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**The Coordinating Role of Budgetary Participation:
Rationalistic and Institutional Perspectives**

by

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The Coordinating Role of Budgetary Participation: Rationalistic and Institutional Perspectives

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Abstract

This paper investigates the role of budgetary participation in resolving interdepartmental coordination problems, which has received little empirical attention in the budgetary literature. Both qualitative and quantitative methods are used for exploring this issue. Two dimensions of budgetary participation (participation in budget-setting and more frequent participation initiated by subordinate managers) and their interactions with various types of task interdependence and institutional pressure are examined. The findings largely support the argument that institutional theory and more rationalistic approaches, focusing on the instrumental function of budgets, provide complementary explanations of the coordinating role of budgetary participation.

Keywords: budgetary participation, contingency theory, coordination, institutional pressure, institutional theory, task interdependence, triangulation.

The Coordinating Role of Budgetary Participation: Rationalistic and Institutional Perspectives

Introduction

The effects of letting subordinate managers participate in budgeting have attracted significant attention in academic accounting research since the publication of Argyris' (1952) seminal study. This research tradition is to a large extent grounded in motivational and cognitive theories, seeking to explain how budgetary participation influences managerial behaviour and performance (Kren, 1997). However, comparatively little empirical research has explicitly examined the coordinating role of budgetary participation despite the widely held belief that this is one of the major functions of budgeting besides those of motivating managers and influencing their behaviour (see e.g., Barrett and Fraser, 1977; Hirst and Yetton, 1999; Kanodia, 1993; Samuelson, 1986). Indeed, Shields and Shields (1998) found that the role of budgetary participation in coordinating departmental interdependencies is one of its most important ones and argued that it needs to be delineated more clearly in future research. The objective of this paper is to extend the by now extant literature on budgetary participation by examining its role in resolving inter-departmental coordination problems in a large public sector organization. In doing so, we draw on two different, but complementary theoretical perspectives as explicated below.

Researchers examining budgetary participation have frequently adopted a largely functionalist contingency approach, focusing on its relationships with various contextual factors and, occasionally, other elements of accounting control systems and the subsequent effects on managerial attitudes, behaviour and performance (see reviews by Brownell, 1982a; Murray, 1990; Shields and Shields, 1998). The role of budgets in the coordination of departmental interdependencies is occasionally discussed in this stream of literature (e.g., Macintosh and Daft, 1987; Shields and Shields, 1998; Williams et al., 1990). The main concern has then been the instrumental, or technical, function of subordinate managers' participation as a means

facilitating their communication with superiors and so improving the coordination of the workflow between operating departments.

While guiding a substantial body of research, this essentially rationalistic perspective has not stood uncontested in the budgetary literature. Following the work of Wildavsky (1964, 1975), a number of critics, often informed by neo-institutional sociological theories of organizations, have emphasized the role of the budgetary dialogue between superiors and subordinates as a forum for negotiation, political bargaining, legitimation and the exercise of power rather than a medium for rational decision-making (e.g., Covalleski and Dirsmith, 1983, 1986; Czarniawska-Joerges and Jacobsson, 1989; Jönsson, 1982; Perez and Robson, 1999). At the same time, however, some authors adopting an institutional perspective (Covalleski et al., 1985, 1996) have explicitly recognized its role as a complementary, rather than competing basis for analysing budgeting by combining it with more traditional, rationalistic perspectives (see also Boland and Pondy, 1983). When applied separately, rationalistic and institutional perspectives typically provide only partial explanations of organizational practices (Scott, 1987), while studies combining the two often generate more multifaceted insights into the functions of various control systems (cf. Abernethy and Chua, 1996; Ansari and Euske, 1987; Eisenhardt, 1988; Gupta et al., 1994).

A focus on the coordinating role of budgetary participation provides a promising avenue for exploring this complementarity further, as institutional theorists have also discussed the requirements for efficient coordination of internal interdependencies. According to Meyer and Rowan (1977), internal coordination may be facilitated by the de-coupling of internal operations from the structural attributes used to manage the pressures exerted by constituencies in the organization's institutional environment. De-coupling may in turn manifest itself in the creation of financial buffers, or reserves (Meyer, 1983; Perez and Robson, 1999; Weick, 1976). The origins of this argument can be traced to the fundamentally rationalistic assumption that organizations strive to insulate operations from the external environment to achieve efficient coordination of internal interdependencies (Thompson, 1967) and that some buffer, or slack, may be required for this purpose (Cyert and March, 1963; Galbraith, 1977). The specific contribution of the institutional perspective adopted here, however, is that it may

provide deeper insights into the negotiations and bargaining processes involved in buffering and the role of budgetary participation in this context (see e.g., Boland and Pondy, 1983; Perez and Robson, 1999; Wildavsky, 1975).¹ Hence, by applying both institutional and more rationalistic perspectives, we hope to explain how budgetary participation affects perceived coordination problems by examining its direct role in managing departmental interdependencies as well as its more indirect function as a forum for negotiation between superior and subordinate managers which, in turn, facilitates buffering from institutional pressures.

Given the relatively under-researched state of the topic concerned, qualitative and quantitative methods were combined to enhance the validity of our results (cf. Birnberg et al., 1990; Jick, 1979; Merchant, 1990). Initially, archival and interview data were collected to (1) assess whether the use of budgets conformed with the perspectives outlined above and (2) identify which actors could be expected to constitute the most important sources of institutional pressure at the departmental level. In combination with prior research, this initial phase was used for developing hypotheses, which were subsequently tested through a questionnaire survey distributed to a larger sample of departmental heads. The structure of the paper follows these steps in the research process. A discussion of our main findings, limitations and directions for future research concludes the paper.

¹ Note that this study is not primarily concerned with the more symbolic role of budgets in legitimating the organization to external constituencies. The issue of legitimacy is rather related to the justifications for buffering departments from institutional pressures emerging in the budgetary dialogue (cf. Covaleski and Dirsmith, 1983).

Initial Findings

Method

The organization under study is a large public sector hospital in Norway. From the mid-1990s more direct responsibility for budgetary control has rested with seven divisional managers, supported by divisional controllers, with departmental heads reporting to this level. Four of the divisions consist of clinical departments, while the other three provide various ancillary services (laboratory, technical and medical support services). As the ensuing survey targets departmental heads, it was judged appropriate to concentrate the interview phase on higher levels and hence validate the study through the collection of multi-perspective data (Jick, 1979). All divisional managers and a number of staff specialists at various levels involved in budgeting were interviewed during the spring of 1999. In total, 21 persons were interviewed and each interview lasted between one and two hours. In addition to interviews, we had access to relevant documents such as budgetary manuals, final budgets and budgetary performance reports.

The interview questions were mainly open-ended to allow the informants to elaborate relatively freely on the hospital's budgetary system. Although the questions focused mainly on the relationship between divisional and departmental heads, more general views of the role of budgeting in the management of the hospital were also investigated. This yielded important insights into the influence of certain institutional factors on the use of budgets. Interviewees were also asked to comment on the relative importance of budgets for coordinating departmental interdependencies compared to other common roles (e.g., planning, performance evaluation, motivational purposes).

As a final means of validation, our interview findings, accompanied by the statistical analyses, were discussed at a meeting with key informants from the hospital's finance department. The feedback received at this occasion largely confirmed the observed patterns regarding the use of budgets.

Findings

Departmental budgets were introduced in the 1970s, but it is only recently that they have been more closely linked to activity levels as a result of the introduction of

formula-based per-case funding of health care. Traditionally, departmental budgets functioned more as cash limits and a significant proportion of the budget is still made up of fixed global grants. There is little use of transfer pricing for coordinating departmental interdependencies. Instead, the allocation of financial resources to departments is based on a relatively elaborate and iterative budget-setting process at year-ends, followed by monthly by-exception evaluations and budgetary meetings within the divisions. Departments are also requested to draw up budgetary prognoses during the year, which occasionally form the basis for revisions. Although departmental managers participate in budget-setting, this process largely follows a top-down approach where the global budget for the hospital is disaggregated at lower levels. One divisional manager argued that “the budgetary process is largely driven by the finance department”. However, the interviews with divisional managers also revealed a varying emphasis on the budgetary dialogue with departmental heads. This strengthened our expectation that budgetary participation at this level would display the necessary variation for carrying out meaningful multivariate analyses.

Two officially stated reasons for the change to a divisional structure in the mid-1990s were to improve budgetary control and reduce senior management’s span of control. Even though this implied that medically related departments were clustered into more homogeneous divisions to facilitate coordination, there are still relatively complex interdependencies cutting across divisional boundaries (e.g., between ancillary and clinical departments and between surgeons in some departments and the central operating theater). Although most divisional managers argued that budgets filled an important coordinating role besides those of performance evaluation and cost control in rating the functions of budgeting, relatively severe coordination problems prevail. For example, production bottle-necks frequently occur between the central operating theatre and departments within other divisions. Such problems were frequently blamed on the lack of coordinated planning and direct involvement of staff specialists in operating matters. The re-structuring of the organization into divisions appeared to have reduced the amount of direct communication between the finance department and operating departments in conjunction with budget-setting. One member of the finance department summed up these problems by saying that:

“It used to be easier to use the finance department more flexibly. Now we are more dependent on staff specialists within the divisions to carry out a larger part of the budgetary work, but the finance department has no authority to instruct them. Neither is there any significant coordination between the divisions as far as financial control is concerned.”

As a result of the growing demands for cost containment, the budget set at the beginning of the year takes the form of a “zero-growth budget”, essentially based on the previous year’s budget adjusted for planned activity levels and salary and price increases. The budget is also complemented with a number of more specific “decision packages” with adjoining cost estimates. However, the usefulness of budgets for planning appeared to be limited as illustrated by the following quotes:

“It is unrealistic to plan based on the budget. Sometimes you realize that the budget won’t hold already in January-February.” (staff specialist)

“The problem is that the [budgetary] frames are not realistic. The level of detail of budgetary disaggregations also varies between departments. People know about this so the budgetary process is partly a bit of a showcase.” (divisional manager)

The lack of predictability of budgetary outcomes is partly attributable to the significant variations in the composition of the clientele and the subsequent difficulties in linking budgets to activity levels. However, there was also extensive evidence of deviations from initial budgets being accepted or revisions being made in response to actions, or the threat of actions, by influential external actors. For example, one staff specialist argued that:

“Overtime is expensive and sometimes far too easy to use. We have specific overtime budgets, but when these are exceeded it is often blamed on costly patients requiring a lot of monitoring and medication. I can’t judge whether this is correct or who would be able to stop it. There would be war headlines in the newspapers if patients lay dying in wards as a result of inadequate treatment.”

Similarly, one divisional manager explained the recent revision of the capital budget of a department by saying that “we built a new temporary laboratory building as a result of media reports about poor work conditions. This was an investment of 15.5 million kroner.” In addition, it is not uncommon for various professional groups (e.g., physicians) to utilize the media to draw attention to various internal issues which

occasionally results in re-allocations of financial resources in the hospital after the initial budget has been set. The role of the media as a catalyst for internal financial decisions is also reflected by the following quote:

“Even though the financial control of the hospital has improved, attention from the media has great importance for financial decisions within the organization. It doesn’t matter then how rational you try to be in the hospital. ... The effect is that politicians react. Even if additional funding is granted when politicians intervene in control, we know that there will be less money left for other things. In the longer term politicians take money from some operating areas to cover extra funding.” (divisional manager)

Departmental managers appear to play an important role in the process of initiating budgetary revisions and re-allocations, since the need for such adjustments are often raised at lower levels and communicated upwards through the more frequent budgetary dialogue with superiors. To some extent, this seems to be due to the limited decision-making authority conferred on departmental managers. Re-allocations of funds between various budgetary headings (e.g., salaries and equipment-related expenses) during the year generally need to be negotiated with higher levels. However, some divisional managers also expressed concerns regarding the limited budgetary discipline underpinning requests for adjustments during the year, as illustrated by the following quotes:

“We have monthly budget meetings where corrections are discussed. ... Deviations from budgets are often blamed on over-utilization, but I think there is limited willingness to control this in several cases even if adjustments are made. There are no personal consequences if the budget is not met. It’s difficult to remove managers because it’s hard to get someone else to do the job.” (divisional manager)

“It has been common among some departmental heads to approach their superiors when they realize that the budget won’t hold in October-November and ask them whether they should close down their wards or go on operating. The consequence of this is often that operations go on although the [initial] budget is exceeded.” (divisional manager)

At the same time, there was some appreciation of the importance of more frequent, bottom-up communication for the purpose of legitimization, or as a staff specialist within one of the divisions put it:

“In the monthly evaluations we mainly look at deviations from the budget. These must then be analyzed in greater depth. ... In one department, for example, the budget was exceeded as a result of new, internationally recognized medication being utilized. It’s important to find out about such causes since it’s easier to gain acceptance for budgetary deviations in the reporting upwards in the organization if you know where and why deviations occur.”

While the re-negotiations of initial budgets initiated by departmental managers may be interpreted as a means of buffering organizational sub-units from unforeseen events, there were few explicit references to these practices resolving coordination problems in the interviews. However, the chief financial officer implicitly recognized that budgetary revisions function as a substitute for other coordination mechanisms. When asked whether transfer pricing might contribute to improved coordination and resource allocation, he stated that:

“The problem with transfer pricing is that there are such considerable costs associated with it. It’s better to undertake budgetary revisions.”

Given the strained financial situation of many departments, failure to allocate additional resources during the year may also result in more visible manifestations of coordination problems, such as growing waiting lists and cancellations of operations.

Implications

Our initial findings are largely consistent with prior research in the Norwegian health care sector (Pettersen, 1995) revealing systematic discrepancies between initial budgets and accepted outcomes. Regarding the role of budgetary participation in this context, it would appear relevant to distinguish between *participation in budget-setting* and the more *frequent participation initiated by departmental managers* as new developments are identified during the year. While prior research suggests that buffering might occur through managers’ “padding” of budgets and re-allocations across departments in conjunction with budget-setting (Boland and Pondy, 1983; Perez and Robson, 1999; Wildavsky, 1975), our findings indicate that it takes place through the additional adjustments of budgets during the year, partly due to the rather unpredictable (and frequently interdependent) actions of influential constituencies in the organization’s institutional environment (e.g., the media, politicians, professional groups). Such adjustments are in turn closely linked to the more frequent, largely subordinate-initiated budgetary communication compensating for the fact that initial

budgets are often deemed unrealistic. Although we found little evidence of this dimension of participation impinging directly on the coordination of departmental interdependencies, budgetary revisions were apparently regarded as a substitute for other coordination mechanisms by at least one key informant. In contrast, the lack of direct communication between the finance department and operating units at the budget-setting and planning stage seems to exacerbate inter-departmental coordination problems. The review of relevant budgetary literature below lends further support to the distinction between the two dimension of budgetary participation observed here as far as interdepartmental coordination is concerned and allows us to develop testable hypotheses.

Hypothesis Development

The hypotheses developed in this section focus on the influence of the previously identified dimensions of budgetary participation (i.e., participation in budget-setting and the more frequent, subordinate-initiated participation during the year) on interdepartmental coordination problems as perceived by an important group of coordinators, namely departmental managers. We argue that various types of task interdependence between departments and the level of institutional pressure moderate these relationships.

The Moderating Effect of Task Interdependence

From a rationalistic perspective informed by contingency theory, a major cause of coordination problems at the operating level of complex organizations is the patterns of task interdependence between departments. However, while some authors (Brownell, 1982a; Shields and Shields, 1998) suggest that the use of budgetary participation for coordinative purposes is positively related to the complexity of task interdependence, we take a more fine-grained approach in arguing that our two dimensions of budgetary participation are not equally appropriate for coordinating all types of interdependence.

The framework elaborated here is based on Thompson's (1967) classification into pooled, sequential and reciprocal interdependencies. Although concerns regarding the conceptual and methodological problems associated with this classification scheme have been raised in the organizational literature (McCann and Galbraith, 1981; Victor and Blackburn, 1987) and alternative operationalizations of the task interdependence construct have been used in prior management accounting research (see Chenhall and Morris, 1986; Imoisili, 1989; Mia and Goyal, 1991), we propose three reasons for relying on this framework in the present study.

First, despite the functional specialization, several of the organizational sub-units (i.e., departments) under study perform a relatively broad range of tasks (cf. Comstock and Scott, 1977), while there are considerable variations in the ways these are linked to operations in other sub-units. Under such circumstances, it is entirely likely that some sub-units need to manage several types of interdependence and we may expect some

variation in the extent to which individual managers rely on different aspects of budgeting to deal with different types of coordination problems (Macintosh and Daft, 1987). Thompson's classification scheme recognizes that the different types of interdependence may co-exist in varying degrees as far as a particular organizational entity is concerned.² This allows us to decompose the task interdependence construct as a basis for differentiating between reliance on the two dimensions of budgetary participation.

Second, the application of Thompson's scheme enhances the comparability between the present study and previous empirical research into the interrelationships between budgeting and task interdependence (Hirst and Yetton, 1999; Macintosh and Daft, 1987; Shields and Shields, 1998; Williams et al., 1990). The relevance of this argument is underscored by the recent critique of the failure to closely replicate the use of theoretical constructs in much previous management accounting research following a contingency approach (Lindsay, 1995; Otley and Pollanen, in press).

Third, despite criticisms, Thompson's framework is reasonably well-established in organizational theory and has been an important source of inspiration for researchers specifically concerned with devising effective means of coordination (Lorsch and Allen, 1973; Mintzberg, 1979; Van de Ven et al., 1976). By adopting this framework, we hope that the findings of the present study may also contribute to the more general organizational research agenda established through these works, although our approach is more limited in that we consider a much narrower range of coordination mechanisms.

A fundamental assumption underpinning Thompson's framework is that more costly coordination mechanisms are required as the complexity of interdependencies increases. Pooled interdependence is the simplest and least costly from a coordinative perspective as it is characterized by limited workflows across departments and sharing of resources. Each department is essentially self-contained and only shares some common administrative functions (e.g., headquarters) with other departments. The

² This co-existence is implicit in Thompson's (1967, p.59) argument that the three types of interdependence form a Guttman-type scale and that "all organizations have pooled interdependence; more complex organizations also have sequential interdependence, and the most complex have reciprocal interdependence *in addition* (emphasis added) to the other two forms".

primary coordination mechanism relied upon is standardization through rules and procedures to ensure some homogeneity in the execution of tasks across departments (Thompson, 1967). The application of accounting controls is relatively straightforward: accounting-based performance measures are reasonably accurate and comparable across departments due to the lack of differentiation and little interaction between superiors and subordinates is required for managing interdepartmental relations (Hayes, 1977; Kilmann, 1983). Consequently, the role of budgetary participation in resolving inter-departmental coordination problems should be limited. The limited empirical evidence of this is relatively inconclusive. Macintosh and Daft (1987) did not find any significant correlations between the degree of pooled interdependence and the importance of budgets for coordination or departmental managers' influence on the setting of budgetary targets. Williams, et al. (1990) found that effective budgetary behaviour in situations of pooled interdependence was partly characterized by infrequent interactions with superiors but also a certain amount of subordinate manager influence on budgeting plans. Based on these findings, however, Macintosh (1994) argued that subordinate managers tend to have little influence on budget-setting even if budgets are extensively used as benchmarks for comparison under conditions of pooled interdependence. Given the limited interdepartmental coordination needs at hand, it is prudent to advance the following null hypotheses:

H1a₍₀₎ There is no interaction effect between pooled task interdependence and departmental managers' participation in budget-setting on perceived interdepartmental coordination problems.

H1b₍₀₎ There is no interaction effect between pooled task interdependence and the frequency of budgetary participation initiated by departmental managers on perceived interdepartmental coordination problems.

Sequential interdependencies are characterized by serial workflows between relatively specialized units, where the output of one department forms the input of another. Several authors emphasize the role of planning as a primary coordination mechanism for this type of interdependence (e.g., Dermer, 1977; Macintosh, 1994; Mintzberg, 1979; Thompson, 1967). Macintosh and Daft (1987) found that the degree of sequential interdependence was positively correlated with the importance of budgets

for coordination and upper management influence on budgets. They concluded that this was indicative of a pronounced top-down control style with particular emphasis on centralized planning for resolving coordination problems. However, a recent field study (Modell, 1998) suggests that a certain amount of participation in budget-setting by subordinate managers may be required even if a relatively centralized approach to planning and coordination is relied upon for managing sequential interdependencies. The reason for this was that senior management appeared to have difficulties in devising comparable accounting-based performance standards due to the specialization of tasks (cf. Macintosh, 1994) and attempted to place greater emphasis on the budgetary dialogue with subordinate managers as an alternative means of exchanging financial information. Conversely, the initial findings from the present study indicate that lack of interaction between centrally positioned staff specialists and departmental heads contributed to the difficulties in planning and controlling more complex workflows across divisions. While accepting that coordination of sequential interdependencies is based on planning rather than more frequent interactions between superior and subordinate managers, it is reasonable to assume that some participation by subordinate managers in budget-setting is required to support the planning process. Hence the following hypotheses:

H2a The higher the level of sequential task interdependence, the greater the role of departmental managers' participation in budget-setting in reducing perceived interdepartmental coordination problems.

H2b₍₀₎ There is no interaction effect between sequential task interdependence and the frequency of budgetary participation initiated by departmental managers on perceived interdepartmental coordination problems.

Reciprocal interdependencies, finally, are the most complex and costly from a coordinative perspective. Workflows are bi-directional in the sense that there is a mutual exchange of inputs and outputs between departments. The resulting complexity and unpredictability imply that coordination through standardization or planning is not likely to be particularly useful. A greater amount of mutual adjustment through direct and continuous interaction between departments is required for this purpose (Thompson, 1967). Consequently, formal coordination mechanisms, such as

budgeting, are generally de-emphasized (Macintosh, 1994; Mintzberg, 1979; Thompson, 1967). However, it is possible that some aspects of budgetary participation may support the process of mutual adjustment and thus play a valuable complementary role in managing reciprocal interdependencies. Williams, et al. (1990) found that effective budgetary behaviour under conditions of reciprocal interdependence was partly characterized by greater involvement of departmental managers in budgeting, frequent interactions with superiors and reactions to budgetary overruns. This might suggest that the more frequent budgetary participation, initiated by subordinate managers in order to explain deviations from budgetary targets found in the initial phase of this study, is particularly important in this context. It is more doubtful, however, whether participation in budget-setting has any major influence on coordination problems as planning is likely to play a less important role in coordinating reciprocal interdependencies. Some support for this contention can be summoned from Macintosh and Daft (1987), who found that reciprocal task interdependence was negatively correlated with departmental managers' influence on budgetary target setting. The underlying rationale for the importance of more frequent communication between various managerial levels may be that it provides a more rapid means of disseminating information than ex-ante planning (cf. Chapman, 1998) and is thus better fitted to the considerable information-processing requirements associated with managing reciprocal interdependencies (Macintosh and Daft, 1987; Van de Ven et al., 1976). We thus propose the following hypotheses:

H3a₍₀₎ There is no interaction effect between reciprocal task interdependence and departmental managers' participation in budget-setting on perceived interdepartmental coordination problems.

H3b The higher the level of reciprocal task interdependence, the greater the role of frequent budgetary participation, initiated by departmental managers, in reducing perceived interdepartmental coordination problems.

The Moderating Effect of Institutional Pressure

As argued in the introductory section of the paper, budgetary participation may also play a more indirect role in alleviating coordination problems through its buffering function. The rationale for this can be traced to the notion of organizations as loosely

coupled systems (Weick, 1976). To maintain loose couplings between institutional and operating environments, managers may utilize budgetary participation as a means of advocating the needs of their units to superiors as well as controlling and coordinating operating tasks by interacting with subordinates (Covaleski and Dirsmith, 1983). The role of budgetary participation as a buffering mechanism relates to the former advocacy function. Following Wildavsky (1975), the use of budgetary participation as a political advocacy tool largely aims at safeguarding or negotiating for more resources, which may absorb environmental shocks at the organizational sub-unit level. Judging from our initial findings, this buffering function primarily seems to be related to the more frequent budgetary participation initiated by departmental managers, as it provides a forum for legitimizing and negotiating for adjustments of initial budgets, occasionally in response to pressures exerted by influential actors in the organization's institutional environment. Participation in budget-setting plays a less obvious role in this respect, as the effects of such pressures are difficult to predict. This is consistent with Brunsson's (1985) contention that rationalistic approaches to decision-making, often manifested by ex-ante planning techniques, are inappropriate for managing institutional processes and need to be substituted by seemingly "irrational" tactics. Our initial findings show that such "decision irrationality" was occasionally perceived to characterize institutionally induced adjustments of initial budgets (e.g., arbitrary re-allocations of resources).

Although our initial findings provided little evidence of the buffering function inherent in budgetary participation impinging directly on inter-departmental coordination, prior research suggests that we may expect such a relationship to prevail. Institutional theorists generally state the rationale for de-coupling, or buffering, in terms of protecting operations from institutional pressures to facilitate the achievement of operating efficiency, which subsumes successful coordination of departmental interdependencies (Meyer and Rowan, 1977; Powell, 1988).³ While legitimacy-seeking processes vis-à-vis influential constituencies need not be confined

³ The view of successful coordination of departmental interdependencies as an aspect of efficiency rather than the broader notion of organizational effectiveness (or performance) is similar to that of Kilmann (1983), who speaks of coordination problems as a source of misdirected conversion costs impinging negatively on productivity. To avoid the intricacies of elaborating an unequivocal global definition and operationalization of performance at the organizational sub-unit level in highly institutionalized settings, where performance itself tends to be institutionally defined (Meyer and Zucker, 1989; Scott, 1987), we did not attempt to establish any link between this construct and perceived coordination problems. This approach is similar to that adopted by Gupta et al. (1994).

to higher echelons (Gupta et al., 1994; Ruef and Scott, 1998), perceived coordination problems at the sub-unit level can be regarded as indicative of insufficient buffering, since this may imply that managers at lower levels devote considerable energy and resources to deal with institutional pressures at the expense of coordinative efforts. Such an outcome seems plausible as compliance with influential constituencies is a pre-requisite for being judged effective and legitimate and so enhancing long-term survival prospects (Oliver, 1991). Interdepartmental coordination may suffer from being relatively inferior to such priorities, unless appropriate buffering mechanisms are employed. Given the importance of more frequent budgetary participation, initiated by departmental managers, for the purpose of buffering, our institutionally informed argument can thus be condensed into the following hypotheses:

H4_{a(0)} There is no interaction effect between institutional pressure and departmental managers' participation in budget-setting on perceived interdepartmental coordination problems.

H4_b The higher the level of institutional pressure, the greater the role of frequent budgetary participation, initiated by departmental managers, in reducing perceived interdepartmental coordination problems.

The Design of the Survey Study

Sample

A questionnaire was administered to 54 departmental heads within the divisional structure. Respondents were physicians and heads of ancillary departments who had budgetary responsibility. Forty-five questionnaires were returned, and six were excluded from the sample due to incomplete data. A usable sample of 39 responses was used in the analyses, giving a response rate of 72%. The mean age of the respondents was 52. On average, the respondents had been working in the hospital for 15 years and had been in their current position for six years. The mean number of employees in the departments is 76.

The questionnaire was administered in Norwegian. The measures were compiled in English and then translated into Norwegian and back-translated into English by two independent translators to ensure that the content of the questions remained unchanged. Prior to the pilot, the questionnaire was examined by staff in the finance department to ensure that the questions were relevant and to identify any ambiguity in the wording of the questions. Pilot questionnaires were administered to seven doctor-managers in one division of the hospital. The pilot study was undertaken to identify any potential problems respondents would have in completing the questionnaires. No such problems were identified. A comparison of the means of the variables found no significant differences between the responses from the pilot and the main study. The responses from the pilot survey were then included in the final sample. The responses were also tested for late response bias but none was found.⁴ Similarly, no systematic non-response bias from any of the divisions was found.

The independent variables

Budgetary participation. Budgetary participation was measured using the six-item measure developed by Milani (1975). This measure has been widely used in previous research (Shields and Shields, 1998) and was judged appropriate for the present study as it includes a number of items referring specifically to participation in budget-setting and at least one item reflecting the frequency of subordinate-initiated

⁴ T-tests of significance were carried out to determine if the early and late responses were significantly different.

participation. A factor analysis of the six items indicated that there were two dimensions to budgetary participation (See Table 1 for factor loadings). Factor one included four questions while the second factor comprised the single item "How often do you state your requests, opinions and/or suggestions about the budget to your superior without being asked?". The question, "Which category below best describes the reasoning provided by your superior when budget revisions are made?", was removed from the analysis because it did not load cleanly on either factor (factor loadings of 0.605 on factor one and -0.585 on factor two). The first factor appears to capture the departmental manager's participation in budget-setting, while the second factor captures the frequency with which departmental managers initiate budget-related communication with superiors.

While some prior studies using Milani's (1975) measure suggest that budgetary participation is a multi-dimensional construct (Brownell, 1982b, 1982c; Hassel and Cunningham, 1993), the pattern observed here deviates from the factor analyses reported in these studies. More importantly, however, our factor analysis is largely consistent with the two dimensions emerging from our initial findings. Furthermore, Shields and Shields (1998) list a large number of possible dimensions of budgetary participation, suggesting that the loading patterns observed in prior research are by no means exhaustive representations of the budgetary participation construct. The low correlation ($r = 0.21$) between our two factors suggests that the two dimensions might be capturing different elements of budgetary participation and it may be problematic to treat the scales as uni-dimensional. We will therefore examine two separate dimensions in this study. The Cronbach (1951) alpha for the first, four-item, dimension capturing participation in budget-setting is 0.82.

Table 1
Rotated Factor Loadings for Milani Measure

Item	Factor 1	Factor 2	Communality
Extent of involvement in budget setting	0.795	-0.088	0.641
Reasoning provided by superior about budget revisions	0.605	-0.585	0.708
Frequency of giving opinions to superior about the budget without being asked	0.196	0.893	0.836
Degree of influence on final budget	0.836	-0.130	0.716
Degree of importance of input to budget	0.836	0.247	0.760
Frequency of being asked for opinions by the superior when budget is set	<u>0.713</u>	<u>0.240</u>	0.566
Eigenvalues	2.944	1.284	
Explained variance	49.07%	21.40%	70.46%

Task interdependence. Inter-departmental task interdependence was measured using a three-item measure based on Van de Ven et al. (1976) and conforming with Thompson's (1967) work. Respondents were asked to indicate, on a seven-point Likert-type scale, the extent to which three pictorial descriptions of workflows described the movement of work between their department and other departments in the hospital. Similar to Macintosh and Daft (1987), this study explores the extent to which the departments are simultaneously subject to pooled, sequential and reciprocal interdependence.

Institutional pressure. The sources as well as the force of institutional pressure vary greatly between different institutional contexts (Oliver, 1991; Scott, 1987). DiMaggio and Powell (1983:148) argued that an institutional environment "cannot be defined a priori, but must be defined on the basis of empirical investigation". Similar to Gupta et al. (1994), we therefore relied on our qualitative data to identify major sources of institutional pressure that departmental heads would be sensitive to. It was noted earlier how politicians, various professional groups and the media affect the need to adjust initial budgets. In addition to these groups of actors, the interviews revealed that various state officials in the health care sector, groups representing patients and legislation regulating patient- and staff-related conditions might affect the operating situation of departments. Several of these sources also seemed to interact in shaping the institutional environment facing the hospital.

Based on these findings, a seven-item measure was developed for this study. The face

validity of this measure was then assessed in discussions with staff from the finance department. The items used to measure institutional pressure are listed in Appendix A. An exploratory factor analysis showed that the seven items loaded on one factor indicating that the variable is uni-dimensional. The seven items are summed for use in the analysis and the Cronbach (1951) alpha is 0.82.

The dependent variable

Coordination problems. The single item used to measure perceived coordination problems was adapted from Van de Ven and Ferry (1980). Respondents were asked to indicate on a seven-point Likert scale the extent to which they experienced problems in coordinating the work activities in their department with those of other departments in the last three months.

Results of the Survey Study

The descriptive statistics and correlation matrix for all variables are presented in Table 2.

Table 2
Pearson correlation matrix (significance levels)* and descriptive statistics.

Variable	1	2	3	4	5	6
1. Participation in budget-setting	1.00					
2. Frequency of participation initiated by departmental managers	0.21	1.00				
3. Institutional pressure	0.20	0.35*	1.00			
4. Coordination problems	-0.33*	0.22	0.28	1.00		
5. Pooled interdependence	-0.19	-0.19	-0.26	-0.14	1.00	
6. Sequential interdependence	0.29	0.09	0.06	-0.14	0.16	1.00
7. Reciprocal interdependence	0.38*	-0.18	-0.09	0.04	0.00	0.03

* Correlation is significant at the 0.05 level (2-tailed).

Variable	Theoretical range	Min.	Max.	Mean	S.D.
1. Participation in budget-setting	4-28	9	28	19.03	4.94
2. Frequency of participation initiated by departmental managers	1-7	1	7	4.28	1.65
3. Institutional pressure	7-35	7	26	15.05	5.49
4. Coordination problems	1-7	1	7	4.10	1.59
5. Pooled interdependence	1-7	1	7	4.64	1.90
6. Sequential interdependence	1-7	1	7	3.54	1.60
7. Reciprocal interdependence	1-7	1	7	4.49	1.85

The hypotheses were tested using multiple linear regression.⁵ The regression model used to test the two-way interaction hypothesis testing the relationship between budgetary participation and the three types of interdependence on coordination problems was:

$$CP_i = b_0 + b_1BP_{ij} + b_2ID_{ij} + b_3BP_{ij}ID_{ij} + e, \text{ where} \quad (\text{Equation 1})$$

CP_i = perceived coordination problems for respondent i , where $i = 1, \dots, 39$;

BP_{ij} = budgetary participation for respondent i , where $i = 1, \dots, 39$, and $j = 1, 2$,

where 1 = participation in budget-setting; and

2 = frequency of budgetary participation initiated by departmental manager;

ID_{ij} = interdependence for respondent i , where $i = 1, \dots, 39$, and $j = 1, \dots, 3$,

where 1 = pooled interdependence;

2 = sequential interdependence; and

3 = reciprocal interdependence.

The two-way interaction between budgetary participation and institutional pressures on coordination problems was assessed using a regression model of the following form:

$$CP_i = b_0 + b_1BP_{ij} + b_2IP_i + b_3BP_{ij}IP_i + e, \text{ where} \quad (\text{Equation 2})$$

CP_i = perceived coordination problems for respondent i , where $i = 1, \dots, 39$;

BP_{ij} = budgetary participation for respondent i , where $i = 1, \dots, 39$, and $j = 1, 2$.

where 1 = participation in budget-setting; and

2 = frequency of budgetary participation initiated by departmental manager;

IP_i = institutional pressures for respondent i , where $i = 1, \dots, 39$.

⁵ To overcome any potential problems with multicollinearity, the independent variables were centred by subtracting the mean value of the independent variables from the original score (Dunlap and Kemery, 1987).

The hypotheses are stated in both the null form and the alternate form, depending on the expected relationships. As form hypotheses are used in this study, the two-way interaction, b_3 is tested for statistical significance (Hartmann and Moers, 1999), while no attempt to interpret the main effects is made.⁶ Negative coefficient signs for the interaction term are indicative of reduced coordination problems.

Hypotheses 1a₍₀₎ and 1b₍₀₎ are tested by determining whether b_3 is significantly different from zero. The regression coefficients in Table 3 indicate that the neither hypotheses can be rejected because b_3 is not significant for the interactions between pooled interdependence and participation in budget-setting ($t = -0.68$, $p = 0.500$) and the frequency of budgetary participation initiated by departmental managers ($t = -0.265$, $p = 0.793$). These findings are as expected as budgetary participation does not appear to play a coordinating role irrespective of the level of pooled interdependence.

Table 3
Results of regression of coordination problems on participation in budget-setting and pooled interdependence.

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.073	0.247	16.497	0.000
Budgetary participation (P)	b ₁	-0.123	0.051	-2.388	0.022
Pooled interdependence (PID)	b ₂	-0.170	0.132	-1.292	0.205
P x PID	b ₃	-0.017	0.026	-0.681	0.500

$R^2 = 0.158$, Adjusted $R^2 = 0.085$, $F_{3,35} = 2.181$, $p = 0.108$

Results of regression of coordination problems on the frequency of budgetary participation initiated by departmental managers and pooled interdependence.

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.089	0.261	15.647	0.000
Budgetary participation (P)	b ₁	0.206	0.167	1.231	0.226
Pooled interdependence (PID)	b ₂	-0.086	0.140	-0.617	0.541
P x PID	b ₃	-0.023	0.087	-0.265	0.793

$R^2 = 0.059$, Adjusted $R^2 = -0.021$, $F_{3,35} = 0.738$, $p = 0.537$

Hypothesis 2a stated that participation in budget-setting is associated with lower coordination problems the higher the level of sequential interdependence. The results of the analysis in Table 4 indicate that hypothesis 2a is supported ($t = -2.78$, $p =$

⁶ The hypotheses assume a monotonic form and are not concerned with the strength of the interaction. According to Hartmann and Moers (1999), this renders additional tests, based on the partial derivate of the regression equations or sub-group correlations, redundant.

0.009). On the other hand, hypothesis 2b₍₀₎ states that the more frequent budgetary participation initiated by departmental managers will not play a coordinating role when there is sequential interdependence. As expected, hypothesis 2b₍₀₎ cannot be rejected ($t = -1.01$, $p = 0.318$).

Table 4
Results of regression of coordination problems on participation in budget-setting and sequential interdependence.

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.268	0.234	18.245	0.000
Budgetary participation (P)	b ₁	-0.122	0.049	-2.494	0.017
Sequential interdependence (SID)	b ₂	0.013	0.151	0.089	0.930
P x SID	b ₃	-0.073	0.027	-2.778	0.009

$R^2 = 0.269$, Adjusted $R^2 = 0.207$, $F_{3,35} = 4.298$, $p = 0.011$

Results of regression of coordination problems on the frequency of budgetary participation initiated by departmental managers and sequential interdependence.

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.125	0.252	16.354	0.000
Budgetary participation (P)	b ₁	0.202	0.156	1.293	0.204
Sequential interdependence (SID)	b ₂	-0.142	0.160	-0.891	0.379
P x SID	b ₃	-0.100	0.099	-1.012	0.318

$R^2 = 0.099$, Adjusted $R^2 = 0.022$, $F_{3,35} = 1.283$, $p = 0.296$

The results for hypotheses 3a₍₀₎ and 3b are in Table 5. The analyses indicate that participation in budget-setting in reciprocal interdependence situations is not associated with reduced coordination problems ($t = -1.54$, $p = 0.133$). Hypothesis 3b proposed that the more frequent budgetary participation initiated by departmental managers is associated with reduced coordination problems the higher the level of reciprocal interdependence. Although the sign of the coefficient of the interaction term is in the expected direction, it is only significant at the 10% level ($t = -1.72$, $p = 0.095$). Furthermore, the overall significance of the regression model fails to meet conventional levels of acceptance ($F = 1.706$, $p = 0.184$). Hence, hypothesis 3b is not supported.

Table 5**Results of regression of coordination problems on participation in budget-setting and reciprocal interdependence.**

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.236	0.253	16.726	0.000
Budgetary participation (P)	b ₁	-0.130	0.053	-2.472	0.018
Reciprocal interdependence (RID)	b ₂	0.141	0.142	0.994	0.327
P x RID	b ₃	-0.039	0.025	-1.537	0.133

$R^2 = 0.191$, Adjusted $R^2 = 0.122$, $F_{3,35} = 2.756$, $p = 0.057$

Results of regression of coordination problems on the frequency of budgetary participation initiated by departmental managers and reciprocal interdependence

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.020	0.252	15.970	0.000
Budgetary participation (P)	b ₁	0.209	0.154	1.354	0.184
Reciprocal interdependence (RID)	b ₂	0.066	0.138	0.475	0.637
P x RID	b ₃	-0.150	0.087	-1.715	0.095

$R^2 = 0.128$, Adjusted $R^2 = 0.053$, $F_{3,35} = 1.706$, $p = 0.184$

Lastly, hypothesis 4a₍₀₎ stated that there is no interaction effect between institutional pressure and participation in budget-setting on perceived coordination problems. The results in Table 6 indicate that hypothesis 4a₍₀₎ cannot be rejected ($t = -1.15$, $p = 0.258$). Hypothesis 4b states that the interaction between the frequency of budgetary participation initiated by departmental managers and institutional pressures is associated with reduced coordination problems. This hypothesis is supported ($t = -2.10$, $p = 0.043$). The higher the level of institutional pressure and the more frequently departmental managers initiate budgetary participation, the lower the perceived coordination problems.

Table 6**Results of regression of coordination problems on participation in budget-setting and institutional pressures**

Variable	Coefficient	Estimate	Std error	t	P (2-tailed)
Intercept	b ₀	4.168	0.235	17.721	0.000
Budgetary participation (P)	b ₁	0.108	0.043	2.504	0.017
Institutional pressures (IP)	b ₂	-0.135	0.048	-2.805	0.008
P x IP	b ₃	-0.012	0.011	-1.150	0.258

$R^2 = 0.256$, Adjusted $R^2 = 0.192$, $F_{3,35} = 4.011$, $p = 0.015$

Results of regression of coordination problems on the frequency of budgetary participation initiated by departmental managers and institutional pressures

Variable	Coefficient	Estimate	Std error	t	p (2-tailed)
Intercept	b ₀	4.287	0.253	16.947	0.000
Budgetary participation (P)	b ₁	0.093	0.156	0.598	0.554
Institutional pressures (IP)	b ₂	0.070	0.047	1.505	0.141
P x IP	b ₃	-0.060	0.029	-2.103	0.043

$R^2 = 0.196$, Adjusted $R^2 = 0.127$, $F_{3,35} = 2.843$, $p = 0.052$

Concluding Discussion

This study examined two dimensions of budgetary participation which were identified as relevant for explaining its role in resolving interdepartmental coordination problems, namely participation in budget-setting and the more frequent participation initiated by departmental managers. Drawing on a rationalistic perspective focusing on the instrumental, or technical, function of budgets, participation in budget-setting appears to be increasingly useful for reducing perceived coordination problems at the departmental level the higher the level of sequential interdependence. However, the appropriateness of this dimension of participation for reducing perceived coordination problems does not appear to depend on the level of either pooled or reciprocal interdependence. Neither does more frequent budgetary participation, initiated by departmental managers, interact with either pooled or sequential interdependence in affecting perceived coordination problems. These findings are all consistent with the hypotheses developed. While the interaction effect between more frequent budgetary participation, initiated by departmental managers, and reciprocal interdependence on perceived coordination problems was in the expected (negative) direction and marginally significant ($p < 0.10$), we were unable to accept the hypothesis pertaining to this relationship due to the insignificant regression model. However, given the exploratory nature of this study and the small sample size it may still be fruitful to examine this relationship further in future research, perhaps by using an improved, multi-item measure capturing the nature of more frequent, subordinate-initiated, budgetary participation.

In contrast to some recent research findings (Shields and Shields, 1998), a possible interpretation of these results is that budgetary participation, in particular the more frequent participation initiated by departmental managers, plays a relatively limited coordinating role. However, such an assertion implies a risk of de-emphasizing the insights derived from institutional theory, which provides a basis for explicating the more indirect influence of budgeting on coordination problems through its role in establishing and maintaining loose couplings. Taken together, our initial interview findings and the survey results indicate that the more frequent budgetary participation initiated by departmental managers may fill an important buffering function in that it often forms a forum for negotiating for adjustments of initial budgets during the year

and that it reduces perceived coordination problems in the face of increasing institutional pressures. Our findings thus support the argument that institutional theory and more rationalistic approaches provide complementary explanations of the coordinating role of budgetary participation.

The validity of our institutionally informed argument may hinge on that some slack is built into the budget through the more frequent budgetary participation initiated by departmental managers (see Hirst and Yetton, [1999] for a similar discussion regarding budgetary goals). A notable limitation in this respect is that we did not undertake any formal analysis of the interrelationship between budgetary slack and coordination problems. This was partly due to the fact that available measures of budgetary slack (Dunk, 1993; Onsi, 1973) emanate from research in for-profit organizations and were not judged applicable to the present research setting. While further investigation of whether various constituencies (e.g., politicians, tax-payers) are prepared to accept slack to achieve efficient coordination in public sector organizations and how this interacts with budgeting is required, our research suggests that some conceptual and methodological issues must first be resolved.

The conception of slack in the budgetary literature pivots around the achievability of pre-set budgetary targets (see Dunk and Nouri, 1998). This is problematic where budgetary targets systematically lack realism or specificity, while respondents may expect initial budgets to be revised if deemed unachievable. Existing measures of budgetary slack might then under-represent the amount of slack created ex-post. The operationalization of budgetary slack is also complicated by the diverse justifications for adjusting initial budgets encountered in the initial phase of the study. While adjustments may be interpreted as a means of creating slack to the extent that they emanate from conscious gaming among departmental managers, there were also examples of apparently more legitimate explanations of deviations, such as costlier patients and medication than anticipated. The adjustments undertaken may thus, in part, be seen as a (crude) form of activity-based flexible budgeting, but this needs to be clearly distinguished from adjustments resulting from actual biasing. Furthermore, the most recent and direct measure of budgetary slack (Dunk, 1993) makes important references to productivity and efficiency which are typically ambiguous concepts in

the public sector (Hofstede, 1981) and may give rise to a variety of connotations among respondents.

An additional contribution of this study, besides the more substantive insights obtained, is that it illustrates the merits of methodological triangulation in budgetary research (Birnberg et al., 1990). Combination of quantitative, survey-based methods with a certain element of qualitative analysis may be necessary when examining the interrelationship between institutional environments and organizational controls, since the properties of the former tend to be relatively specific to particular research settings (DiMaggio and Powell, 1983). Institutional theorists have frequently been imprecise regarding the sources of institutional pressure (Scott, 1987) and have only recently attempted to operationalize this construct in large-scale, cross-sectional studies (see Ruef and Scott, 1998). To the best of our knowledge, only one survey study of organizational control practices prior to this one (Gupta et al. 1994) has relied on close inspection of qualitative data as a means of identifying major forces in the institutional environment of organizations. This closeness to the research object may, on the other hand, necessitate some trade-off with more rigorous statistical sampling procedures: in our case manifested by the limitation of a small, non-random sample from only one organization.

Our combination of qualitative and quantitative methods may also provide valuable inputs to the extant literature using Milani's (1975) multi-item measure of budgetary participation. It is doubtful whether the significance of distinguishing between participation in budget-setting and more frequent participation, initiated by departmental managers would have become clear to us without cross-validating the statistical analyses with qualitative data. Although Milani's (1975) measure has dominated the literature on budgetary participation, prior studies have not recognized this distinction. While further development of the measure of the frequency of participation initiated by subordinate managers is required, the two dimensions identified might be useful for examining the more general role of budgetary participation in managing uncertainty and may thus contribute to contingency research on budgeting. Given that participation in budget-setting is closely linked to the notion of pre-planning, while the more frequent participation initiated by departmental managers may support more flexible use of accounting information in

response to unpredicted events, future research examining these dimensions may provide new evidence in line with the critique of traditional contingency arguments elaborated by Chapman (1998). Chapman (1998) found control based on pre-planning to be most appropriate in situations of relative certainty, while increasing uncertainty enhanced the need for more flexible and interactive use of accounting information.

Future research into the coordinating role of budgetary participation might benefit from also considering the horizontal dimension of participation; that is, the budgetary dialogue among subordinate managers (Shields and Shields, 1998). Milani's (1975) measure only captures vertical participation, or the relationship between superior and subordinate managers. However, Birnberg et al. (1990) speculated that horizontal budgetary participation might primarily be relevant to study in emerging, network-based modes of organizing where the focus is on inter- rather than intra-organizational interdependencies and coordination. In more traditional, hierarchically structured organizations operating in highly institutionalized environments, vertical budgetary participation might still be of great significance, not least since it seems to offer an opportunity to manage the tensions between institutional pressures and internal operating requirements (cf. Covaleski and Dirsmith, 1983; Wildavsky, 1975). Nonetheless, our findings regarding the influence of task interdependence could have been enriched by also considering horizontal participation. In particular, this might have provided greater insights into the coordination of reciprocal interdependencies given the value of continuous, horizontal communication in the process of mutual adjustment. Future research into these issues is required.

Appendix A

Measure of institutional pressure

Respondents were asked to indicate on a five-point scale the extent to which the operating situation of their department was directly affected by actions associated with the following over the past two years:

- (i) Detailed directives from politicians or officials at higher levels of the county council (above the hospital level);
- (ii) Detailed directives from state officials (e.g., the county doctor or health director);
- (iii) Attention from the media;
- (iv) Pressure from groups representing staff (e.g., trade unions, professional associations);
- (v) Pressure from groups representing patients;
- (vi) Legislation regulating patient-related conditions; and
- (vii) Legislation regulating staff-related conditions.

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