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Korac, Sanja; Saliterer, Iris; Walker, Richard M.

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**ANALYSING THE ENVIRONMENTAL ANTECEDENTS OF
INNOVATION ADOPTION AMONG POLITICIANS AND PUBLIC
MANAGERS**

Sanja Korac

Alpen-Adria Universitaet Klagenfurt, Austria

Iris Saliterer

Alpen-Adria Universitaet Klagenfurt, Austria

Richard M. Walker

City University of Hong Kong

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Abstract

This study presents evidence on public innovation from the perspectives of politicians and public managers. Environmental antecedents are analysed with regard to their impact on innovation adoption. Data are drawn from a survey of over 600 mayors and managers in Austrian local government. Results show that politicians and managers identify the same innovation types but indicate different antecedents of innovation adoption. Findings for managers are broadly in line with results from prior studies larger jurisdictions and include _____. Analysis of points towards _____. Since there are crucial dissimilarities in the factors explaining the adoption of innovation, we suggest that politicians and managers both be included in future studies of local government innovation.

Keywords: innovation, politicians, public managers, local government

INTRODUCTION

Innovation is increasingly presented as an all-round solution to the complex social, economic, and political challenges confronting public service organizations (Berry 1994; Bekkers, Edelenbos, and Steijn 2011; Osborne and Brown 2011; Borins 2014). Since the beginning of the new millennium, public management research has become widely involved in this topic, and the number of empirical studies has steadily increased (e.g. Boyne et al. 2005; Damanpour and Schneider 2006). Despite this growing interest in how to improve public services through innovation (Walker 2007, Bernier, Hafsi and Deschamps 2015) empirical studies are typically Anglo-American, focus on public managers and investigate large organizations (see Hansen 2011 for exceptions).

We aim to make two contributions to public innovation research. First, in the majority of democratic systems and across governmental levels, public organizations are characterized by a dual leadership of politicians and public managers. The implementation of innovation therefore requires the support and joint action of both parties. In this study, we address the imbalance in intra-organizational studies that focus on managers (for an exception see Considine, Lewis, and Alexander 2009) and embrace the political sphere by addressing the following research questions: do politicians and public managers identify the same innovation types? Are the environmental antecedents of the adoption of innovation similar among politicians and public managers? What implications can be drawn regarding their roles and rationalities in innovation adoption?

We focus on small administrations that often typify the local government landscape, but which have received little direct attention (e.g. Damanpour 1987; Dahl and Hansen 2006). The research question in relation to this second contribution concerns the comparability of findings between prior research that typically examines larger jurisdictions and the small local governments examined in this study. To improve the generalizability of our findings, the

analysis builds on prior studies and includes antecedents of innovation that are contextual (the socioeconomic setting and competition from other providers), horizontal (internal actors and learning), vertical (higher levels of government and oversight bodies), and external (citizens and media) (see Walker 2006, 2008; Berry and Berry 2007; Walker, Avellaneda and Berry 2011). We focus on the impact of antecedents on the overall innovation environment — total innovation — constructed from a number of innovation types validated in prior empirical studies (Damanpour, Walker, and Avellaneda 2009; Walker, Avellaneda and Berry 2011).

The remainder of this paper is structured as follows. The next section sets out the context by examining the roles of politicians and public managers in public innovation. The hypotheses section commences by discussing the innovativeness of local governments and then presents hypotheses on the environmental antecedents of innovation adoption. Next we outline our methodology, including the unit of analysis, the variables, and our data. Subsequently an overview of the results is provided before the main findings and their implications for theory and practice are traced out in the final sections.

POLITICIANS AND PUBLIC MANAGERS: ACTORS FROM DIFFERENT BUT INTERTWINED SPHERES

The politician-manager interface has been examined in a number of studies aimed at identifying the important players and their roles in the innovation game (e.g. Borins 2000; Bartlett and Dibben 2002; Considine and Lewis 2007; Considine et. al. 2009). Although it has been acknowledged that innovative ideas emerge from all organizational levels (Borins 2014), scholars have emphasized that actors in key positions with (formal) decision-making power and at higher hierarchical levels play crucial roles for innovation (Bartlett and Dibben 2002; Considine and Lewis 2007). The influence of leadership at the apex even gets stronger – in general as well as in an innovation context - in smaller organizations (Baldrige and Burnham 1975; Miller, Kets de Vries, and Toulouse 1982; Borins 2000). Prior literature also suggests

that possible innovation promoting roles such as sponsors, advocates or champions (see Osborne and Brown 2005; Borins 2014) cannot be delineated clearly, and furthermore are not inherent to either the political or the administrative sphere (Bartlett and Dibben 2002). The rationalities and roles of, as well as relationships between politicians and public managers therefore represent an important area for investigation (Considine, Lewis, and Alexander 2009). This is particularly true at the summit of public organizations where the political and administrative spheres become intertwined: public managers cannot be depoliticized (e.g. involvement and influence of city managers in policy making) while political leadership often comes with administrative functions (Mouritzen and Svara 2002; Svara 2006; Avellaneda 2012).

Literature acknowledges politicians' and public managers' different rationalities, but has gradually shifted from considering their roles as separate or even dichotomous to emphasizing them as complementary (e.g. Svara 2001; Dunn and Legge 2002; Demir 2009). In local governments where career civil servants act as professional managers and elected mayors as political leaders with administrative responsibilities (e.g. mayors acting in the role of executive officers) (Avellaneda 2009) their roles intermingle (Mouritzen and Svara 2002). The latter is particularly true in 'strong mayor' forms of local government (see Boynton and Wright 1971; Morgan and Watson 1992), where power and control over intra-organizational changes is inherent in the mayoral position. Empirical investigations in this area support this notion and reveal that politicians as political leaders and public managers as the administrative ones are interdependent, interact extensively and exert reciprocal influence, pointing at various types of possible relationships in managing local governments (Svara 2001; Dunn and Legge 2002; Zhang and Feiock 2009). These varying yet overlapping roles are also shown in empirical innovation research and indicate that the implementation of innovation therefore requires the support or/and joint action of both parties (Considine and Lewis 2007; Nelson and Svara 2011).

However, while manager's perspectives on innovation adoption has been widely examined (see Damanpour and Schneider 2006; Walker 2006, 2008; Damanpour, Walker and Avellaneda 2009; Walker, Avellaneda and Berry 2011) those of political leaders remain under-researched. Some of these studies analyse the role and influence of politicians in innovation processes only indirectly, by surveying public managers (Walker 2006; Hansen 2011). Most empirical studies that take a political actor perspective focus on policy innovations rather than administrative ones, and have pointed to the importance of political, and especially mayoral, 'ownership' of the innovation (May and Winter 2007; Bassett and Shandas 2010; Gonzales, Llopis and Gasco 2013). Other studies highlighted the role of awards and focus on political benefits such as reputation and visibility (Downe and Hartley 2007). These findings reflect those examining seeking mayors re-election (Teske and Schneider 1994) who seek to maximize political support by advocating innovation adoption which provides short-term benefits/interests (Feiock and Kim 2000) compared to administrators "who press for long-term solutions or the maintenance of effort to achieve prior commitments" (Mouritzen and Svara 2002, 11).

The evidence points towards similarities and complementarity in administrative and political actors' formal roles, while at the same time noting different rationalities and expectations. Given these varying perceptions it is anticipated that factors driving innovation adoption will vary. Our study therefore aims to trace out environmental antecedents of innovation adoption from the perspective of senior politicians (mayors) and senior public managers. Gaining insights into these factors is crucial as it first allows a more differentiated investigation of how external pressures are perceived by two important actor groups. Second, it accounts for their rationalities while at the same time it also sheds light on their possible varying yet overlapping behavior and roles in innovation adoption.

INNOVATIVENESS OF LOCAL GOVERNMENTS

Innovation is a process through which new ideas, objects, and practices are created, developed or reinvented, and which are new for the unit of adoption (Rogers 1995). Because public organizations may innovate in search of legitimacy and not fully adopt an innovation, implementation, i.e. adoption of an innovation, has to occur to ensure improvements can be forthcoming (Damanpour and Evan 1984; Boyne et al. 2005). Following Walker, Avellaneda, and Berry (2011), we define the overall innovativeness of local governments as an aggregate of four innovation types – (1) organizational, (2) service, (3) marketization and (4) ancillary innovations. This comports with the aim of our study to provide comparability of findings between prior research that has examined larger jurisdictions and the small local governments in this study. We label this summation of innovation types ‘total innovation’ and define the four types thus.

Organizational innovations have internal foci and comprise the introduction of new working methods or management techniques that affect the rules, roles, procedures, and structures of the communication within an organization (Damanpour and Evan 1984). *Service* innovation refers to the introduction of a new service, or improvement in an existing service offered to meet user need (Damanpour and Evan 1984; Hartley 2005). *Marketization* innovation refers to the modification of an organization’s methods to purchase and deliver services, and to generate revenues with the aim of increasing the efficiency or effectiveness of the service production, often via quasi-markets, externalization or contracting out (Walker 2008; Walker, Avellaneda, and Berry 2011). Last, partnerships and networking represent new ways of working beyond core functions and across boundaries with other service providers, users or other public agencies and are labeled as *ancillary* innovations (Damanpour 1987). Ancillary innovations have received attention as research has shown the increasing need to work in networks that provide public services, rather than maintaining closed organizational boundaries (Osborne and Brown 2011).

This study builds on innovation types used and validated throughout a series of articles by Walker and colleagues (2006, 2008; Damanpour, Walker, and Avellaneda 2009; Walker, Avellaneda, and Berry 2011) to assist with the generalization of our findings, and to verify them within the Austrian context. Given the breadth of the concept, public innovation scholars have focused on various ways of categorizing innovation types (see Hartley 2005; Walker 2006; Bekkers, Edelenbos, and Steijn 2011). Considering the more general validity of innovation types that has been supported by several studies in the field of public innovation, we expect that both mayors and managers identify the same innovation types.

ANTECEDENTS OF INNOVATION ADOPTION: POLITICIANS AND MANAGERS

Different theoretical streams have prevailed in the empirical research on the environmental antecedents of innovation adoption with new institutional theory and perspectives based on the organizational task environment taking precedent (Meyer and Rowan 1977; DiMaggio and Powell 1983; Donaldson 2001). Organizational task environment draws on open system approaches such as contingency theory (Donaldson 2001) and resource dependency theory (Pfeffer and Salancik 1978), which sees innovation being shaped by environmental constraints (Thompson 2009). New institutionalism considers environmental institutional pressures as influencing innovation adoption (e.g. Meyer and Rowan 1977). The central argument is that organizations conform to their environments or to the pressures emanating from them to gain legitimacy, which increases the likelihood of survival. New institutionalism thus broadens the concept of economic rationality, allowing the inclusion of social aspects as these factors can force organizations to change (March and Olsen 1989; Scott 2001; Ashworth, Boyne, and Delbridge 2009).

The two theoretical perspectives are central to Berry and Berry's (2007) work on policy innovation. Berry and Berry (2007, 237) integrate internal determinants and diffusion models into a 'unified model of state government innovation'. With their assumption that innovation

adoption is influenced by forces both internal and external to the organization, Berry and Berry (2007) break with prior empirical studies that focused on testing either: (1) *internal models*, which presume that no diffusion occurs and that the factors causing the adoption of a new program or policy are political, economic, and social characteristics of the state; or (2) *diffusion models*, which presume that the adoption of a new policy or program in response to the actions of other states or the upper levels of government.

Berry and Berry's (2007) model, together with the two theoretical perspectives, forms the major reference point for the selection of antecedents and pressures—contextual, vertical, horizontal, and public. It frames the development of our hypotheses in the present investigation, but it is extended given that we anticipate that the environmental pressures politicians and public managers perceive will vary.

Contextual pressures

Contextual factors generate pressures that play an important role in the innovation adoption decision of an organization (March and Olsen 1989; Scott 2001; Borins 2014; Walker, Berry and Avellaneda 2011). Two contextual pressures are examined in this study: *social, economic and political changes* and *service provider competition*.

Local governments deliver key services to citizens and seek to meet their citizens' demand. When changes in the social, economic and political context occur, local governments will adapt to these environmental changes in order to be able to fulfil their organizational goal. For example, changes in the social environment that affect elderly people will require adjustment in services to this group of users in order for the local government to continue to meet its goals. This adaptive behavior argument aligns with the perspective of organizations as open systems, where the structure and processes of the organization undergo change to meet the new environmental conditions (Scott 2003). In this regard, innovation in the services or the way they are delivered to citizens can serve to facilitate organizational adaptation. From a neo-

institutional perspective, changes in the social, political and economic context lead to uncertainties and complexities for organizations. In order to reduce risk arising from those changes, local governments may imitate other local governments that have found a viable solution to the changes (DiMaggio and Powell 1983; Scott 2001). Thus, local governments will adopt innovations that have proven successful elsewhere.

Competition, from a public choice perspective, is regarded a major driving factor for innovation, and the lack thereof in public organizations has been viewed with criticism (Borins 2000; Hartley 2005). Market mechanisms stemming from public choice theory inspired reforms have been developed to stimulate competitive and innovative behavior (Boyne et al. 2003; Verhoest et al. 2007). With private providers entering the ‘market’ for public services (Milward and Provan 2003) and with benchmarking systems for public organizations, the organizational task environment has become more competitive in the public sector. In service provision, local governments compete to keep businesses and citizens in their jurisdiction, to ensure they provide the best quality services, and to maintain revenues and quality of life, and thereby maintain public value (Walker 2006).

Contextual pressures are likely to be felt by politicians and public managers alike (Berry and Flowers 1999). Politicians are in tune with the external environment to a high degree because they require information about the context facing voters in order to be able to retain popularity and maintain their elected position. Given the changes in organizational environments over recent years, this may also suggest that public managers are equally likely to be driven by the need to keep up with other service providers and to cope with changing conditions. These arguments lead to the first hypothesis:

H1: Contextual factors are positively associated with the adoption of innovation for politicians (H1a) and managers (H1b)

Horizontal pressures

Gathering information about successful innovations in comparable settings (benchmarking), referencing users and external best practices, and learning from experience are practices that are assumed to lead to higher innovation adoption (Kinder 2012). These practices emanate from horizontal pressures and are forms of organizational *learning* (Berry and Berry 2007; Walker, Avellaneda, and Berry 2011), i.e. sharing thoughts and actions to stimulate organizational change. Horizontal pressures are associated with high levels of professionalism, which offers access to networks and communicates a desire to learn through collective action (Rashman et al. 2009; Walker 2014). In this context, innovation knowledge can be diffused over institutionalized channels by communication among public professionals.

Within neo-institutionalism, it has been argued that the ‘normative’ pressures arriving from professional standards or resulting from the influence of professional communities leads organizations to change and conform (DiMaggio and Powell 1983; Ashworth, Boyne, and Delbridge 2009). Many pressures emanate beyond the prevue of politicians and public managers, and the evidence has pointed towards the important role of other department heads, or internal actors, in fostering innovation (Borins 2014). A more indirect or *lateral* effect comes from internal professionals, such as department heads, who obtain ideas from their personal and professional networks and associations (Damanpour and Schneider 2006). It can be argued that public managers receive more professional training than mayors, know more about the organization and the way it operates, and about other agencies in the organizational environment. Therefore, these factors are likely to be experienced more acutely by managers, in that they pertain to information within the organization or from other organizations. Our second hypothesis points towards different roles for politicians and public managers in the adoption of innovation:

H2: Horizontal factors are positively associated with the adoption of innovation for managers (H2b) but not politicians (H2a)

Vertical pressures

It has been suggested that vertical pressure fosters innovation adoption, especially if higher government levels promote or mandate a reform, or change (Walker 2006; Berry and Berry 2007). While it has been argued that mandatory innovation is highly uninteresting (Berry and Berry 2007) because it simply reflects authority decisions, empirical findings have shown that authority decisions may not necessarily be implemented (see Boyne et al. 2005). The organizational form of self-government in Austria (see below) may reflect this argument. Although local governments are subject to *oversight bodies* and *central government requirements* together with financial controls, higher levels of government (e.g. central government) have a limited direct mandate over local governments. We, therefore, suggest that ‘coercive’ pressures (Ashworth, Boyne, and Delbridge 2009) have no association with innovation adoption, and that this is likely to be experienced equally by politicians and public managers:

H3: Vertical factors are not associated with the adoption of innovation for politicians (H3a) and managers (H3b)

Public pressures

Public pressures have been included as diffusion factors in public innovation models (Berry and Berry 2007), in two ways: either by *citizens*, which stems from the principle that voters should be kept satisfied (Walker, Avellaneda, and Berry 2011), or by the *media*, which plays a demanding and critical role (Walker 2006; Walker, Avellaneda, and Berry 2011) forcing local governments to find ways to become more efficient and effective. A similar argument can be made from the perspective of the task environment: the goal of public organizations is to meet the needs of citizens, thus innovation is a response to growing needs within a locality (Walker 2008; Thompson 2009). Neo-institutionalism considers pressure coming from society as ‘coercive’—organizations change and adapt to expectations to gain legitimacy and survive

(Scott 2001). Both politicians and public managers experience these pressures. However, politicians have to be more open, sensitive, and responsive to the needs of the public and voters because they need to retain their popularity if they are to be re-elected (Damanpour and Schneider 2002). This suggests that they will feel public pressures more acutely than public managers. Our final hypothesis is:

H4: Public factors are positively associated with the adoption of innovation for politicians (H4a) but not managers (H4b)

METHODS

Unit of Analysis

Austrian local governments are the unit of analysis in this study. Austria, as a federal republic, consists of nine states ('Länder'), and 2,354 local governments, which are organized on the principle of local self-administration. Excluding the capital Vienna, the average population figure is 2,834. We focus on small local governments—up to a maximum of 25,000 inhabitants—because they represent 99.3% of the local governments in Austria. According to the constitution, local governments must include a municipal council, a municipal board, and the mayor as political bodies. The federal system and subsidiarity principle, together with the self-autonomy of local governments, means that Austrian local governments exhibit a multiplicity of competencies and task complexities. This political and functional autonomy is however constrained by financial dependence on central and state government. While they can levy local taxes, municipalities rely heavily on other income sources such as revenue flows from the federal and state levels.

In Austria, mayors face high external visibility. Although budgetary and appointment decisions must be approved by the council, the local level in Austria can be considered a strong mayor government (Avellaneda 2009; Nelson and Svava 2011): mayors are not only the ceremonial representatives but also are the heads of city government, and thus perform both

political and administrative functions. Almost all local governments have appointed chief executive officers (senior civil servants), and similar to other countries these public managers prepare budgets, supervise and coordinate departments, support and advise the mayor on legal and organizational issues. In local governments responsible for fewer than 10,000 inhabitants—about 97% of local governments—managers must perform an even larger number of tasks such as financial and personnel management that results in a significant level of influence over local government organization and management. Unlike in other countries, their position is strong (Singh 2009) and their functions and responsibilities in this case are comparable to the duties of public managers in the council-manager form of government (Mouritzen and Svava 2002).

Data

The study draws on three data sources. The primary data source for the empirical part of the study was a nationwide e-mail triggered online survey conducted in 2011. In the first step, the e-mail addresses of the mayors and managers were accessed via local government's homepages, as no central database provided this information. Direct e-mail addresses were available for 62% of the mayors and 56% of the managers. These individuals were included as survey respondents.¹ The final respondent rate was 20% for mayors and 27% for managers and resulted in 609 usable instruments for statistical analyses. To test whether the subset of responding mayors and managers was representative of the original sample, we conducted t-tests on the local government size. No significant differences were found between the subset of responding mayors (mean population = 2,580) and the original sample mean population size (mean population = 2,338; $t=1.4$; $p=0.138$). The t-tests for the group of managers suggested that they

¹ The final sample comprised 1,264 managers and 1,343 mayors; 335 managers and 274 mayors responded, leading to a response rate of 27 and 20 per cent respectively. The majority of data comes from local governments where only one of the actors responded, either the mayor ($n = 206$) or the manager ($n = 267$) with $n=68$ governments with both respondents. Including respondents from all local governments without differentiating between the locations of the actors does not lead to methodological problems as the t-tests on the dependent and independent variables for the different groups revealed no significant differences. We do however recognize that having matched respondents from each local government would provide benefits.

came from slightly larger governments (mean population 2,980; $t=3.7$; $p=0.000$). Our data are cross-sectional and susceptible to common source bias. While there are concerns of common source bias in cross-sectional data, these are particularly related to studies of organizational performance (Meier and O'Toole 2013), while self-reports using several constructs and from different actors have been identified as clearly appropriate for certain research questions (see Conway and Lance 2010). To further minimize susceptibility to common-method bias, we avoid conceptual overlap in items used to measure the constructs (antecedents, types of innovation), and build on constructs validated in prior studies (Conway and Lance 2010).

Secondary data were used for two of the control variables. Information on financial health was gathered from the official annual financial reports of the municipalities, covering four financial years from 2006 to 2009 (last available year) to account for year-on-year changes in the financial position of authority. The local government size in 2010 was obtained from the national statistics office.

Operationalization of Variables

For the measurement of the dependent variables, we build on the work by Walker (2006), who developed and tested an innovation measurement scale of innovation types. All questions were measured on a five-point Likert scale: 1 = disagree and 5 = agree. Table 1 shows the variables and their measurement together with descriptive data and the results of an exploratory factor analysis for the mayors and managers. The measures have face validity having been used in a number of studies published by Walker (2006, 2008; Damanpour and Walker 2009, Walker, Avellaneda, and Berry 2011).

[position of Table 1 about here]

The independent variables were operationalized with the mayors' and managers' perceptions of different antecedents of innovation. Measurement of the variables, hypothesized directions, and descriptive data are shown in detail in Table 2. Perceptual measures have been

applied in comparable research as it has been argued that environmental factors become visible to an organization through managerial observation (Downs and Mohr 1976). We built on prior studies that have investigated the effects of different antecedents on innovation adoption (Walker 2006, 2008; Walker, Avellaneda, and Berry 2011) and measured contextual pressures using two items: *social, economic and political changes* (Walker 2006) and *service provider competition* (Walker 2006, Walker, Avellaneda, and Berry 2011). We operationalized the horizontal pressures with the items *learning/comparison* (Walker, Avellaneda, and Berry 2011) and *lateral pressures* (Rashman et al. 2009). The vertical pressures consisted of *central government requirements* (Walker 2006; Berry and Berry 2007; Walker, Avellaneda, and Berry 2011) and *pressure by oversight bodies* (Walker, Avellaneda, and Berry 2011). Public pressure is measured using the items *citizen expectations* (Walker 2006; Walker, Avellaneda, and Berry 2011) and *media* (Askim 2007, 2009; Walker, Avellaneda, and Berry 2011), the latter being operationalized by asking the respondents about the importance of media reports as distinct sources of information.

[position of Table 2 about here]

Control Variables

We included two individual demographic controls—*age* and *tenure*—since demographic characteristics of key organizational actors have been shown to influence innovation adoption (e.g. Damanpour and Schneider 2006). Further, we included two organizational factors—*size* and *financial health*. Size has been frequently included in innovation research and it has been argued that larger organizations have more resources to invest in innovation (Kimberly and Evanisko 1981; Damanpour 1992), however results are mixed (Dewar and Dutton 1986; Damanpour 1991; Berry 1994; Boyne et al. 2005; Damanpour et al. 2005; Walker 2006; Hansen 2011). As noted previously, Austrian municipalities depend significantly on grants from other levels of government, and local government actors can only partially influence financial

resources. We have therefore included a measure of financial health as a summative indicator of three measures: four-year average of current balance or operating ratio, debt repayment time, and own revenue share.

RESULTS

The analysis begins with a discussion of the descriptive statistics and the factor analysis presented in Tables 1 and 2. The regression results for total innovation are then examined in relation to our four hypotheses.

The factor analysis presented in Table 1 provides support for our argument that politicians and managers identify the same innovation types. The data load onto four innovation types for the mayors and public managers, corresponding with the theoretical background and innovation types of organizational, service, marketization, and ancillary as uncovered by Walker (2006). A summative variable of the different innovation types that forms the dependent variable of ‘total innovation’ reported acceptable alphas: mayors .79, and managers .76.

The descriptive results for the dependent variable (Table 2) reveal that mayors had a more optimistic perception of innovation adoption than managers: the mean score from mayors is 3.22—above the midpoint on the Likert scale—while it is 2.88 for managers. Difference-of-means tests revealed the mayors’ higher ratings of innovation to be statistically significant at the $p. <0.00$ level.

Environmental Antecedents of Innovation

Table 3 presents the multiple regression models for environmental antecedents of total innovation.² The models offered reasonable fit for a cross-sectional design. The model for managers explained 27.8% of the variance, while it was 21% in the mayors’ model. The controls suggest that innovation adoption for managers was associated with larger local governments,

² To determine whether the OLS regression was appropriate for total innovation, the data were examined for heteroscedasticity and multicollinearity, and both returned satisfactory results. No variance inflation factor (VIF) higher than 1.76 was reported.

while mayors with a longer tenure saw more innovativeness.

[position of Table 3 about here]

The mayors and managers identified different antecedents of innovation adoption. In the mayor model, three variables were positively and statistically significantly correlated with total innovation: social, economic and political changes ($p < .01$), service provider competition ($p < .001$), and media ($p < .01$). The manager model resulted in six of the eight independent variables attaining statistical significance: social, economic and political changes ($p < .05$), service provider competition ($p < .05$), learning/comparison ($p < .01$), lateral pressures ($p < .05$), and citizen expectations ($p < .01$) were positively associated with total innovation, whereas pressure by oversight bodies ($p < .05$) was negatively associated.

Since both contextual pressures (social, economic and political changes and service provider competition) had a significant positive correlation with innovation adoption for mayors and managers we can confirm H1a and H1b. Horizontal pressures were not statistically significant in the mayor model; both factors (learning/comparison and lateral pressures) were significant and positively associated with managers' perception of innovativeness, thus supporting H2a and H2b. Vertical pressures were insignificant for mayors, and pressure by oversight bodies had a negative impact on adoption of innovation for managers, thus H3a is confirmed, while H3b cannot be fully supported. Support for H4a and H4b was partial: citizen expectations were significant and positive correlated for managers but not for mayors, while media played a positive and significant role with the adoption of innovation for mayors.

The results broadly support the hypotheses. The findings confirm hypothesized differences between the two actor groups, but not always as anticipated: managers were influenced by variables representing all four of the factor groups, while mayors were influenced by contextual factors and public pressures only. Our analysis that has embraced the administrative and political sphere of local government suggests that senior politicians and

senior public managers are driven by different rationalities and thus play distinct roles in innovation adoption. In relation to other studies, findings from the managers' model broadly reflect those from studies drawing upon larger jurisdictions (e.g. Walker, Avellaneda, and Berry 2011).

DISCUSSION AND CONCLUSIONS

In this investigation we have tested the effect of different pressures on the adoption of total innovation, an aggregate measure of innovation types that have been theoretically and empirically uncovered in other settings. Our study has been conducted across the political-bureaucratic divide, using self-reported evidence from mayors and managers in small local governments. The research questions posed in this study examined managers' and politicians' identification of innovation types, the antecedents of total innovation across the two actor groups, and the comparability of the results from the managers' model with other studies of innovation adoption. The major findings are the identification of the same innovation types by politicians and managers, and differing factors driving the adoption of innovation across the two groups.

On innovation types

The innovation types identified by the mayors and managers in our sample of Austrian local governments confirmed theoretical expectations and findings from other contexts (Walker 2006, 2008; Damanpour, Walker, and Avellaneda 2009; Walker, Avellaneda, and Berry 2011). This offers further evidence of the value of developing and identifying innovation types to assist with generalizing the findings of innovation studies. Of particular importance to our findings was the identification of these innovation types by senior politicians. To the best of our knowledge, innovation types have not previously been isolated among politicians. Our results thus suggest that this approach to operationalize innovation could be used in future studies. The identification of the same innovation types also points towards complementary roles and shared

values across the two actor groups. This implies that theories of administrative pluralism have applicability in this setting, and offers further support for the role of the two groups in research studies of public sector innovation.

On Politicians and Public Managers

Similar to those of other studies, our results shed a rather diffuse light on the antecedents of innovation (Hansen 2011; Walker, Avellaneda, and Berry 2011). The statistical results show dissimilarities between politicians and managers in their identification of innovation adoption antecedents. These suggest crucial but different strategies and roles in the public sector innovation context. While those may be complementary, our findings regarding the different underlying rationalities for innovation adoption, i.e. the different impact of external pressures, support the relevance of a more nuanced view on these actor groups in the process of innovation adoption.

Looking at the factors in detail, the intensity of managers' perceived innovation adoption was strongly influenced by horizontal and contextual pressures. Horizontal pressures were associated with institutional perspectives that arise from sharing experiences with other organizations, but also with information processing that could offer support to concerns about information asymmetries in principal-agent theory. We also observed the influence of citizen expectations on innovation for this group, reflecting findings elsewhere (Walker 2006; Walker, Avellaneda, and Berry 2011). This finding points towards senior civil servants who are open to the voices of citizens, thus questioning the underlying rationalities for bureaucrats discussed in literature (Aberbach 1981; Dunn and Legge 2002; Zhang and Feiock 2009). The negative influence of oversight bodies on the adoption of innovations for these actors is noteworthy. While this is in line with public sector studies that have shown that coercive effects restrict the development of strategy (Andrews, Boyne, and Walker 2008), this result offers new evidence to an issue that has remained inconclusive in prior studies on public innovation (Walker 2006;

Walker, Avellaneda and Berry 2011).

The balance of these findings implies that managers are not closed and inward-looking, but are influenced by the institutional and task environment in relation to social, economic and political changes, the role of other organizations (be it competition or learning), department heads and citizens. These findings echo the idea of managers playing a coordinating role in the innovation process (Hage and Dewar 1973; Hartley 2005; Damanpour and Schneider 2006), especially with regards to strategic information and advice of other actors (Considine, Lewis, and Alexander 2009). Managers could be described as ‘process promoters’ or even ‘relationship promoters’, who act upon their intra-organizational know-how and their inter-organizational ties (see Goduscheit 2014). They play the role of active and intensive mediators between members of an organization, and seem to use their social influence to empower and mobilize actors rather than to impose change (Teske and Schneider 1994; Damanpour and Schneider 2006). This could also be a consequence of their formal position: managers have permanent appointments and in most cases non-redeemable lifelong contracts, thus (political) competition is not an issue for bureaucrats. This makes them more open to peers and also other stakeholders, and may allow managers to be more long-term-oriented, as suggested in prior contributions (Mouritzen and Svava 2002).

In contrast, the results for mayors show that they were mainly driven by contextual factors and distinct public pressures in the institutional and task environment (social, economic and political changes, service provider competition, and media). The results on media draw a picture of mayors as front-row ceremonial individuals who recognize the increased media influence (Verheul and Schaap 2010) and strive for media appreciation. Citizen expectations—contrary to our hypotheses—showed no positive association with innovation adoption of mayors. These findings are not in line with the theoretical assumption that politicians are more open and responsive to the needs of the voters, as they strive for re-election (Aberbach 1981).

The effect of media reports however indicates the role of media as a catalyst for public opinion and public attention (Cobb and Elder 1981) towards innovation and suggests that visibility is a key factor of this group's innovation adoption. Both the (non-significance of) horizontal and vertical pressures also underline the characteristics of the strong mayor model of government. Herein the mayor is the most powerful person setting goals, approving decisions and steering program accomplishment (Svara 2001; Nelson and Svara 2011) almost without obligation to consult with other actors.

The findings for this group imply that mayors seem to be 'political market driven' and adopt innovations mainly out of a competitive logic (Teske and Schneider 1994), perceiving themselves as somewhat isolated from the vertical and horizontal system of public actors. This broadly supports earlier descriptions of political entrepreneurs (politicians or elected officials implementing new ideas) as operating in relatively closed communications networks (Considine, Lewis, and Alexander 2009) and attempting to limit participation in the innovation process while at the same time exerting almost exclusive control over the institutional agenda (Cobb and Elder 1981). It also indicates a possible importance of innovation ownership (May and Winter 2007; Bassett and Shandas 2010; Gonzales, Llopis and Gasco 2013) and visibility for this group, outlining the role of the mayor as a 'power promoter' and 'champion' who use their legal and hierarchical power and access to resources to overcome obstacles and drive innovation adoption (see Goduscheit 2014).

On the comparability of prior findings

The results for factors driving the adoption by managers are comparable with other public management studies. They offer further support for the Berry and Berry framework (Walker, Avellaneda, and Berry 2011), and our research question concerning the applicability of these findings to other settings. It is indicated that broad categories of contextual, horizontal, and public pressures found in larger government entities have applicability in smaller jurisdictions

with one exception. Vertical pressures coming from central government policies turned out insignificant for both respondent groups. These results support the finding of Bassett and Shandas (2010) that upper governmental level influence on innovation adoption seems to be rather limited, and point to the relevance of the (political) autonomy of local governments in federal systems in innovation processes.

Limitations and Further Research

Our findings and discussion thereof are tempered by a number of limitations. First, the results are based on a cross-sectional research design and thus present associations. Second, while we find increasing validity in the innovation types, the nature of Austrian local government may mean that the findings related to adoption pressures are specific to this context. Additional research in alternative contexts could build longitudinal datasets that further verify the veracity of our results. Third, future analyses of responses where mayors and managers come from the same local government could provide valuable insights into possible differing views of innovation adoption intensity or pressure factors, or into the role of alignment of views across the two actor groups. Fourth, self-report surveys have been adopted widely in previous studies on innovation adoption, but they remain somewhat constraining and may leave out details that could help to explain why a certain pattern is found. Further qualitative research could offer additional insights here.

Conclusions

The main findings on the antecedents of innovation adoption pointed to different roles by each actor group and suggest that politicians with administrative authority and public managers must be compared to provide a comprehensive understanding of the adoption of public innovation. The results also indirectly point to the different rationalities and roles of mayors and public managers in the context of innovation adoption in small local governments. It is possible that this is a result of the ‘strong mayor’ model (see Zhang and Feiock 2009) in Austria. However,

the interaction between mayors and managers remains a largely unexplored sphere at present within empirical innovation studies (see Considine, Lewis, and Alexander 2009 as well as Bartlett and Dibben, 2002 for exceptions) and thus forms an important area for further investigation (Damanpour and Schneider 2006). In future studies, it would also be interesting to include and compare the effects of individual factors among these groups on innovation adoption, as it is possible that attitudes mediate the influence of external variables. Further, given the small scale of Austrian local governments, diffusion effects between neighboring jurisdictions could be examined.

Finally, applying a configurational perspective addressing potential mutual interactions between environmental variables and different innovation types could enhance our knowledge of public innovation (Walker 2008). By integrating a performance perspective, the empirical identification of public service improvement configurations would also be possible. We encourage others to pursue these research directions to build a more resilient evidence base for public service innovation.

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Table 1: Exploratory factor analysis innovation types

<i>Variables and measurement</i>	<i>Politicians (n=274)</i>						<i>Managers (n=335)</i>					
	<i>Descriptives</i>		<i>Rotated component matrix</i>				<i>Descriptives</i>		<i>Rotated component matrix</i>			
	<i>Mean</i>	<i>Std. Dev.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>Innovation types</i>												
All items were suffixed with: ,was/were a major part of our approach within the last years‘ (1=disagree; 5=agree)												
Organizational innovations												
‘New budgeting processes (e.g. global budgets)‘	2.76	1.14	.07	.26	.84	.19	2.44	1.21	.15	.26	.80	-.04
‘New management processes (e.g. personnel management)‘	3.28	1.05	.48	.09	.67	.04	2.91	1.14	.20	.05	.80	.21
Service innovations												
‘Providing existing services to new users ‘	3.59	.94	.83	.02	.13	.18	3.13	.97	.85	.04	.14	.07
‘Providing new services to existing users‘	3.80	.85	.84	.08	.09	.18	3.49	.97	.81	.06	.21	.21
‘Providing new services to new users‘	3.51	.88	.81	.16	.18	-.06	3.30	.89	.83	.14	.09	.02
Marketization innovations												
‘Contracting out / outsourcing to the private sector‘	2.76	1.16	.16	.85	.08	.16	2.46	1.22	.08	.85	.13	.10
‘Externalization of services to other public sector entities/organizations‘	2.54	1.10	.03	.84	.23	.10	2.20	1.07	.09	.86	.15	.12
Ancillary innovations												
‘Developing local/regional strategic partnerships‘	3.66	1.02	.19	.23	.18	.92	3.30	1.10	.17	.19	.13	.94
Variance explained			23.78	21.94	17.54	12.36			26.92	19.84	17.44	12.56
Eigenvalue			1.90	1.80	1.40	1.00			2.20	1.60	1.40	1.00

Note: coefficients in bold show loadings over .5 level of significance.

Table 2: Descriptive statistics

Variables	Measurement	Min	Max	Politicians (n=274)			Managers (n=335)		
				Hyp.	Mean	Std. Dev.	Hyp.	Mean	Std. Dev.
Total innovation	Summative indicator of the 4 innovation types				3.22	.71		2.88	.72
<i>Antecedents of innovation adoption</i>									
<u>Contextual pressures</u>									
SEP Changes	‘social, economic and political changes drove change processes in our local government within the last years’	1	5		3.90	.74		3.85	.92
Service provider competition	‘competition with other providers in distinct service areas drove change processes in our local government within the last years’	1	5		2.93	.94		2.73	1.04
<u>Horizontal pressures</u>									
Learning/Comparison	‘comparison in networks/ partnerships with other organizations drove change processes in our local government within the last years’	1	5		3.22	.89		3.27	1.00
Lateral pressures	‘pressure by heads of department, or finance department drove change processes in our local government within the last years’	1	5		2.53	1.01		3.10	1.12
<u>Vertical pressures</u>									
Central government requirements	‘central government requirements drove change processes in our local government within the last years’	1	5		3.67	.94		3.79	1.02
Pressure by oversight bodies	‘audits, reports or pressure by oversight bodies drove change processes in our local government within the last years’	1	5		3.32	1.06		3.48	1.10
<u>Public pressure</u>									
Citizen expectations	‘demand and expectations by citizens drove change processes in our local government within the last years’	1	5		3.61	.84		3.76	.83
Media	‘rate the importance of media reports as distinct sources of information’	1	5		2.83	1.00		2.76	.89

Controls

Age	1=under 25 years; 2=25-30; 3=31-35; 4=36-40; 5=41-45; 6=45-50, 7=51-55; 8=55-60, 9=above 60	1	9	6.79	1.55	6.03	1.70
Tenure	Mayors: 1=first term; 2=further term. Managers: 1=up to five years; 2=more than five years	1	2	1.66	.47	1.78	.42
Size	Population of the local government (log)	1	10	7.53	.77	7.65	.80
Financial health	Summative indicator of three financial indicators: Current balance or operating ratio (4-year average, Debt repayment time, own revenue share)	0	3	1.27	.75	1.18	.75

Table 3: Results of regression analysis for total innovation

	Total innovation	
	Mayors	Managers
Social, economic and political changes (C)	.186**	.121*
Service provider competition (C)	.333***	.140*
Learning/comparison (H)	.02	.183**
Lateral pressures (H)	.013	.129**
Central government requirements (V)	-.014	.053
Pressure by oversight bodies (V)	-.041	-.110*
Citizen expectations (P)	-.095	.152**
Media (P)	.164**	.076
Age	.019	-.031
Tenure	.121*	.067
Size	.092	.186***
Financial health	.052	-.022
R ²	.241	.286
Adjusted R ²	.206	.259
F	6.892	10.734

Note: * p<0.05, ** p<0.01 and *** p<0.001 levels, respectively.

C = Contextual Pressure, H = Horizontal Pressure, V = Vertical Pressure, P = Public Pressure