

**Personnel System Constraints in Public Organizations: A Study of Intraorganizational
Variation and Performance**

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Abstract

Prior research has shown that personnel constraints are far more prevalent in the public sector than in the private sector. Anecdotal accounts suggest that public managers are hamstrung by these personnel constraints – particularly their inability to reward and punish employees to promote higher performance. As a result, more than three decades of public management reform has attempted to loosen these constraints on the assumption that more personnel system flexibility will lead to increased organizational performance. We mount an empirical study to test this assumption with data taken from a large-scale survey of English local authorities and other sources. We operationalize personnel constraints using Rainey’s (1979; Rainey et al. 1976) long-standing measures: “difficulty in removing poor managers” and “difficulty in rewarding good managers”. We show that attitudes towards personnel constraint vary within organizations in statistically significant ways. The results from our lagged autoregressive multiple regression models also show that one of our personnel constraint measures—“difficulty in removing poor managers”—is harmful to performance but that the other “difficulty in rewarding good managers” has weak but positive short-term effects. The implications of these findings for public management research and practice are considered in the concluding section of the paper.

Introduction

Empirical research has shown that personnel system constraints are far more prevalent in public organizations than in private sector organizations (for summaries of the literature that support this point, see Bozeman and Rainey, 2000; Rainey, 2003; 2007). Personnel constraints are argued to constrain public managers and stifle organizational performance. One intended purpose of management reforms implemented in public agencies over recent decades has been to loosen these constraints on the assumption that more personnel system flexibility will lead to greater managerial effectiveness and increased organizational performance (Bouckaert and Halligan 2007; OECD 2005; United Nations 2005; Pollitt and Bouckaert 2004; Gore 1993).

This study examines this proposition empirically, presents evidence on the effects of overly burdensome personnel system constraints at the organizational level, and also investigates intraorganizational variation between echelons. In undertaking this task, we draw upon Rainey's (1976; Rainey et al. 1979) longstanding measures of personnel constraints that gauge "difficulty in rewarding good managers" and "difficulty in removing poor managers".¹ That is, can managers effectively reward and punish the employees they oversee? Efforts to reform public agencies have led to alternative strategies on these two personnel constraints. Approaches to increasing managers' ability to remove poorly performing employees include empowering managers, removing constraints on their ability to manage, and instituting performance management systems that connect employee efforts with results. Approaches to improving managers' ability to reward employees include increased reliance on the performance appraisal process and pay-for-performance schemes. Evidence on the effectiveness of these reforms is not very impressive. This evidence suggests that little progress has been made in developing

¹ There are other ways of conceiving and measuring constraints, such as time delays in hiring and removing employees. However, we believe Rainey's measures of reward and punishment lie at the heart of managing for higher performance.

strategies to remove poorly performing managers, and that pay-for-performance has produced from little to negative results in the public sector. Yet the evidentiary record is weak and consists mostly of case studies and empirical studies that have rather major limitations: one such limitation is that few studies have examined the impact of these reforms on robust measures of organizational performance. To this end, we undertake what is – to the best of our knowledge – the first empirical test of the proposition that managers’ perceptions of personnel constraints suppress public service performance.

Our data come from a large-scale survey of English local authorities and other sources. The analysis is lagged so that all independent variables are measured prior to the dependent variable thus simulating time-order and improving on standard cross-sectional designs that cannot account for time lags between cause and effect—a crucial element of causality. We also include a measure of prior performance to ensure that the personnel constraint coefficients are not biased.

Findings from this analysis show that “difficulty in rewarding good managers” has a small positive effect on performance in contrast to the reform pronouncements, but “difficulty in removing poor managers” actually reduces performance as anticipated in this literature. These findings, therefore, suggest that the considerable effort that has been expended in the design and implementation of pay-for-performance reward schemes has not directly improved public service performance. Conversely, our findings suggest that more effort needs to be devoted to loosening personnel systems so that poor performers can be dealt with and more optimal performance achieved. We hasten to add that these effects are stronger amongst senior corporate officers rather than chief officers or service managers. Thus, for most public managers working at middle and lower echelons of the bureaucracy, it does not appear that personnel constraints exert a major impact on performance.

In the next section, we go into more detail on why personnel system constraints are more prevalent in the public sector, and why such constraints are thought to bind public managers and lower organizational performance. This leads to several testable hypotheses. In the next section, we introduce our data and methods; and in the following section, we test the hypotheses and report the results. Finally, the implications of these findings for public management research and practice are discussed.

The impact of personnel constraints

Empirical research has shown that personnel system constraints are far more prevalent in the public sector than in the private sector. Such constraints are usually attributed to traditional civil service systems that promulgate rules to protect public employees from political interference and egregious personnel actions, thus also serving to promote fairness and equity in the public service (Nigro, Nigro and Kellough 2007; Brewer and Kellough, 2008). Indeed, government is expected to be a model employer and set high standards in these regards.

Civil service systems are typically built on merit principles that are founded on open and competitive examinations as a basis for selection, strong norms of neutral competence, and relative security of tenure for employees. Traditional systems have relied on centralized oversight of the personnel function and numerous rules to ensure political non-interference and equity in the treatment of all applicants and employees. As a consequence, these systems have been criticized for delay, inflexibility, and harmful effects on organizational performance. There appears to be a fundamental trade-off between the merit principle, neutral competence, and fair play on one hand, and economy, efficiency, and performance on the other.

In recent years, conventional wisdom has suggested that arthritic civil service systems, which are characterized by burdensome personnel system constraints that limit the ability of

managers to reward good employees and remove bad ones, may be the primary culprit for flagging government performance. NPM, Reinventing Government, and other reform agendas have been quick to take up this mantle (Gore 1993; U.S. Merit Systems Protection Board, 1999; Blair 2002). Reformers contend that public organizations should cut red tape, empower managers, and encourage them to be entrepreneurial. An important element of these reforms is to increase managerial flexibility and give managers a freer hand to recruit, select, reward, and discipline employees. One signal catch-phrase of this reform movement is to roll back overly constraining civil service system rules and “let managers manage.”

For some time now, reformers have emphasized the need to weaken civil service systems, give agencies greater discretion, and enhance the flexibility of line managers – particularly on personnel matters. Indeed, civil service systems are changing from purely legal-bureaucratic modes of control to more market style modes of control. Old systems were characterized by centralized collective bargaining, uniform pay increases, steep and detailed career ladders with intra-service mobility, tightly written job descriptions, and lifetime employment security. The behavior of personnel was governed by detailed, input-oriented budgets. In the new model, collective bargaining is decentralized, pay is more individuated, career ladders are short and job descriptions loose, recruitment from the outside replaces intra-service mobility, and hiring/firing is possible. Budgets are shifting to looser, output-based controls over personnel, who are being liberated and empowered to take risks. In short, the public sector is conforming more and more to the normal disciplines of the private sector (Brewer, 2001).

From this discussion and other sources (such as Bozeman and Rainey 2000 and Walker and Brewer 2008), we derive three guiding hypotheses and a couple of sub-hypotheses:

H₁: Personnel constraints have detrimental effects on public service performance

H_{1a} Constraints on the ability to remove poor managers have detrimental

effects on public service performance.

H_{1b} Constraints on the ability to reward good managers have detrimental effects on public service performance.

H₂: Perceptions of the extent of personnel constraints will vary between organizational echelons.

H₃: The detrimental effect of personnel constraints on public service performance will vary between organizational echelons

Data and Methods

Unit of Analysis

This study is situated in the English local government sector. English local governments are politically elected bodies with a Westminster style cabinet system of political management.²

They employ professional career staff and receive between two-thirds and three-quarters of their income and guidance on the implementation of legislation from the central government.³ These are multi-purpose authorities but not all-purpose; for example, health care is provided by separate health authorities.

There are five types of local authorities. Three types are comprehensive—that is, one authority provides all designated services to one geographically-defined community. These types of authorities are typically found in urban areas and include London boroughs, metropolitan districts, and unitary authorities. A two-tier system prevails in small towns and rural areas.

² In a Westminster political system (such as the UK), the cabinet represents the *de facto* executive branch of government, and is usually made up of senior members of the ruling political party, all of whom collectively decide public policy and government strategy.

³ All services are regulated. Education services and schools are regulated by the Office for Schools Standards Social Services by the Social Services Inspectorate, Benefits and Revenues by the Benefits Fraud Inspection Services, Housing by the Audit Commission Housing Inspection, and all other services by the Audit Commission Inspectorate.

County councils or shires are the upper tier authority and district councils the lower tier. This variation in structural arrangements means that in areas with London boroughs and metropolitan councils, authorities are responsible for virtually everything. However, in two-tier systems, services such as fire, transport, and waste disposal are delivered by joint committees.

Two levels of analysis are adopted. For our test of personnel constraints on organizational performance, we undertake the analysis at the organizational level. When we explore variations of attitudes towards personnel constraints, we delve into the organization and examine three echelons or levels within the organizational hierarchy (Aiken and Hage 1968). These are corporate officers, chief officers, and service managers (see below).

Data Source

Data were drawn from a survey of English local authorities (for data collection procedures and pilot information, see Enticott 2003). This study focuses on major authorities, which include county councils, metropolitan boroughs, London boroughs, and unitary authorities. District councils, the tier of local government below county councils, were excluded from this analysis because the measure of performance used in this study is not available for these authorities (see below). The survey was conducted in 2004 and was a census of all 175 major upper-tier authorities. Responses were received from 136 authorities (77.7% response rate). The survey explored informants' perceptions of organization and management, drivers of service improvement, and background variables.⁴ All questions were in the form of Likert-type scales ranging from 1 (disagree) to 7 (agree).

Multiple informant data were collected from staff at the corporate and service level in

⁴ A copy of the full questionnaire is available on request from the authors.

each organization.⁵ This strategy was adopted to address the weakness of prior studies that have essentially been elite surveys, which typically collect evidence on organizational leaders' aspirations rather than actual organizational behaviors, and which overlooks the range of different perceptions within organizations (Bowman and Ambrosini 1997; Walker and Enticott 2004; Brewer 2005). To create the organizational level data, two levels were used to overcome the sample bias problem faced in surveying large numbers of informants from one organizational level (see Enticott et al. 2009 for a detailed discussion). For this sample, a simple organizational mean would drown out the voices of the smaller numbers of corporate officers surveyed.⁶ Corporate and service officers were selected for the two echelons because attitudes have been found to differ between these positions (Aiken and Hage 1968; Walker and Enticott 2004). An organizational mean is derived from a mean of corporate officers and a mean of service officers.

To test variation amongst echelons, we examined corporate officers and then split the service officers into the two groups that constitute this echelon: chief officers and service managers (see footnote 4). A mean was calculated for each group in each organization by adding the scores recorded by each respondent in each service. For the three echelons, responses were thus: corporate officers 105, chief officers 127, and service managers 129, totalling 361 organizational echelons.

⁵ Corporate officers include the chief executive officer, or head of paid service, and corporate policy directors with cross-organizational responsibilities for service delivery and improvement. Service officers include two sets of officers drawn from seven services: benefits and revenues, culture and leisure, education, housing, land use planning, social services, and waste management services. First, chief officers who are the most senior officer with specific service delivery responsibility, they include the Director of Education or the Director of Planning. Second, service officers or front-line supervisory officers. They include Head of School Organization and Planning and Head of Business Efficiency.

⁶ In each authority surveyed, questionnaires were sent to up to three corporate officers and up to twenty-eight service officers—four across seven core services: education, social care, land-use planning, waste management, housing, library and leisure and benefits services.

Dependent variable: performance

A robust measure of performance is likely to fulfil three criteria. First, it should be a multi-dimensional measure that covers the many concerns of public management such as quality, efficiency, effectiveness, responsiveness, and equity (for a review of this literature see Andrews et al. 2006; Boyne, 2002; Carter, Klein & Day, 1992;). Second, a range of stakeholders, inside and outside of the organization being assessed, are likely to hold views on what constitutes high levels of governmental performance (Andrews, Boyne & Walker, 2006; Brewer, 2005, 2006; Walker & Boyne, 2006). External judgments made by stakeholders in the environment of an organization (e.g. service consumers, voters, regulators) are likely to offer more robust views. External measures of performance are undertaken some distance from the public organization being judged and thus are less likely to be contaminated by common source bias (Andrews, Boyne and Walker, 2006). Third, performance measures should include a range of different information about an organization; this could include data from performance indicators, strategic and operational plans, and inspector's reports. This will ensure that a number of subjective measures are combined with objective data on the performance of a public agency. English local government is blessed with a measure that meets these criteria: the core service performance (CSP) of the Comprehensive Performance Assessment (CPA).

The CSP is determined for each of the seven service areas. It is based largely on archival performance indicators and supplemented by the results of inspection and assessment of statutory plans (Andrews et al. 2005). The archival performance indicators cover six aspects of organizational performance: quantity of outputs (e.g. number of home visits for the elderly), quality of outputs (e.g. number of serious injuries on highways), efficiency (e.g. cost per benefit claimed), formal effectiveness (e.g. average school passes at 16), equity (e.g. equal access to public housing), and consumer satisfaction (e.g. satisfaction with waste collection). Inspection of

services draws upon internal improvement plans, field visits, and other documentation. Statutory plans are assessed against the criteria of the service's relevant central government department. Evaluators external to the local authority conduct all assessments. Each service area is given a performance score by the Audit Commission from 1 (lowest) to 4 (highest).

After calculating the CSP score for each service area, the Audit Commission derives a score for the whole organization by weighting services to reflect their relative importance by budget (the weight for education and social services is 4, for environment health and housing is 2, and for libraries and leisure, benefits, and management of resources is 1). The Commission then combines these weights with the performance score (1 – 4) for each service area to calculate the CSP. The resulting scores range from a minimum of 15 (12 in the case of county councils that do not provide either housing or benefits) to a maximum of 60 (48 for county councils). To make the CSP scores comparable across all authorities, we calculated the percentage of the maximum possible CSP score achieved by the given local government. Therefore, the measure of organizational performance in this study is an aggregate measure across the key services areas of local governments and includes multiple indicators of performance for each service area.

Independent Variables

Two measures of personnel constraints were collected in the survey: “even if a manager is a poor performer, formal rules make it hard to remove him or her from the organization” (label: *remove manager*) and “the formal pay structures and rules make it hard to reward a good manager with higher pay here” (label: *reward manager*). As we note above, since their inception in Rainey's research in the late 1970s (Rainey, 1976), these measures have been used extensively in studies of public and private sector differences and more recently as proxy measures of red tape. Table 1 provides descriptive data of these and our other measures at the organizational level.

[Position of table 1 about here]

Controls

We include measures of internal controls, external constraints and prior performance in our models to counteract potential spurious relationships. Internal controls seek to capture the organization's climate and focus upon its openness and harmony. First, we control for *developmental culture*, that is an organizations disposition towards entrepreneurship, innovation and meeting new challenges (Zammuto and Krakower 1991). This approach has been central to policy debates in the UK during the period of our research (Blair 2002; OPRS 2002). A developmental culture has been shown to turn around the likely harmful effects of other organizational constraints such as red tape (Pandy and Moynihan 2006). Informants were asked to respond to the following questions: "The service/authority is prepared to take risks" and "The service/authority is at the forefront of innovative approaches" ($\alpha .76$).

The nature of internal climate can affect an organization's capacity to focus upon its performance. A turbulent *internal political climate* is likely to result in organizational actors focusing their attention on the relationships between different groups rather than service delivery. We therefore defined internal political climate as "relationships between members and officers, relationships between senior management and front-line staff and so on". Managers were then posed three questions about the extent to which they perceive that: "The internal political context during the last financial year the service operates in was: Changing rapidly; Uncertain; Very complex" ($\alpha .89$). Higher scores on this scale indicate greater change, uncertainty and complexity.

We include a number of measures of external constraints, all derived from the 2001

census. Service need measures the degree to which the external environment is demanding. It is operationalized through a measure of multiple deprivation (and labelled *deprivation*).⁷ Diversity of service need is associated with complexity. Increased complexity will reduce the time, resources and capacity for performance because meeting a diversity of needs will be demanding. For example, if a local authority area has relatively homogeneous characteristics it may be possible to deliver services to that one group—for example if the population is mostly comprised of one ethnic group it should be relatively easy to establish the needs and preferences of one group and develop innovations. On the other hand, if the population is highly complex and diverse (containing, for example, many ethnic groups) it will be more demanding to establish needs and preferences, and difficult to develop a range of services that suits the entire population. Service diversity of need captures the complexity of the level of service need and adopts a Herfindahl-Hirschman Index of ethnic diversity.⁸ The measure gives a proxy for ‘fractionalization’ within a local authority area, with a high level of ethnic diversity reflected in a high score on the index (labelled *diversity*).

Changes in population affect the resources available for the co-production of services. Areas of population growth become more prosperous as economically active households migrate into new areas (Williams 2003). In these areas it is possible for individuals and families, together with the wider availability of community resources, to assist in the provision of services through co-production. Evidence indicates that in areas of growth, new residents are likely to be economically skilled and socially enterprising and thus able to co-produce services (Armstrong

⁷ Deprivation is measured by the Average Ward Score from the Index of Multiple Deprivation (Department of the Environment, Transport and the Regions 2000), which is the standard population-weighted measure of deprivation in England used by central government. It provides an overview of the different domains of deprivation (e.g. income, employment and health).

⁸ A Herfindahl-Hirschman index was created by squaring the proportion of each ethnic group (taken from the 2001 census, Office for National Statistics 2003) within a local authority and then subtracting the sum of the squares of these proportions from 10,000.

and Taylor 2000). More affluent members of the community are able to co-produce services and provide local authority's with additional resources that will assist a local government attain higher levels of performance. *Changes in population* is measured by the mean change in the population of a local authority between 1991 and 2001. Increases in population are associated with greater affluence and higher levels of performance.

Prior performance. The rationale for the inclusion of prior performance is that organizations are autoregressive systems (O'Toole and Meier 1999). Organizations create processes and operating systems designed to produce the same outputs over time. It is therefore reasonable to expect that the best predictor of what an organization will do tomorrow is what it does today. Managers make many small decisions in everyday practice that can have substantial cumulative impact over time. Thus, to ensure that the coefficients for personnel constraints are not biased, it is important to include prior achievements in statistical models of performance. To this end, we use the CSP performance score from 2003 in our analysis and examine whether personnel constraints add to or subtract from this performance baseline. This allows us to make observations about the effect of personnel constraints on performance at different points in time (label *CSP 2003*).

Statistical Results

Results are presented in two parts. We initially examine the effects of personnel constraints on performance at the organizational level prior to probing into the organizations' echelons. For the organization and its three echelons, we present two models. Model 1 examines the impact of personnel constraints on public service performance controlling for internal and external characteristics. Model 2 includes these variables and adds the autoregressive term. In all our models there are no problems of multicollinearity; the highest VIF recorded is 1.114. The

explanatory power of the models varies—as would be expected the autoregressive models explain around three-quarters of the variation while those without the prior performance measure offer adjusted multiple coefficients of determination (adjusted R^2 s) that range from 5 and 19 percent.

Organizational level results

Table 2 provides summary statistical results from our regression analysis, and we commence our discussion with the control variables. By and large, these variables perform as anticipated.

Developmental culture is positive and statistically significant in both models and internal political climate is negative and significant (albeit at the lower ten percent level). Diversity and population change have longer-term effects on performance as anticipated and as reported in other studies emanating from this dataset (see for example Andrews et al. 2005). Somewhat unexpectedly, deprivation has a short-term and statistically significant impact on public service performance. Lastly, as anticipated in an autoregressive system, prior performance is statistically significant and does much of the hard hitting in this model.

[position of table 2 about here]

The variable *remove manager* is negative and statistically significant in both models. In model 1, the variable attains significance at the lower ten percent threshold. This indicates that organizational policies and procedures make it hard to remove poorly performing managers. Reading across the two models, the results indicate that the inability to remove a poorly performing manager hurts performance in the long-term, but that it also has stronger short-term effects—in Model 2 the statistical significance of the variable raises to the more commonly accepted five percent level. *Reward manager* has no effect when this personnel constraint is considered in the longer-term, alongside internal and external controls. There are, however, short-

term effects—the coefficient is positive and significant, at the lower ten percent level of statistical significance, in Model 2. The findings indicate that not being able to reward a high performing manager with pay works for the good and has positive effects on performance. These statistical results offer support for H_{1a} but not H_{1b} .

Intraorganizational variation amongst echelons

We commence our analysis of intraorganizational variation amongst the three echelons identified in this study by way of a difference of means test. This analysis tests H_2 prior to undertaking multivariate analysis. Table 3 presents the means and results of the ANOVA test for corporate officers, chief officers, and service managers. Corporate officers are less likely to report the constraints *remove manager* and *reward manager* in comparison to their counterparts lower down the hierarchy. What is of interest with these results is that the constraints worsen the further one travels down the organization. The ANOVA results confirm this finding. For the *remove manager* variable, there are statistically significant differences between corporate officers and service managers, while for the *reward manager* variable, the differences are between corporate officers and chief officers and service managers. These results do not categorically support H_1 . They do, however, offer reasonable evidence to support the notion that attitudes towards personnel constraints vary within organizations (H_2). Given that most studies have examined interorganizational differences rather than intraorganization variation, these results provide further evidence on the complex way in which personnel constraints are played out and viewed.

Another pattern in the results is that perceptions of personnel constraints – on both the *remove manager* and *reward manager* variables – grow larger as we move down the echelons from top-level officials to middle managers, and finally to frontline managers. In fact, frontline managers who are working in the trenches perceive the highest levels of all. Perhaps these street-level bureaucrats feel more constrained they are subject to systematic personnel constraints which

affect all managers in the organization, plus they are subject to additional constraints imposed on them by overhead managers – the corporate officers and chief officers in this case. Another reason may be that concerns about accountability and responsible flow downhill and weigh heavier on frontline managers.

[position of table 3 about here]

Multivariate results are presented in table 4. Results for the control variables are similar to those reported in table 2 and we do not elaborate on these here. We make three points in relation to the personnel constraint measures and their impact on organizational performance. First, the statistical results for the corporate officers present findings similar to those at the organizational level, though with stronger effects in the autoregressive model. While this group of officers reported mean scores lower than other echelons (table 3) they nonetheless identify consequences. Second, service managers note statistically significant negative effects arising from the inability to remove a poor manager. The coefficient for *reward manager* does not, by contrast, attain statistical significance in either model. Finally, in the chief officers echelon, neither variable achieves statistical significance in either model. Overall, these results offer mixed support for H₃.

Discussion

As is often the case, the findings reported in this study suggest that a fundamental assumption of public management theory and practice is more complex than we hitherto thought. It appears that personnel constraints affecting managers' ability to deal with poorly performing employees may undercut performance. Yet constraints on managers' ability to reward highly performing employees does not have much effect. Moreover, managers at different echelons perceive these constraints differently, with those nearer the front lines perceiving the greatest number of constraints. When these perceptions are linked to performance, we find that the views reported by

top-level officials are most strongly linked to performance, while those of lower echelon officials are more weakly linked.

The implications for public management practice are straightforward. Efforts to enable managers to deal more effectively with poor performers are likely to produce higher levels of organizational performance. On the other hand, persistent efforts to implement pay-for-performance systems will likely continue to be a bust for public organizations. These systems do not seem to work for whatever reasons, and public administration scholars have identified plenty over the years. Looking ahead, researchers should mount more studies on personnel constraints and try to move from managerial perceptions of constraints to more objective measures, such as time delays in hiring and disciplining employees. Perhaps the connections to performance could be examined more carefully as well. For example, are the impacts different across the various dimensions of performance such as efficiency, effectiveness, and equity? In addition, researchers need to pry into other fundamental assumptions that underlie the theory and practice of public management. This will likely confirm many of our suspicions but confront us with a few surprises. Nonetheless, it is nonetheless important for researchers and practitioners to have access to the best knowledge available as they ply their respective trades.

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Table 1: Descriptive statistics at the organizational level of analysis

Variable	Mean	Sd	Minimum	Maximum
CSP 2003	68.15	7.87	48.33	88.33
CSP 2004	71.76	7.36	51.67	88.33
Deprivation	27.28	11.91	4.89	61.34
Developmental culture	10.29	1.126	6.5	13
Diversity	2541.41	2220.10	372.71	8452.82
Internal political climate	10.89	3.00	3.89	18.73
Population change	.73	.80	-.69	4.51
Remove manager	4.53	.90	1.75	7
Reward manager	5.29	.92	2.75	6.75

N = 136

Table 2: Regression results: organizational level

	M1	M2
Remove manager	-.94 (.72) +	-1.03 (.45) *
Reward manager	.59 (.72)	.63 (.44) +
Developmental culture	1.78 (.51) ***	.55 (.32) *
Internal political climate	.27 (.20) +	.16 (.12) +
Deprivation	-.01 (.05)	.06 (.03) *
Diversity	-.00 (.00) *	.00 (.00)
Population change	1.95 (.76) +	.28 (.47)
CSP 2003	-	.77 (.05) ***
Constant		15.21 (4.99) ***
F	4.387***	44.761***
R ² /Adj R ²	.19/.15	.74/.72
One-tailed tests		
+ p < .1; * p < .05; ** p < .01; *** p < .001		

Table 3: Means and ANOVA results for personnel constraints amongst echelons

	Corporate officers	Chief officers	Service managers	F-score	Post hoc results
Remove manager	4.40 (1.42)	4.63 (1.32)	4.80 (1.16)	3.335*	1 – 3
Reward manager	4.86 (1.47)	5.51 (1.15)	5.71 (.93)	18.705***	1 – 2, 3