowledgeable and affluent individuals place greater value on environmental protection (Portney & Berry, 2010; Wang et al., 2012) and might demand that their local government engage in more sustainable purchasing.

Alternatively, the pressure can come from above. The federal government could induce a change in the lower levels by either leading by example or providing financial incentives through various grant-in-aid programs, such as competitive or formula-based grants. Funding may come with strings attached, laborious applications, and can be limited in size and scope. Some grants require states or local entities to match a portion of the federal contribution to qualify.²

Interest groups and nonprofit organizations are essential stakeholders in public procurement because they produce goods or deliver services for which the government foots the bill (e.g., Cooper, 1980; Van Slyke, 2007). Agencies need to secure support from businesses, nonprofits, and interest groups before enacting organizational change (Roman, 2017). Prior research shows that the private and nonprofit sectors influence local government's resource allocation and policy priorities (Liu et al., 2021). Through buyer–supplier partnerships, the parties exchange knowledge and build trust over time. Studies on private sector innovation contend that firms combining in-house production with outsourcing develop more innovative products in the marketplace (Hitt, 2011; Rothaermel et al., 2006). Firms learn from exchanges with vendors and use that knowledge to improve their internal management (Hitt, 2011). Similarly, besides goods and services, governments acquire knowledge from their private and nonprofit counterparts and reciprocate by catering to their demands.

While industry groups have traditionally opposed green initiatives as potentially costly, the private sector has increasingly taken a stance toward using more sustainable sourcing and production. Nowadays, more firms treat sustainability as a business objective (Nidumolu et al., 2009), not just a corporate social responsibility strategy, and invest in sustainability-driven innovation (Kiron et al., 2013). Thus, businesses with investments in green technologies will likely pressure governments toward greater use of GPP (Liu et al., 2021; Smith & Terman, 2016).

Public agencies often partner with nonprofit organizations as they share the same purpose of serving the public (Gazley, 2008). These partnerships are both formal and informal. Formal contracts of state and local governments with the third sector reach \$100 billion annually (Boris et al., 2010; Brown et al., 2016). Informally, governments partner with nonprofits for virtually everything—to exchange expertise, share volunteers, and jointly develop programs (Gazley, 2008). Among the main areas of collaboration are social services (Van Slyke, 2007), economic development (Agranoff & McGuire, 1998), and environmental protection (Kalesnikaite & Neshkova, 2021; Krause, 2011). Given the multiple pressures public organizations endure from their external environments, we hypothesize that:

Hypothesis 2. Public agencies are more likely to buy green when facing higher pressures from stakeholders.

Public entities, however, are infamously resistant to change and might not alter their established procurement practices under external influence. Like individuals, organizations develop habits and stick to them. Public managers

might not attempt to change procurement systems because “we have always done it this way.” Organizational learning also comes at a cost—innovation is time-consuming, requires continuous adjustments and the results are not guaranteed. Many agencies might opt out because of the high transaction costs associated with a shift from traditional to green procurement. Besides, the attitudes toward GPP vary among stakeholders, with some being highly supportive and others vehemently opposing it. For example, residents might pressure the government to pursue more green purchasing, yet traditional “brown” vendors might fight it (Smith & Terman, 2016). As a result, the influences at the extremes may cancel out and produce no discernible stakeholder effect on the propensity to buy green.

2.2.3 | The interplay of internal commitment and external pressures

As argued earlier, organizational learning goes through four stages, and the commitment to new ideas increases at each step. While we know that internal processes interact with the external environment, it is not clear in what ways. Are governments more receptive to nudges from stakeholders at the early stages of organizational learning before formal policies are adopted?

The stages of GPP institutionalization also differ by the type of actors involved. The initial phases are dominated by procurement professionals, who use discretion to decide between make or buy and, if the latter, which products to select. Elected officials take the front seat during the upper stages when GPP needs to pass the legislature and become a formal policy. As political market theory posits, elected officials pursue sustainability initiatives mainly for electoral gains (Lubell et al., 2009). Public procurement is a highly technical area that does not lend itself easily to political campaigning, yet buying green can be a popular selling point. To sum up, bureaucrats will likely promote GPP at the early stages of institutionalization, where they are granted vast discretion. Politicians, on the other hand, are likely to spearhead GPP adoption as they can reap benefits from that before voters.

Furthermore, governments might be more open to stakeholders' influence at the early stages of organizational learning when no formal commitments have been made yet, and bureaucrats make purchasing choices based on their professional judgment. In other words, external actors might be more successful in inducing change if procurement officials still try out new ideas and gauge their impacts. Change, in turn, becomes less likely when the organization commits to GPP practices.

Hypothesis 3. The influence of stakeholders toward more green purchasing depends upon the stage of GPP institutionalization, with earlier stages being more conducive to stakeholder pressures.

3 | DATA AND METHOD

The analysis draws on primary data collected in 2018 through a national survey of local governments in the United States, including cities/towns, counties, school districts, special authorities, and public utilities. Given the technical nature of government acquisitions, procurement officials are best situated to provide information and insights about the purchasing practices in their agencies. Thus, they are the target population of the questionnaire.

The survey was disseminated by NIGP: The Institute for Public Procurement, a nonprofit organization with over 3000 state and local government members domestically and abroad (NIGP, n.d.). After pretesting, the survey was sent out to 1983 local governments. The nominal response rate was 22%, with 436 local units returning their responses. Because of missing data, the final sample for the analysis consists of 210 surveys, yielding a response rate of 11%. The comparison of responding to nonresponding entities reveals no bias between the groups.³

The dependent, main explanatory, and organizational control variables come from the survey.⁴ The rest of the data is gathered from the U.S. Census Bureau and Harvard Dataverse—MIT Election Data and Science Lab.

Appendices A–C provide the descriptive statistics, correlation matrix, operationalization, and sources of the variables included in the models.

3.1 | Dependent variable

The dependent variable, *Buying Green*, reflects the procurement practices of local governments. It is a weighted index⁵ that includes 12 green procurement activities (see Table 1), identified by Bouwer et al. (2005). Environmental requirements can be introduced at each stage of the procurement process (Bolton, 2008; Dimand, 2022): (1) evaluation criteria, (2) selection criteria, and (3) technical specification/contractual agreement. The process is more effective in protecting the environment when the requirements are incorporated at the higher stages (Bolton, 2008).

The survey asks respondents to indicate the highest stage of the procurement process that requires each of the 12 activities. The responses are coded from 1 (not used) to 5 (part of technical specification/contractual agreement).⁶ For instance, if an organization does not use environmental labels, it receives a score of 1. By contrast, if environmental labels are preferred and reflected within the evaluation criteria, the score is 4. To construct the dependent variable, we sum up the scores across all 12 activities for each government. Thus, *Buying Green* reflects the day-to-day purchasing routines and ranges from 12 (traditional procurement) to 60 (all environmental requirements used).⁷ In our sample, 44 governments adhere to traditional “brown” procurement and only two reach perfect scores.

3.2 | Main explanatory variables

3.2.1 | Internal commitment

We construct an ordinal variable, *Stage of Institutionalization*, to measure the organization's internal commitment to green purchasing. The variable indicates how far a local entity is in the GPP institutionalization process. Separate questions inquire about each stage. Governments are coded for the highest reported stage. For instance, if an organization marks a “yes” for Stage 1 and Stage 2, it is coded at Stage 2.

TABLE 1 Buying Green.

Criterion	Activities
1	Use of environmental labels
2	Use of renewable resources
3	Reduced packaging
4	Ecologically friendly products
5	Environmentally friendlier transport options
6	Use of recycled material
7	Use of products with reduced energy use of lifetime
8	Reduced use of water
9	Reduced content of toxic/harmful chemicals
10	Decrease of polluting emissions
11	Design for reuse dismantling and recycling
12	No hazardous waste over lifetime

Note: Adapted from Bouwer et al. (2005).

Theoretically, the organizational learning process consists of two main parts—before and after formal policy adoption. Specifically, the first stage, *Green Predisposition*, accounts for the eco-mindedness of a unit. This is when managers opt for the “make” decision by cutting down on purchasing, but instead of making a new product, resort to reusing, recycling, and repurposing old ones. These behaviors are considered protective of the environment (Bolton, 2008). The particular survey question reads, “Before initiating a purchase, does your organization consider alternative methods for fulfilling the need (e.g., repurposing equipment)?” For the second stage, *Familiarity with GPP*, the survey asks respondents to rank their organization's familiarity with GPP. We code as 1 a positive response (“somewhat familiar,” “moderately familiar,” “well familiar”) and as 0 otherwise.⁸ To reach the third stage, *Adoption of GPP Policy*, a government must have formally passed the policy as an ordinance. The question inquires if the organization's procurement department/function has a green procurement policy. Governments qualify for stage four when GPP becomes an integral part of their performance measurement systems (*Inclusion of GPP in Strategic Planning*). The question asks if the organization's strategic plan refers to green purchasing. We construct *Stage of Institutionalization* based on the four questions. The variable is 0 if a local government responded negatively to all four questions ($n = 33$), 1 if it indicated a green predisposition ($n = 55$), 2 if the unit reported familiarity with GPP ($n = 75$), 3 if it adopted a GPP policy ($n = 25$), and 4 if it incorporated GPP in their strategic plans ($n = 22$).

A preliminary investigation of the dependent variable supports the notion that value-based innovations such as GPP could enter the administrative practice before formal policy adoption. We compute the mean of *Buying Green* for each stage and find that even governments who respond negatively to all questions about GPP institutionalization (and effectively occupy stage zero) practice some green purchasing. The mean of the dependent variable for this group is 16.42 (recall that 12 is the minimum). The same holds for the next two stages preceding adoption—*Buying Green* averages 18.4 for the green predisposition stage and 24.8 for the familiarity with the GPP stage.

3.2.2 | External pressures

The analysis considers four main sources of external influence on local governments—community residents, the federal government through financial incentives, interest groups, and nonprofit organizations. To measure *External Pressure*, we use a survey question asking respondents to rate each stakeholder's influence. The specific question reads, “Pressures external to the organization exist to engage in green public procurement practices. Please rate the influence of the following groups: From strongly disagree (1) to strongly agree (5): (a) Residents (as initiators), (b) Federal funding, (c) Interest groups, and (d) Nonprofit organizations.”

3.3 | Modeling the interplay of internal commitment and external pressures

To test whether the influence of external stakeholders on *Buying Green* depends upon the organization's internal commitment, we create an indicator for each of the two variables that is 1 for high values and 0 otherwise. Given that internal commitment consists of two main parts that involve different actors, we split the *Stage of Institutionalization* variable into high and low. Accordingly, *Low Internal* indicates the early stages (green predisposition and familiarity with GPP), and *High Internal* denotes the upper stages (adoption of GPP policy and inclusion of GPP in strategic planning). We proceed similarly with variables operationalizing external pressures. Given that stakeholder influence is measured on a 5-point Likert scale, we code as *High External* the positive responses (“agree” and “strongly agree”) and as *Low External* all others (“neither agree nor disagree,” “disagree,” and “strongly disagree”).

This approach gives us a 2×2 matrix of high and low external and internal factors. Thus, there are four sets of binary variables per stakeholder. For instance, for external pressure from residents, we have *Low Internal-Low External* ($n = 122$), *Low Internal-High External* ($n = 41$), *High Internal-Low External* ($n = 28$), and *High Internal-High External* ($n = 19$).

3.4 | Control variables

The models include two groups of control variables that account for other plausible explanations of local governments' green purchasing—organizational and county-wide. Starting with the organizational controls, buying green is more likely in a mayor-council form of local government because elected officials can claim credit for adopting such policies (Krause, 2011). Thus, we include a dichotomous variable, *Form of Government*, which is 1 for the mayor-council form and 0 otherwise. Although more resources do not directly translate into more innovation, the lack of resources could prevent it or impede its implementation (Brammer & Walker, 2011; Nasiche & Ngugi, 2014). We use *Annual Purchasing Volume* as a measure of resourcefulness. High purchasing power can sway the market toward sustainability (Alkadry et al., 2019). In our sample, the governments with the highest purchasing power (above \$500 M per year) are in California, Florida, and Texas.

Prior scholarship links centralized procurement systems to more sustainable purchasing (Albano & Sparro, 2010; Alkadry et al., 2019). While centralization could bring cost savings, process efficiency, and demand rationalization, decentralization may enable innovation and improve service quality (Patrucco et al., 2021). We use an indicator, *Centralized Procurement*, to account for that. The models also control for an organization's technical capacity—*GPP Training* measures whether procurement personnel has obtained specialized training (Brammer & Walker, 2011; Nasiche & Ngugi, 2014). All models also account for local government type—county/regional, city/town, school system, public utility, and special districts.

Moving to county-wide controls, environmental protection is among the issues “owned” by the Democratic Party; therefore, local governments in counties voting Democratic might be more open to sustainable purchasing (Gerber, 2013; Portney & Berry, 2010). We measure political preferences with the percentage of votes for the democratic candidate for president in the 2016 elections. Prior research argues that governments serving younger demographics are more likely to pursue sustainable practices (e.g., Alkadry et al., 2019; D'Souza et al., 1993). To account for this, we include the median age of the county population. Communities with higher educational attainment are also likely to value environmental protection (Opp & Saunders, 2013) and support sustainability initiatives (Portney & Berry, 2010). Urban environments negatively impact the ecology (Liang et al., 2019) and might be more amenable to innovation (Gössling & Rutten, 2007; Walker, 2014). To account for urbanization, models include population density (log-transformed). Finally, we control for the community's racial and ethnic makeup, measured as the percent African American and Hispanic residents. Prior research has been inconclusive about the effect of community racial composition. While Alkadry et al. (2019) report that communities with a high percentage of African American residents engage less in sustainable procurement, Opp and Saunders (2013) find a positive link between community diversity and sustainability initiatives.

3.5 | Estimation routine

We estimate a series of ordinary least squares regressions given that the dependent variable, *Buying Green*, is continuous (ranging from 12 to 60).⁹ Because the observations from the same state are likely, not independent, we cluster the standard errors by state.

4 | RESULTS

Table 2 displays the results for internal (Hypothesis 1) and external (Hypothesis 2) factors.¹⁰ Table 3 presents the conditional effect of external pressures on the organization's internal commitment (Hypothesis 3).

The results strongly support Hypothesis 1 that organizations with high internal commitment utilize more green purchasing. The coefficient of *Stage of Institutionalization* is positive and significant at the 1% level in all models of

TABLE 2 The effect of external and internal factors on Buying Green in local government.

Variables	(1)	(2)	(3)	(4)
Internal commitment				
Stage of Institutionalization	4.18*** (0.49)	4.18*** (0.51)	4.00*** (0.45)	4.21*** (0.48)
External pressure				
Residents	1.50** (0.59)			
Federal funding		1.26* (0.62)		
Interest groups			1.65*** (0.49)	
Nonprofits				1.49** (0.56)
Organizational level controls				
Form of government	0.30 (1.66)	0.46 (1.72)	0.05 (1.54)	0.45 (1.62)
Annual procurement volume	0.17 (0.43)	0.15 (0.38)	0.10 (0.42)	0.10 (0.42)
Centralized procurement	-0.52 (1.16)	-0.71 (1.16)	-0.62 (1.16)	-0.89 (1.19)
GPP training	1.87 (2.09)	2.60 (2.22)	2.35 (2.28)	1.77 (2.17)
Government type fixed effects	Yes	Yes	Yes	Yes
County level controls				
Democratic vote	0.75 (7.39)	-0.38 (8.00)	1.04 (7.74)	-0.44 (7.90)
Median age	-0.18 (0.15)	-0.19 (0.15)	-0.16 (0.15)	-0.16 (0.15)
Population density	0.36 (0.56)	0.41 (0.56)	0.50 (0.60)	0.42 (0.60)
Education level	-0.02 (0.12)	0.01 (0.12)	-0.01 (0.12)	0.01 (0.12)
Percent Hispanics	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.05 (0.05)
Percent African Americans	-0.05 (0.04)	-0.05 (0.05)	-0.05 (0.04)	-0.04 (0.05)
R ²	0.32	0.31	0.33	0.32
Observations	210	210	210	210

Note: The models report coefficients from linear regression estimations, robust standard errors, clustered by state, in parentheses. The dependent variable in all models is *Buying Green*.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$.

Table 2. The point estimates show that for every unit increase in *Stage of Institutionalization*, there is an increase of about four units in the dependent variable, holding other variables constant.¹¹

The data also support Hypothesis 2 that pressures from stakeholders increase the probability of buying green. Yet, the effects are less pronounced compared to internal commitment. Column 1 of Table 2 shows the impact of community pressure. The point estimate of the coefficient of *Residents* is positive, with a p value below 5%. To interpret, for each unit increase in pressure from residents, we register an increase of 1.5 units in *Buying Green*, holding all other variables constant. Column 2 reveals the role of federal funding. While we observe a positive effect, the availability of federal funding is only marginally associated with buying green at the local level. Finally, Columns 3 and 4 display the impact of *Interest Groups* and *Nonprofits*. The coefficients are positive and with a p value of less than 1%. In terms of magnitudes, we register an increase of 1.65 (Model 3) and 1.49 (Model 4) units in *Buying Green* for each unit increase in the pressure from respective stakeholders.

Table 3 presents the results of the analysis of the interplay between external pressure and internal commitment, using the four binary variables discussed in the operationalization section. To facilitate interpretation, we include all four indicators and estimate the models with no intercept. Because both internal and external factors are strong predictors of *Buying Green*, not surprisingly, the coefficients of the four indicators are positive, with p values below 1% or 5%.

TABLE 3 The interplay of external and internal factors on buying green in local government.

		Residents (1)	Federal government (2)	Interest groups (3)	Nonprofits (4)
Interplay variables					
Low internal-high external	(A)	25.45*** (9.12)	26.27*** (8.84)	24.94*** (8.65)	27.79*** (8.21)
Low internal-low external	(B)	22.14** (8.89)	23.87** (9.35)	21.30** (8.69)	21.22** (8.92)
High internal-high external	(C)	36.26*** (8.80)	34*** (10.12)	33.05*** (8.88)	34.77*** (9.63)
High internal-low external	(D)	28.45*** (9.05)	32.12*** (8.37)	27.52*** (8.77)	28.68*** (8.68)
Test of inequality [$H_0: A = B$], p value		0.10	0.15	0.06	0.01
Test of inequality [$H_0: C = D$], p value		0.09	0.65	0.19	0.13
Controls		Yes	Yes	Yes	Yes
Government type fixed effects		Yes	Yes	Yes	Yes
R^2		0.87	0.87	0.87	0.87
Observations		210	210	210	210

Note: The models report coefficients from linear regression estimations (without intercept), robust standard errors, clustered by state, in parentheses. The dependent variable in all models is *Buying Green*. The tests of coefficient equality compare the estimates for high and low external pressure at low (A and B) and high internal commitment (C and D). We report the p -values for the test of no difference between the respective coefficients.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$.

Hypothesis 3 posits that external pressure matters more at the early stages of GPP institutionalization. To test the effect of external pressure on green procurement practices early in GPP institutionalization (the two initial stages), we compare the coefficients of *Low Internal-High External* (A) and *Low Internal-Low External* (B). The difference $A - B$ shows the change in *Buying Green* when external pressure increases from low to high and the organization's internal commitment is kept at a low level. A positive and significant difference would indicate that moving from low to high external pressure, that is, moving from B to A, would lead to a significant increase in *Buying Green* in the context of low internal commitment. In other words, varying the degree of external pressure, while holding internal commitment at a low level, allows us to offer an insight into the influence of external pressure at the early stages of GPP institutionalization. The test of inequality ($H_0: A = B$) indicates strong evidence in favor of rejecting the null in three of the four models. At the early stages of GPP institutionalization, external pressure matters when it comes from residents, interest groups, or nonprofits. Given that the difference $A - B$ is positive, as expected, an increase in external pressure leads to an increase in *Buying Green*.

To explore the role of external pressure at the higher stages of GPP institutionalization, we compare the coefficients of *High Internal-High External* (C) and *High Internal-Low External* (D). The difference $C - D$ indicates the change in *Buying Green* when external pressure increases from low to high and the organization's internal commitment is kept at a high level. In this case, we are varying the degree of external pressure, holding internal commitment at a high level. The test of inequality ($H_0: C = D$) is not significant in three of the four specifications. This indicates that even though the coefficient estimates might differ numerically, the difference is mostly not statistically significant. Consequently, we infer that at the later stages of GPP institutionalization, the green practices are comparable for low and high external pressure, that is, the effect of stakeholders on *Buying Green* at the higher stages of GPP institutionalization is weaker. Overall, the evidence suggests that the early stages of GPP institutionalization are more conducive to external influence.

Furthermore, we note that the disparate effect of external pressures at different stages of institutionalization is driven by interest groups and nonprofits—the stakeholders that often serve as government contractors. Their role is highly significant early in the process but diminishes later. These results are consistent with the notion that interest

groups and nonprofits serve as catalysts for new practices in government. External pressure from residents matters at both low and high GPP institutionalization, while the effect of federal funding is negligible or insignificant throughout the institutionalization process.

Although the effect of external pressure changes as a function of the institutionalization stage, *Buying Green* is at its highest when both internal commitment and external pressure are present. The coefficient of *High Internal-High External* is the largest in magnitude across four models and has a p value of less than 1% in each model. By contrast, the coefficient of *Low Internal-Low External* is smallest in magnitude and with a p value of less than 5% only.

5 | DISCUSSION AND CONCLUSION

This study examined the procurement practices of U.S. local governments to determine the relative effect of internal and external factors on green purchasing and whether the level of internal commitment conditions the responsiveness to external stakeholders. We posited that public entities at higher stages of GPP institutionalization are more likely to practice green purchasing. The results substantiate this expectation: governments that adopt GPP and include it in their performance systems exhibit the most sustainable practices. Similarly, organizations are more likely to buy green when there is a demand from stakeholders—residents, interest groups, nonprofit organizations, and the federal government. Although both external and internal factors are strong predictors of buying green, the organization's internal commitment is more important.

Another finding pertains to the interplay between stakeholder pressures and internal commitment. The analysis reveals that agencies are more responsive to stakeholder influences at the early stages of GPP institutionalization when administrative actors dominate the process. This result underscores the role of procurement professionals in spearheading value-based innovations such as GPP. Still, the effect varies by stakeholder. Governments prioritize demands from organizations they work with as vendors in the procurement process: interest groups and nonprofits. Because public agencies do business with such organizations on a daily basis, they develop close buyer–supplier relationships. Moreover, public sector contracts become increasingly complex and require long-term partnerships with suppliers (Brunjes, 2020). One can also argue that governments are strategic players and adjust their response to external pressures depending on the stakeholder's importance in the procurement process.

Noteworthy, we find that pressure from residents matters at both low and high stages of institutionalization. This result is consistent with the democratic responsiveness thesis and the expanded concept of representation considering bureaucrats as public representatives. Given that procurement professionals dominate the process at the initial stages and elected officials step in at the upper stages of GPP institutionalization, our analysis shows that both administrative and political actors are responsive to constituent demands.

Finally, the influence of the federal government operationalized as the availability of federal funding for GPP, is overall weak and does not vary upon the organization's internal commitment. To effectively steer the lower levels into more sustainable behaviors and change procurement culture, the federal level might need to go beyond offering financial stimuli. The availability of federal dollars makes buying green more attractive, but the effect remains marginal. The 2021 executive order of President Biden aiming to reduce greenhouse gasses and other forms of pollution through green purchasing is a step in the right direction (White House, 2021).

Our findings have important implications for the theory and practice of public administration. First, the study provides evidence that value-based innovations such as GPP enter the administrative practice quicker than the current understanding of the field. Public organizations often practice green purchasing without having a formal GPP policy. Thus, public administrators might be vital in fueling value-based innovations, especially in highly technical areas such as public procurement. Second, the results about the importance of internal commitment emphasize the need for cultivating an organizational culture that instills and promotes sustainability values. The traditional culture of selecting the lowest bidder has been backfiring and adding to negative externalities requiring government intervention. The depletion of free goods, such as a clean environment, is likely because current generations would

overuse them unless there are policies to protect them. Such overuse results in excessive pollution, with immediate and long-term consequences. Moreover, by buying cheap brown products that do not account for the cost of pollution, current governments are buying on credit that future generations will pay. Therefore, for GPP to effectively improve intergenerational equity, more governments should consider the long-term effects of their purchasing decisions and act as responsible stewards for future generations. Third, we document that local jurisdictions are highly responsive to populace demands. If residents express concern for the environment, governments strive to meet the demand. Moreover, public organizations are responding to pressures from residents throughout the institutionalization process, with both politicians and administrators acting as public representatives. Although bureaucrats do not face electoral sanctions as politicians do, their responsiveness is premised on professional norms, career aspirations, and personal beliefs of what is right to do. This finding is novel and substantiates a broader definition of representation that includes nonelected actors acting on the public's behalf. The responsiveness of political leaders is also notable, given that environmental concerns rarely decide the election outcomes.

As the world is becoming more aware of how to use government procurement spending to mitigate climate change (Yukins, 2022), the experience of American localities offers valuable lessons to other countries seeking to promote sustainable procurement. The first is the importance of internal commitment and the need to change the traditional culture of buying cheaper "brown" products and ignoring the long-term consequences of such decisions. Pollution, a harmful byproduct of production and consumption, creates a market failure that governments eventually must address. In this sense, every public organization around the globe should think twice before buying the next fossil fuel car for their police department, for example, because each act of imprudence exacerbates the negative externalities governments need to resolve. Second, higher-level governments need to up their game and consider more effective mechanisms for keeping lower-level governments accountable for not buying green. While supranational players like the European Union have long adopted legislation on environmentally friendly purchasing, they are still in the quest to find effective levers to change the practices in their member states (Behravesch et al., 2022). Climate change is a new phenomenon, and exchanging information among governments on what works and what does not is necessary for addressing it. The third lesson relates to our findings about the role of contractors in driving local government sustainability. Private and nonprofit suppliers often possess superior experience and expertise in sustainability than procurement officials. Thus, governments should seek to partner with experienced contractors in designing sustainable procurement processes (Patrucco et al., 2022).

We envision several avenues for future research. First, this study examined the impact of internal and external factors and their interplay but did not consider local government exposure to environmental risks. Future work could test whether localities facing severe ecological threats are more likely to buy green. Second, our study draws on cross-sectional data from governments with NIGP affiliation. Although the organization's membership is widespread across the United States, scholars could verify the inferences drawn here on a larger sample over multiple years. Third, the present analysis utilized quantitative data. Future work could use qualitative data from procurement professionals and elected officials to understand better the role of context and individual values in fostering green purchasing. Finally, our study focuses on local governments in the United States. As GPP is an important policy tool for reducing environmental footprint, future studies may assess green decision-making processes in other contexts and from a comparative standpoint.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data are not available due to IRB.

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ENDNOTES

- ¹ We use the terms interchangeably throughout the paper.
- ² The grants for water quality from the Environmental Protection Agency (under the Clean Water Act) and green infrastructure from the Department of Housing and Urban Development (under the Community Development Block Grant program) and the Department of Transportation (under the Transportation Alternatives Program) are some examples.
- ³ Nonrespondents include entities with partial responses or no responses. We compared the group means on multiple demographic indicators. Comparison tables, available upon request, are omitted for brevity.
- ⁴ Common source bias should not be an issue for our data because the survey asks respondents about their professional activities, not their personal opinions or feelings.
- ⁵ Cronbach's α is 0.93, indicating a high level of scale internal consistency.
- ⁶ The choices and respective weights are as follows: *Not applicable* = 1; *Preferred but not required* (e.g., mentioned in sustainability policy/sustainable purchasing policy, but not enforced) = 2; *Required in the selection criteria* = 3; *Preferred and reflected within evaluation criteria* = 4; and *Preferred and built into technical specifications and/or contractual agreement* = 5.
- ⁷ A government might buy green without having a formally adopted GPP policy. Alternatively, it might have a policy in place but not implement it. We expect that adopting a GPP policy will be associated with a higher probability of buying green in reality (Hypothesis 1), but these are two different processes. The dependent variable indicates what agencies do in practice.
- ⁸ We note that the other three stages of the GPP institutionalization are measured as indicators. Therefore, we recode the initial ordinal measurement of *Familiarity with GPP*. In this way, all stages are consistently operationalized as dichotomous variables.
- ⁹ To account for the truncated nature of our dependent variable, we also estimated a Tobit model. The results, available upon request, are qualitatively the same as those reported here.
- ¹⁰ We assess the influence of external stakeholders one at a time, rather than including them in one model, for substantive and methodological reasons. Substantively, this approach allows us to understand the influence of each stakeholder toward green purchasing. Methodologically, we use this approach to avoid multicollinearity issues (see Appendix B). To confirm that the final models are not subject to such problems, we examined the variance inflation factor (VIF) statistics. No variable exhibits VIF greater than 3.41, indicating no collinearity.
- ¹¹ As an alternative approach and to allow for possible non-monotonic effects, we estimated a specification with a set of indicators, one for each stage of institutionalization. The results, available upon request, support the reported increasing impact of institutionalization on *Buying Green*.

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APPENDIX A: DESCRIPTIVE STATISTICS

Variable name	Mean	SD	Min	Max
Dependent variable				
Buying Green	23.19	10.54	12	60
Key explanatory variables				
Internal commitment				
Stage of Institutionalization	1.75	1.17	0	4
External pressure				
Residents	2.92	1.08	1	5
Federal funding	3.25	1.04	1	5
Interest groups	2.95	1.05	1	5
Nonprofits	2.8	0.96	1	5
Control variables				
Organizational				
Form of government	0.22	0.42	0	1
Annual procurement volume	2.29	1.74	1	6
Centralized procurement	0.73	0.44	0	1
GPP training	0.12	0.33	0	1
County-wide				
Democratic vote	0.49	0.14	0.07	0.87
Median age	37.80	4.45	25.8	54.5
Population density	6.30	1.36	2.26	11.15
Education level	33.57	11.14	10.9	78.1
Percent Hispanics	16.54	16.26	1.5	91.5
Percent African Americans	13.93	13.27	0.4	68.5
Government Type				
County/regional	0.31	0.47	0	1
City/town	0.41	0.49	0	1
School system	0.15	0.36	0	1
Utility	0.04	0.19	0	1
Special district	0.09	0.28	0	1

APPENDIX B

	1	2	3	4	5	6	7	8	9	11	12	13	14	15
1 Stage of Institutionalization	1													
2 Pressure: Residents	0.16	1												
3 Pressure: Federal funding	0.14	0.40	1											
4 Pressure: Interest groups	0.23	0.64	0.49	1										
5 Pressure: Nonprofits	0.19	0.70	0.44	0.82	1									
6 Form of government	-0.01	0.03	0.01	0.07	0.03	1								
7 Annual procurement volume	0.13	-0.06	-0.06	-0.03	0.00	-0.12	1							
8 Centralized procurement	0.07	-0.03	0.01	0.00	0.07	0.07	0.04	1						
9 GPP training	0.35	0.00	-0.18	-0.05	0.03	0.01	0.14	-0.00	1					
10 Democratic vote	0.27	0.05	-0.03	-0.07	0.00	0.06	0.19	0.06	0.21	1				
11 Median age	-0.04	0.00	0.01	-0.02	-0.02	-0.07	-0.04	-0.10	0.02	-0.28	1			
12 Population density (ln)	0.12	0.08	-0.02	-0.08	-0.01	0.01	0.22	0.05	0.09	0.63	-0.09	1		
13 Education level	0.16	0.20	-0.05	0.06	0.09	0.05	0.07	0.02	0.11	0.50	-0.08	0.45	1	
14 Percent Hispanics	0.09	-0.08	-0.02	-0.07	-0.09	-0.00	0.22	0.01	-0.01	0.28	-0.33	0.05	-0.19	1
15 Percent African Americans	-0.11	-0.03	0.06	-0.04	-0.02	0.04	0.03	0.09	-0.01	0.29	-0.17	0.25	-0.12	-0.23

APPENDIX C

	Variable name	Operationalization
Dependent variable	Buying Green	<p>Survey question: <i>Please indicate your organization's preference regarding the following environmental specifications (please select all that apply).</i></p> <p>Respondents were asked to indicate the extent of implementation for each of 12 GPP requirements (see Table 1) in their organizations (weights in parentheses): not applicable (1); included in the organization's policies, preferred, and not required (2); required in the selection criteria (3); preferred and reflected in the evaluation criteria (4); and preferred and built into technical specifications or contractual agreements (5). The overall score of an organization equals the sum of the weights of each activity. The variable ranges from 12 (traditional procurement) to 60 (fully implemented GPP policy). <i>Source:</i> Survey</p>
Explanatory variables		
Internal commitment to Buying Green	<p>Stage of Institutionalization: The variable uses a separate survey item for each stage.</p> <p><i>Green Predisposition</i> Before initiating a purchase, does your organization consider alternative methods for fulfilling the need (e.g., repurposing equipment)? 1 = yes; 0 = no/do not know.</p> <p><i>Familiarity with GPP</i> How would you rank your organization's familiarity with the concept of green public procurement? 1 = somewhat familiar, moderately familiar, well familiar, 0 = slightly familiar, not familiar.</p> <p><i>Adoption of GPP Policy</i> Does your procurement department/function have a green procurement policy (whether developed internally or mandated)? 1 = yes; 0 = maybe/no.</p> <p><i>Inclusion of GPP in Strategic Planning</i> Does your organization's strategic plan/policy refer specifically to green purchasing? 1 = yes; 0 = no/do not know.</p>	<p>Governments are coded for the higher reported stage of institutionalization. The variable ranges from 0 to 4. <i>Source:</i> Survey</p>

	Variable name	Operationalization
External Pressures	Pressures external to the organization exist to engage in green public procurement practices. Please rate the influence of the following groups	Source: Survey
	Residents	1 = Strongly disagree; 2 = Somewhat disagree; 3 = Neither agree nor disagree; 4 = Somewhat agree; 5 = Strongly agree
	Federal funding	1 = Strongly disagree; 2 = Somewhat disagree; 3 = Neither agree nor disagree; 4 = Somewhat agree; 5 = Strongly agree
	Interest groups	1 = Strongly disagree; 2 = Somewhat disagree; 3 = Neither agree nor disagree; 4 = Somewhat agree; 5 = Strongly agree
	Nonprofit organizations	1 = Strongly disagree; 2 = Somewhat disagree; 3 = Neither agree nor disagree; 4 = Somewhat agree; 5 = Strongly agree

Interplay

Stage of Institutionalization × Pressure: Residents	High internal-low external	1 = stages 3, 4 and pressure residents 1, 2, 3; 0 = otherwise. Source: Survey
	High internal-high external	1 = stages 3, 4 and pressure residents 4, 5; 0 = otherwise
	Low internal-low external	1 = stages 0, 1, 2 and pressure residents 1, 2, 3; 0 = otherwise
	Low internal-high external	1 = stages 0, 1, 2 and pressure residents 4, 5; 0 = otherwise
Stage of Institutionalization × Pressure: Federal Funding	High internal-low external	1 = stages 3, 4 and pressure federal funding 1, 2, 3; 0 = otherwise
	High internal-high external	1 = stages 3, 4 and pressure federal funding 4, 5; 0 = otherwise
	Low internal-low external	1 = stages 0,1, 2 and pressure federal funding 1, 2, 3; 0 = otherwise
	Low internal-high external	1 = stages 0, 1, 2 and pressure federal funding 4, 5; 0 = otherwise
Stage of Institutionalization × Pressure: Interest groups	High internal-low external	1 = stages of 3, 4 and pressure interest groups 1, 2, 3; 0 = otherwise
	High internal-high external	1 = stages 3, 4 and pressure interest groups 4, 5; 0 = otherwise
	Low internal-low external	1 = stages 0, 1, 2 and pressure interest groups 1, 2, 3; 0 = otherwise
	Low internal-high external	1 = stages of 0, 1, 2 and pressure interest groups 4, 5; 0 = otherwise
Stage of Institutionalization × Pressure: Nonprofits	High internal-low external	1 = stages of 3, 4 and pressure nonprofits 1, 2, 3; 0 = otherwise

(Continues)

	Variable name	Operationalization
	High internal-high external	1 = stages 3, 4 and pressure nonprofits 4, 5; 0 = otherwise
	Low internal-low external	1 = stages 0, 1, 2 and pressure nonprofits 1, 2, 3; 0 = otherwise
	Low internal-high external	1 = stages 0, 1, 2 and pressure nonprofits 4, 5; 0 = otherwise
Control variables		
Organizational	Form of government	1 = mayor council; 0 = other. <i>Source: Survey</i>
	Annual procurement volume	What is the approximate annual procurement volume under purchasing? (1) less than \$100 million; (2) \$100,000,001–\$200,000,000; (3) \$200,000,001–\$300,000,000; (4) \$300,000,001–\$400,000,000; (5) \$400,000,001–\$500,000,000; (6) More than \$500,000,000. <i>Source: Survey</i>
	Centralized procurement	1 = centralized; 0 = decentralized. <i>Source: Survey</i>
	GPP training	Does your organization offer any green procurement training to procurement personnel? 1 = yes; 0 = no. <i>Source: Survey</i>
County-wide	Democratic vote	The percentage of votes for the Democratic candidate in the 2016 Presidential elections. <i>Source: Harvard Dataverse—MIT Election Data and Science Lab</i>
	Median age	Median age estimate by county. <i>Source: Census Bureau</i>
	Population density	County population. <i>Source: Census Bureau</i>
	Education level	The percentage of the population with a bachelor's degree or higher in the county. <i>Source: Census Bureau</i>
	Percent Hispanics	The percentage of Hispanic residents in the county. <i>Source: U.S. Census Bureau</i>
	Percent African Americans	The percentage of African American residents in the county. <i>Source: Census Bureau</i>
Government Type	County/regional	1 = yes, 0 = no. <i>Source: Survey</i>
	City/town	1 = yes, 0 = no. <i>Source: Survey</i>
	School system	1 = yes, 0 = no. <i>Source: Survey</i>
	Utility	1 = yes, 0 = no <i>Source: Survey</i>
	Special district	1 = yes, 0 = no <i>Source: Survey</i>