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# The Impact of Management Control on Employee Motivation and Performance in the Public Sector

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**ABSTRACT** This study examines the relations among various types of management control, intrinsic and extrinsic motivation, and performance in the public sector. We draw on motivation crowding theory and self-determination theory to argue that four different types of management control (i.e. personnel, cultural, action, and results control) are likely to have an influence on intrinsic motivation and/or extrinsic motivation. We test a structural equation model using survey data from 105 similar departments in the public sector. Our findings indicate that the use of personnel and cultural controls is positively associated with employees' intrinsic motivation, and that the use of results controls is positively associated with employees' extrinsic motivation. Moreover, both intrinsic motivation and extrinsic motivation are positively associated with performance. Taken together, these findings support the idea advocated by New Public Management proponents that results control can enhance employee motivation and performance in the public sector. However, the findings also highlight an essential nuance; in addition to results control, personnel and cultural controls are also important, as they enhance intrinsic motivation and performance. This implies that a sole focus on results control is too narrow and can lead to suboptimal levels of employee motivation and performance in the public sector.

**Keywords:** Management Control; Motivation; Object-of-Control; Performance

*JEL classifications:* H83; M10; M12; M40; M50

## 1. Introduction

Both in the private and the public sector, organizations use a mix of different types of management control (MC) to induce desired employee behavior. Two recent studies have been quite valuable in illustrating how MC can enhance motivation by focusing on one specific control element, such as budgeting (de Baerdemaeker & Bruggeman, 2015), or operational performance measurement (Groen, Wouters, & Wilderom, 2017). In this paper, we extend this stream of research by investigating multiple types of MC and their relation with employee motivation and performance. Organizations can use many different types of control to motivate their employees. A comprehensive way to classify controls is according to the object of control. In the control

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framework by Merchant and van der Stede (2007), four types of control are distinguished depending on whether the control is exercised over personnel, culture, actions, or results. Personnel controls include training of personnel and hiring the right people, while cultural controls work through shared norms and values of employees. Action controls specify and monitor the actions that need to be executed, whereas results controls focus on examining the desired and achieved results. Although it is clear that MC serves a crucial role in motivating employees to perform well, relatively little is known about how employees respond to these specific types of control. We aim to address this void by examining the effects of these four types of control on intrinsic and extrinsic employee motivation and, in turn, the effects of these two types of motivation on performance.

We focus on employees in the public sector, which we consider to be a critical feature of this study. In the public sector, the question how to balance different types of control is the subject of considerable debate. New Public Management (NPM) promotes management inspired by the private sector and believes in the added value of business-like management and control practices (ter Bogt, van Helden, & van der Kolk, 2015). A cornerstone of NPM is its emphasis on setting standards and measuring performance (Hood, 1995). Explicit pre-set and measurable targets are set in order to motivate public sector employees to increase their efforts and to perform well. Various scholars have, however, indicated that the private sector is different from the public sector as it has more complex objectives and more intricate accountabilities (Frey, Homberg, & Osterloh, 2013). A narrow focus on results control would thus be problematic for at least two reasons. First, due to the ambiguity in the objectives, an important condition for results control cannot be met easily as it is hard if not impossible to accurately specify which results should be achieved in the area's being controlled (Speklé & Verbeeten, 2014). It follows that a strong emphasis on results control is likely to have dysfunctional effects, because this type of control may encourage employees to focus on the predefined targets rather than the organizational objectives. Second, MC implies more than focusing on an employee's results, and other types of control can sometimes be equally or even more important (cf. van der Stede, 2011). This is particularly relevant for the public sector, where the motivating potential of personnel and cultural control may be crucial. These types of control can create a work environment that fosters the intrinsic motivation of employees. This is important, since public sector employees seem to be attracted to the sector by the intrinsic rather than the extrinsic rewards that the sector offers (see, for example, Georgellis, Iossa, & Tabvuma, 2011; Perry, Hondeghem, & Recascino Wise, 2010). In addition, intrinsic motivation is more self-sustaining and may come with less dysfunctional behavior than extrinsic motivation, particularly in settings where results control is less effective due to difficulties with measuring performance on the relevant dimensions.

We draw on motivation crowding theory and self-determination theory (SDT) to hypothesize relations among MC types, employee motivation, and performance. These psychological theories can be useful in explaining the effects of the use of MC practices on individuals' motivation (Hall, 2016), and have been instrumental in enhancing the understanding of MC and its effects on individuals (see e.g. de Baerdemaeker & Bruggeman, 2015; Groen, Wouters, & Wilderom, 2012; Groen et al., 2017). According to these theories, an important feature of the work environment is the extent to which it is perceived as supportive and/or controlling. Related to this, we hypothesize that personnel and cultural control have a positive effect on intrinsic motivation, since these types of control increase the likelihood that the work environment is perceived as supportive. In contrast, we hypothesize that action and results control have a negative effect on intrinsic motivation, because these types of control are primarily perceived as controlling and may therefore crowd out intrinsic motivation. In addition, we hypothesize that action and results control have a positive effect on extrinsic motivation, based on the clear direction provided by action controls and the link with targets to be achieved provided by results control. Motivation is

often not considered a goal in itself in work contexts, but usually it is instrumental in achieving high levels of performance. Therefore, we expect that both intrinsic and extrinsic motivation will serve to increase performance.

We use responses from a survey of employees working in 105 public administration departments in the Netherlands to test our hypotheses. We find support for the hypotheses stating that the uses of personnel and cultural controls are positively associated with intrinsic motivation. This finding implies that the intrinsic motivation of employees can be enhanced when these two types of control are used, which is an intriguing finding since intrinsic motivation is considered to be an important type of motivation for employee well-being and performance, and is usually not seen as a type of motivation that can easily be activated. We also find support for the hypothesis stating that the use of results controls is positively associated with extrinsic motivation, while we do not find a negative association with intrinsic motivation. This implies that the positive relation between results control and extrinsic motivation also holds in the public sector, while results control does not crowd out intrinsic motivation in this context. Moreover, we find that both intrinsic motivation and extrinsic motivation are positively associated with departmental performance, and our data also suggest that action controls are not significantly associated with either intrinsic or extrinsic motivation while they do have a strong and direct positive relation with departmental performance.

This paper makes at least two contributions to the literature. First, we contribute to the debate about the role and effects of NPM-inspired results controls in the public sector. Our findings show that results controls do not have the hypothesized negative effect on intrinsic motivation, while they do positively relate to extrinsic motivation. This study thus supports the NPM assertion that results controls can positively relate to performance, via the enhancement of extrinsic motivation of employees. Theoretically, this finding suggests that the results controls in this public sector setting were perceived as less controlling, implying that the strength (or even presence) of the ‘crowding-out effect’ is context dependent, which is a contribution to motivation crowding theory (Deci, Koestner, & Ryan, 1999, p. 659). Second, our study adds to the NPM literature by demonstrating that personnel and cultural controls have an important role in sparking the intrinsic motivation of public sector employees. While the literature has paid much attention to the relation between results controls and performance, we theoretically argue and empirically demonstrate that personnel and cultural controls are also of great significance since they relate to a different type of motivation: intrinsic motivation. We interpret this finding as a confirmation of our expectation that personnel and cultural controls have an important role in creating an environment that supports the fulfillment of three key needs, put forward by SDT: autonomy, competence and relatedness (Ryan & Deci, 2000b). By using and extending SDT, this paper sheds light on the relations between MC, motivation and performance, addressing calls from prior literature (cf. Birnberg, Luft, & Shields, 2007; Hall, 2016; Kunz & Linder, 2012).

In the next section, we describe the Dutch public sector context of the study, present the theoretical background and develop the hypotheses. In section three we convey our research methods and section four presents our findings. Section five discusses our findings in the light of the extant literature and presents our conclusions.

## **2. Theory Development**

### *2.1. Management Control in the Dutch Public Sector*

The setting of our study is the public sector in the Netherlands. Like in many other countries, public sector organizations in the Netherlands have introduced several MC-related changes since

about 1985 (Hood, 1995; Pollitt & Bouckaert, 2011). Internationally, these changes are labeled the ‘NPM movement’, and in the Netherlands these changes were to a large extent connected to the ‘Public Management Initiative’ (PMI) – a program of changes initiated in the 1990s with large consequences for the accounting and control systems used in the public sector (van Helden, 1998). PMI’s formal objectives were rather wide-ranging, but in practice its main aims were to make decision-making more transparent and effective, to ‘rationalize’ day-to-day management and to increase economic efficiency. PMI, just like NPM, implied that government organizations started to use output-oriented, ‘business-like’ management styles (van Helden & Jansen, 2003). The introduction of output budgets was one of the major changes initiated by PMI. These outputs budgets signaled a shift from the traditional emphasis on input controls and procedures to forms of control in which the outputs were more important. Although results related to financial performance are probably less important in the public sector than in the private sector, and although there is less or no market competition in the public sector, in the longer term performance can also be important for public sector organizations. Williamson (1981), for example, underlined the importance of efficiency and performance for the survival of public sector organizations; a consistent underperformance of such organizations could even endanger their survival in the long run. This may have been an underlying reason for PMI’s introduction of *output* budgets, which increased the result-orientedness of public sector organizations such as municipalities.

Alongside PMI, municipalities (and other public sector organizations) started to introduce a range of management changes, which intended to create a more business-like atmosphere and a further increase in result-orientedness, efficiency and effectiveness (ter Bogt, 2008). With respect to human resources management, for example, more structured forms of job appraisal interviews were introduced, in which an employee’s performance, but also her or his competences and ‘attitude’ would be discussed. Further changes in budgeting systems have been mandated by central government in the early 2000s, such as the use of *outcome* budgets. Such changes implied in principle a further focus on performance and results, i.e. the effects of municipal policy. Although both output and outcome budgets have been criticized, for example because performance and effects are difficult to measure (cf. Diefenbach, 2009), they are still used. Several recent studies showed that NPM-inspired types of MC, including performance measurement (van der Kolk, ter Bogt, & van Veen-Dirks, 2015) and a stronger link between performance evaluation and salary increases (cf. Humphrey & Miller, 2012), continue to be used in the public sector.

An assumption of the NPM literature is that the use of business-like controls, such as results controls, leads to higher organizational performance (Hood, 1995). However, we do not know yet whether this is indeed the case, and, if so, which mechanisms underlie this supposed increase in performance. Therefore, we will investigate this assumption while paying specific attention to the possible role of employee motivation. We mobilize motivation crowding theory and SDT to inform our hypotheses regarding the effects of different types of control on motivation and performance.

## 2.2. Management Control and Motivation

The focal point of MC is the individual, i.e. motivating an individual to perform well. Correspondingly, the focus of our research is on these individuals, and more specifically on the effect that different types of MC in a public sector organization can have on an individual’s motivation. Scholars proposed several taxonomies for classifying MC elements, relying on different criteria. For instance, Merchant and van der Stede’s (2007) control framework focuses on the objects to which MC is directed to classify MC elements, and Simons (1995) levers-of-control framework particularly examines how ‘positive’ and ‘negative’ MC elements can be used together to create ‘dynamic tensions’. Although the levers-of-control framework has received considerable

attention in the extant literature (see e.g. Kruijs, Speklé, & Widener, 2016; Widener, 2007), the control framework by Merchant and van der Stede (2007) – although included in one of the most influential MC textbooks (Strauss & Zecher, 2013) – has been mobilized by a surprisingly small amount of studies.

An important strength of the control framework by Merchant and van der Stede (2007) lies in its distinctions between four different ‘types’ of MC elements on the basis of the objects they aim to control, because these types provide a conceptually clear and consistent taxonomy for studying an organization’s MC elements. The organizational aspects to which the control framework relates (personnel, culture, actions, and results) can be relatively clearly distinguished and recognized. This makes the framework, at least in principle, relatively straightforward to apply in a cross-sectional analysis of MC in a large number of organizations. In addition, the framework presents the different types of MC elements in a ‘neutral’ way, i.e. without an explicit connotation beforehand of them being a ‘positive’ or a ‘negative’ form of control. This more ‘neutral’ presentation makes it possible to ask respondents about the MC elements used in their organization, without having to distinguish between ‘positive’ and ‘negative’ controls or having to make explicit presumptions on this.

Although the relation between ‘results control’ and motivation was occasionally discussed in studies focusing on performance measurement (e.g. Franco-Santos, Lucianetti, & Bourne, 2012; Frey et al., 2013), the other types of control received less attention in the MC literature. An exception to this is a paper by Widener (2004), in which the relations between attributes of strategic human capital and ‘personnel controls’ and ‘results controls’ were scrutinized. In the current study, we are interested in the effects of NPM’s emphasis on results controls as well as in the consequences of the use of other types of control that are important in public sector organizations. Against this background, we examine the relations between different types of MC elements (personnel, cultural, action, and results controls) and different types of employee motivation. In order to do so, we will draw on psychology theory, which has the potential to theoretically inform studies that examine MC and motivation (Birnberg et al., 2007; Hall, 2016).

MC elements are used to motivate employees to perform well. Motivation refers to being ‘moved to do something’ (Ryan & Deci, 2000a, p. 54), and researchers agree that not only the ‘level’ of motivation may vary per person, but also the direction or ‘orientation’ of the motivation may differ (Kunz & Pfaff, 2002). Someone’s motivation can for instance be directed at oneself or at others, and some authors even talk about specific motivations for activities, such as work (Gagné et al., 2010) or sports (Pelletier et al., 1995). The most studied distinction in the motivation literature, however, is between intrinsic and extrinsic motivation. Gagné and Deci (2005) define intrinsic and extrinsic motivation as follows:

Intrinsic motivation involves people doing an activity because they find it interesting and derive spontaneous satisfaction from the activity itself. Extrinsic motivation, in contrast, requires an instrumentality between the activity and some separable consequences such as tangible or verbal rewards, so satisfaction comes not from the activity itself but rather from the extrinsic consequences to which the activity leads. (Gagné & Deci, 2005, p. 331)

Although some authors challenged the concept of intrinsic motivation (see the overview by Kunz & Pfaff, 2002), prior studies using the intrinsic/extrinsic distinction have come up with compelling evidence regarding its relevance, drivers and effects, using robust empirical and conceptual methods (see the overviews by Birnberg et al., 2007; Cerasoli, Nicklin, & Ford, 2014; Deci et al., 1999; Luft & Shields, 2003). Furthermore, motivation crowding theory, which is a theory that can explain relations between different types of MC and motivation, also draws on this distinction (see e.g. Deci et al., 1999). Studies adopting this well-established dichotomy continue to make an ‘important theoretical and empirical contribution’ to the extant literature, also in the field of psychology research (Cerasoli et al., 2014, p. 1001). Kuvaas et al. (2017), for instance, study both intrinsic and extrinsic motivation and conclude that intrinsic and extrinsic motivation



have different effects on employee outcomes and hence should be addressed as separate motives, as we do in our paper. In addition, we mobilize SDT to inform relationships between certain types of MC and motivation that are not covered by motivation crowding theory.<sup>1</sup> One of the strengths of SDT is the structure it provides when theorizing about the effects of MC on employee motivation. In the current paper, we will use the intrinsic/extrinsic motivation distinction and we will draw on both motivation crowding theory and SDT to develop our hypotheses.

### 2.3. Motivation Crowding Theory and Self-determination Theory

If extrinsic and intrinsic motivation would be independent and additive, the two types of motivation could be compared based on their relative advantages and disadvantages (Osterloh & Frey, 2000). However, the relationship between these two types of motivation is much more complex. Motivation crowding theory states that the use of extrinsic rewards or external control may undermine intrinsic motivation; sometimes referred to as the ‘crowding-out effect’ (Deci et al., 1999). The term ‘motivation crowding out’ originates from the economic literature where it is used to describe an undermining effect of rewards on behavior levels. This effect is opposite to the effect of price on supply which should be expected based on standard economic theory: a higher price (compensation) induces a higher supply (of work) (Frey, 2012). The crowding out effect refers to the idea that providing incentives on a task reduces the intrinsic motivation for the task. In this study we respond to a call by Cerasoli et al. (2014), who argue that it is important to conduct research on the crowding-out effect in a field setting, because most research supporting the undermining argument is derived from tasks that are intrinsically enjoyable from the outset. The authors find it important ‘to expand this line of research because many tasks in field settings, such as organizations and schools, are not necessarily ‘fun’ from the outset’ (Cerasoli et al., 2014, p. 982).

Against this background, it is important to consider that SDT is often applied to work contexts. SDT proposes that the satisfaction of three basic human needs – competence, autonomy and relatedness – is of particular importance for facilitating intrinsic motivation (Ryan & Deci, 2000b). SDT was developed as a more specific theory to theorize about motivation (in the workplace), following more general findings from cognitive evaluation theory (CET), which were often derived from experiments in laboratory settings (Gagné & Deci, 2005). SDT stands in a line of psychological theories that assume that every person has basic needs, which can be, for instance, physiological (eating, drinking), social (relations with others) or psychological (self-esteem) (see for instance the seminal work by Maslow, 1943). Central to SDT are the needs for competence (e.g. possibilities for self-development and actualization), autonomy (e.g. the freedom to make an independent choice) and relatedness (e.g. by feeling related to a group). These three needs are described by Gagné and Deci (2005) as

universal necessities, as the nutriments that are essential for optimal human development and integrity [...] [T]he needs for competence, autonomy, and relatedness are considered important for all individuals, so SDT research focuses not on the consequences of the strength of those needs for different individuals, but rather on the consequences of the extent to which individuals are able to satisfy the needs within social environments. (Gagné & Deci, 2005, p. 337)

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<sup>1</sup>SDT makes further distinctions within the categories of extrinsic and intrinsic motivation on the basis of the degree to which motivation is autonomous versus controlled; extrinsic motivation is divided into ‘external regulation’ and ‘introjected regulation’, while intrinsic motivation is divided in ‘identified regulation’ and ‘integrated regulation’ (Gagné & Deci, 2005). Furthermore, other studies also further split intrinsic motivation in ‘enjoyment-based’ and ‘obligation-based’ intrinsic motivation (cf. Frey et al., 2013). In our paper the focus is not on such sub dimensions of intrinsic and extrinsic motivation, but on the relations between different types of MC and intrinsic/extrinsic motivation.



SDT enables studying the extent to which organizational contexts facilitate or hinder the enhancement of employees' intrinsic motivation, and the theory is also used in the field of MC to theorize about roles of motivation. For instance, de Baerdemaeker and Bruggeman (2015) use SDT to theorize about the role of motivation when studying the effect of managerial participation on the creation of budgetary slack. Further, Groen et al. (2017) employed SDT in a survey study. They hypothesize an effect of subordinate involvement in the design of performance measures on the quality and use of these metrics. In the following section we use motivation crowding theory and the SDT-lens to explore the relation between MC and motivation in the public sector.

#### *2.4. MC and Motivation Hypotheses*

Motivation crowding theory includes the idea that an external intervention or extrinsic reward can be perceived as controlling or undermining autonomy (Frey & Jegen, 2001), which is consistent with the view expressed in SDT that fulfilling the need for autonomy is important for intrinsic motivation. By nature, MC comprises this controlling aspect as it involves an external intervention and strengthens perceived external control and the feeling of being pressured from the outside. Motivation crowding theory considers this perception of being controlled as a mechanism that leads to motivation crowding out (Frey & Jegen, 2001). It is worth noting, however, that motivation crowding theory also admits the existence of a crowding-in effect of external control if the individuals concerned perceive it as supportive (Frey, 2012). In a similar vein, but more broadly in scope, SDT claims that intrinsic motivation can be fostered through a need-supportive environment. Since the various types of MC may sustain or hinder the fulfillment of the three basic psychological needs (the need for autonomy, the need for competence, and the need for relatedness), they may either contribute to or get in the way of a need-supportive environment. In a public sector context, intrinsic motivation seems to be particularly relevant, given that employees seem to be attracted to the sector by the intrinsic rather than the extrinsic rewards (Georgellis et al., 2011; Perry et al., 2010). We expect that both personnel and cultural controls play an important role in fostering intrinsic motivation.

Personnel controls focus on making sure that the employees are capable and well-equipped to do their jobs, and manage their own tasks, i.e. 'self-management' (Merchant & van der Stede, 2007). Some examples of personnel controls are educational programs offered to public sector employees, and the selection processes for such employees. In other words, personnel controls are aimed at enhancing the capabilities and resources in such a way that employees can better perform their jobs. From an SDT point of view, personnel controls appeal especially to the needs of competence and autonomy. Training may evoke 'feelings of competence' by teaching employees how to 'master' their jobs. In addition, a 'sense of autonomy' may be enhanced when an organization emphasizes personnel controls. Since competence and autonomy 'catalyze' higher levels of intrinsic motivation at the employee level (Ryan & Deci, 2000a, p. 58), it is likely that more use of personnel controls enhances the intrinsic motivation of employees.

Cultural controls are used to encourage mutual monitoring and to create and shape the culture in an organization or department. Examples of cultural controls in the public sector are a mission statement of a municipality, core values that are promoted by more senior managers, but also the practice of providing feedback among colleagues can be viewed as a form of cultural control (Merchant & van der Stede, 2007). Cultural controls specifically aim to engender the feeling of 'relatedness' of employees, by enhancing emotional ties to others and to the organization (Merchant & van der Stede, 2007). These ties can be attached to colleagues, but also to the overarching values and norms of the organization. This is consistent with the SDT view: the 'need for relatedness' can be satisfied when a person relates to others in the organization, i.e. cares for and is feeling cared by others. SDT argues that when employees' need for 'relatedness'

is satisfied, this facilitates the employees' intrinsic motivation (Ryan & Deci, 2000a, p. 64). Therefore, it is likely that cultural controls, which enhance the feeling of relatedness, catalyze higher levels of intrinsic motivation of employees.

To conclude, we expect a positive association between personnel controls and the intrinsic motivation of public sector employees working in the departments that are studied, because personnel controls foster feelings of competence and autonomy among those employees. We also expect a positive association between cultural controls and intrinsic motivation of public sector employees in these departments, because of the likely facilitation of feelings of relatedness by the cultural controls. This leads to the following two hypotheses:

H1: Personnel controls are positively associated with intrinsic motivation

H2: Cultural controls are positively associated with intrinsic motivation

We do not hypothesize relations between personnel and cultural controls and extrinsic motivation, because neither motivation crowding theory nor SDT give reasons to expect such a relation.

We next turn our attention to action and results control. NPM's emphasis on performance targets and performance measurement as well as its stress on labor discipline, accountability and frugality in resource use (Hood, 1995) suggests that results as well as action controls should guide public sector employees in their behavior, and motivate them to perform well. However, the diverging views on the effects of the use of action and results controls on the motivation of public sector employees implicate a need to examine the relation between these two types of control and both intrinsic and extrinsic motivation.

Action controls are MC elements that are typically intended to let employees act in accordance with some specifications for required behavior. Examples of action controls in the public sector are work protocols for communication with clients, pre-specified procedures to issue passports, or reviewing and approving certain activities of public sector employees (cf. Groot & Merchant, 2000). Prior studies have found that action controls, such as electronic monitoring systems, may increase employee stress levels (Aiello, 1993) and limit the feelings of autonomy and empowerment at employee level (Christ, Emett, Summers, & Wood, 2012; Merchant & van der Stede, 2007). As motivation crowding theory suggests, external interventions, including extrinsic rewards and external controls, always have a 'controlling and an informing aspect' (Osterloh & Frey, 2000, p. 541). The controlling aspect of an external intervention leads to an increase in the feeling that one is forced from the outside, while the informing aspect of an external intervention enhances a feeling of competence and a sense of choice in regulating one's actions. 'Depending on which aspect is prominent, intrinsic motivation is reduced or raised' (Osterloh & Frey, 2000, p. 541). When applied to action controls, we can infer that while action controls may have an informing aspect, their controlling aspect is very pronounced because action controls are very prescriptive and clearly constrain employees' autonomy (cf. Merchant & van der Stede, 2007). Action controls can thus be expected to lead to a decrease in intrinsic motivation according to motivation crowding theory; they will crowd-out intrinsic motivation. Also from an SDT perspective, it is likely that, since action controls reduce the extent to which employees can endorse their own actions, they limit autonomy and thus undermine an employee's intrinsic motivation. We therefore expect a negative association between action controls and intrinsic motivation of public sector employees.

When action controls are imposed on employees, they create an external pressure for employees to perform the specified activities (Merchant & van der Stede, 2007). Employees become extrinsically motivated, when their needs are satisfied in an indirect way, because the activity is instrumental in the achievement of something else. Since action control involves an instrumental relation between an action and an outcome of the action (approval, guilt avoidance, tangible

or intangible rewards), the employees' needs are fulfilled predominantly in indirect ways and *not by the activity itself*. Therefore, action controls are likely to lead to an increase of extrinsic motivation on the part of the public sector employees.

To summarize the situation for action controls, we expect to find a crowding out effect, i.e. a negative association of action controls with intrinsic motivation of the public sector employees, and a positive association of action controls with their extrinsic motivation. This leads us to the following hypotheses:

H3a: Action controls are negatively associated with intrinsic motivation

H3b: Action controls are positively associated with extrinsic motivation

Results controls are used to keep track of results attained by (groups of) employees. In a public sector setting, examples of results controls are reports about (individual) performance, including for instance the number of completed activities and the satisfaction of clients with the provided service. Results controls can be used to compare expected performance results with actual results, ask those responsible for explanations, intervene when necessary, and, in addition, they can also be used as a base to provide rewards for good performance (Groot & Merchant, 2000). Both the motivation crowding literature and SDT increasingly point to the limitations of using external controls, such as results controls, to motivate employees and argue that making use of such external controls may endanger the intrinsic motivation of employees. The use of external control may shift the locus of control from the inside to the outside of the individuals affected, and they may react by reducing their intrinsic motivation (Frey, 2012).

Results controls can be considered as external interventions and as such they not only have a controlling aspect but also an informing aspect (Osterloh & Frey, 2000). Results controls have an informing aspect, as they may well affect one's perceived competence and strengthen the feelings of internal control. However, while results controls can provide employees with feelings of competence when they achieve the expected results, it is also possible that feelings of incompetence prevail when specific results are *not* achieved. In a similar vein, results controls may provide some autonomy to employees on how to achieve the results, but only as long as the results do not require corrective action. Although results controls thus have informing aspects, it is evident that the controlling aspects of results controls are very prominent. For the most part results controls constrain employees' autonomy; they allow the employee to take action provided the action is directed at the specific dimension of performance that is being measured, and it is this latter part that restricts and constrains autonomy.

Employees are directed to focus on the performance dimensions that are monitored and on the targets that are set. While the controlling effect of results controls may be reinforced when rewards are linked to the achievement of the targets, also in a context with a limited level of performance-related rewards (like the public sector context in The Netherlands), results controls can still be perceived as controlling. Therefore, similar to the situation with action controls, the controlling character of results controls is more salient than their informing character. Since employees perceive the results controls primarily as controlling, motivation crowding theory and SDT suggest that these controls are likely to undermine intrinsic motivation. In line with this, our expectation of a negative association between results controls and the intrinsic motivation of public sector employees is also consistent with the aforementioned crowding-out effect (Bertelli, 2006; Frey & Jegen, 2001).

Given that results controls refer to external interventions that aim to make people focus at specific performance dimensions and on the achievement of certain targets, the instrumentality of the relation between actions and the consequences of these actions drives employee behavior. Therefore, it is likely that the extrinsic motivation of public sector employees will increase when results controls are used to a larger extent.

Based on the above arguments, we expect that results controls have a negative association with the intrinsic motivation of the public sector employees, and a positive association with their extrinsic motivation. Our hypotheses are therefore formulated as follows:

H4a: Results controls are negatively associated with intrinsic motivation

H4b: Results controls are positively associated with extrinsic motivation

### 2.5. *Performance-related Hypotheses*

In order to strengthen the relevance of our findings, we also examine the relation between motivation and performance, while we control for direct effects of MC on performance. There are several reasons why it is likely that intrinsic motivation leads to enhanced performance in public sector organizations. A first reason is that intrinsically motivated (public sector) employees set challenging goals for themselves to improve their own task competence and thus performance (Cerasoli & Ford, 2014). A second reason is that employees who find a task more intrinsically motivating will put in more effort in performing the task, just because they like the activity itself. Finally, the enjoyment of learning new skills can also be linked to the level of intrinsic motivation and performance (Simons, Dewitte, & Lens, 2004). In one recent meta-analysis strong support is found for the claim that intrinsic motivation is positively associated with performance (Cerasoli et al., 2014). In sum, it is expected that the intrinsic motivation of public sector employees leads to enhanced performance. This is even more likely given that public sector employees attach great importance to intrinsic motivation (Georgellis et al., 2011).

A positive association between extrinsic motivation and performance is also reported and suggested in prior studies. For instance, a seminal paper by Brownell and McInnes (1986) found a strong association between this type of motivation and performance in a survey study among middle managers in the private sector. In the public sector, various studies also have suggested the existence of a relation between extrinsic motivation and performance (cf. Diefenbach, 2009; Verbeeten, 2008). This positive relation between extrinsic motivation and performance can be explained by considering effort levels of employees, which are assumed to be higher when employees are extrinsically motivated, and these effort levels subsequently lead to higher performance (cf. Courty & Marschke, 2011, who highlight that both economical and psychological approaches expect this relation). Lastly, a meta-analysis by Cerasoli et al. (2014) provides robust evidence of the effect of extrinsic motivation on performance, by analyzing 40 years of research about the motivation-performance relation. We therefore predict a positive association between extrinsic motivation and performance.

On the basis of the discussion above, we hypothesize the following:

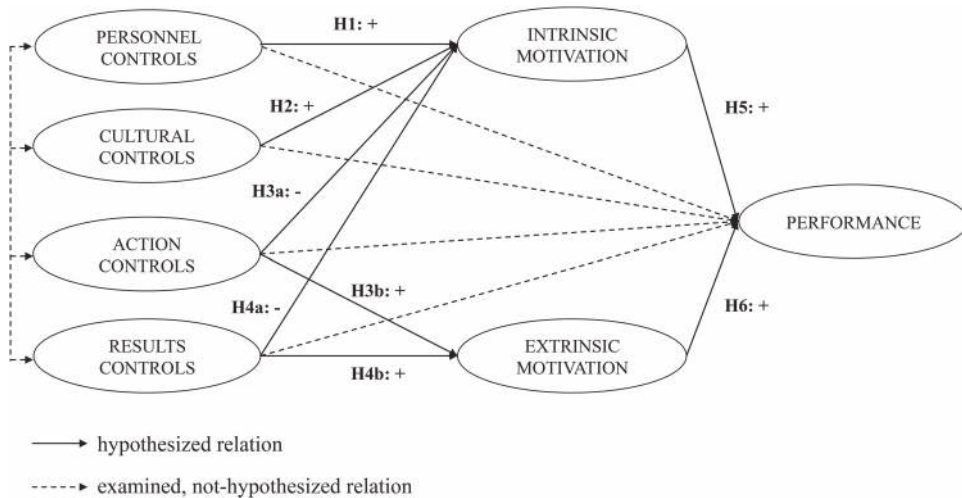
H5: Intrinsic motivation is positively associated with performance

H6: Extrinsic motivation is positively associated with performance

In Figure 1, we summarize the relations between the key elements of the current study. On the left, the four categories of MC elements are depicted, which we hypothesize to relate to intrinsic and extrinsic motivation. We also hypothesize that intrinsic motivation and extrinsic motivation have a positive effect on performance. We control for associations among the types of MC elements and for direct relations between the four types of MC elements and performance.<sup>2</sup>

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<sup>2</sup>Various accounting scholars have argued that the use and usability of MC elements is context dependent (e.g. Merchant, 1982; Ouchi, 1979). This has resulted in a vast literature that considered environmental contingencies and the usability of certain MC elements, which ultimately would affect organizational performance (see e.g. Chenhall, 2003; Luft & Shields, 2003). Influential in this respect is a paper by Merchant (1982), which states that two factors together determine to a large



**Figure 1.** Summary of examined relations

### 3. Methods

#### 3.1. Survey Method

To investigate the relation between MC, employee motivation and the effects on performance, we conducted a survey study. We chose this research method because it allows us to examine the complex phenomena of MC and motivation ‘as they occur in their natural setting, while at the same time maintaining the degree of standardization that is necessary for quantitative analysis and theory testing.’ (Speklé & Widener, 2018, p. 3) We extensively reviewed the extant literature and we used previously validated constructs where possible.

We did not find a survey instrument capturing the four types of MC as distinguished in the control framework, which urged us to develop such an instrument. We followed a deductive approach to develop the constructs (cf. Bedford & Speklé, 2018, p. 33) by starting ‘from the notion[s] as originally defined’ in Merchant and van der Stede’s (2007) textbook. The instrument consists of four constructs that capture the four control types in the framework – results controls (RES), action controls (ACT), cultural controls (CUL) and personnel controls (PRS). To ensure content validity of each of the constructs, the items should have a ‘high degree of conceptual overlap with the theoretical definition of the construct’ (Bedford & Speklé, 2018, p. 33). To achieve this, we closely analyzed the texts in Merchant and van der Stede’s (2007) textbook that discussed the specific control types to derive the specific items.<sup>3</sup> We pre-tested the full survey, including the

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extent the feasibility of different types of control: “knowledge of desirable actions and the ability to measure results on the important performance dimensions” (Merchant, 1982, p. 47). Merchant (1982) proposes that when the knowledge of desirable actions is excellent and when the ability to measure results on the important performance dimensions is high, the use of action controls and results controls is recommended to achieve good performance, while the use of personnel or cultural controls is not particularly recommended or discouraged in such a situation (later editions of the textbooks by Merchant and van der Stede (2007) identified ‘cultural’ controls as a separate category, but in Merchant (1982), ‘cultural’ control was still included in the broad category of ‘personnel’ controls). Although it is not the primary purpose of this research - which is to examine the relation between MC and motivation - we also include potential direct effects between MC and performance in our analyses.

<sup>3</sup>The corresponding original texts can be found on the following pages of the Merchant and van der Stede (2007) textbook: results controls (pp. 29–32), action controls (pp. 76–79), cultural controls (pp. 85–90) and personnel controls (pp. 83–85).

newly developed constructs, on three accounting professors and two experienced public administration employees for issues such as face validity, clarity and understandability (cf. Bedford & Speklé, 2018). After we received their feedback we made a few minor revisions to the survey (see Appendix A for the used survey items). The scales for each of the types of MC are formative constructs (Edwards, 2011), because the theory dictates that they *together* form one category of MC elements.<sup>4</sup> To minimize a potential bias caused by sequencing effects (cf. Speklé & Widener, 2018), we randomized the order of appearance of the survey items per construct. We rely on the constructs developed by Gagné et al. (2010) to identify intrinsic and extrinsic motivation. We added two additional items to the two-item construct of extrinsic motivation by Gagné et al. (2010) to increase the strength of the construct, both empirically and theoretically. Empirically, a two-item construct can be fine, but a three or four-item construct is to be preferred (Kline, 2011, p. 115). Theoretically, we consider both status and economic certainty to be important extrinsic factors to be examined, and these were not (sufficiently) reflected in the two-item construct by Gagné et al. (2010). Intrinsic motivation (INTM) thus consists of three items and extrinsic motivation (EXTM) consists of four<sup>5</sup> items. van de Ven and Ferry (1980) developed a comprehensive measure to capture performance, which is adopted and validated in several empirical studies (see e.g. Speklé & Verbeeten, 2014; Verbeeten, 2008). It defines performance as the extent to which one organization (or department) under- or outperforms relative to its peers in several aspects, and the construct was specifically developed to capture performance in the public sector. The construct (PERF) includes seven items, which are presented in Appendix A.

### 3.2. Sample and Setting

The setting of our study is departments of public administration (PA) in Dutch municipalities. The Dutch government consists, generally speaking, of three levels: (1) the central government, which is located in The Hague, (2) the province level, consisting of 12 regions with each their own council and executive committee, and (3) about 400 municipal organizations.<sup>6</sup>

Municipalities in the Netherlands are to a large extent funded by the central government. Funding of municipalities is not dependent on their performance, and the central government does not explicitly demand specific performance targets from departments of public administration. Central funding of municipalities is mostly based on the number of inhabitants, and additional funding for municipal activities is achieved by collecting local taxes and fees that have to be paid for some of services (new passports, drivers licenses and building permits).

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<sup>4</sup>An assumption that underlies formative constructs is that the items in the construct should cover all the dimensions of the construct, and that when two items relate to the same dimension, they should be weighted so that this dimension is not disproportionately represented in the final construct. We think of the five items per category as five separate dimensions as they all refer to a different part of MC that is not necessarily related to the other items in the category (it is, for instance possible to use rewards without using sanctions, although one might also argue that they are both part of the higher-order category 'incentives'). It could also possible, however, to argue that the items PRS(a) and PRS(c) are part of the same dimension 'training' within the construct of personnel control, and that the items RES(c) and RES(d) are part of the same dimension 'incentives' within the construct of results control (see Appendix A). We therefore also conducted a robustness analysis with weighted averages for these dimensions, and found that all hypotheses could also be confirmed when doing the analysis using the weighted averages.

<sup>5</sup>We also conducted the analyses that are presented in the findings section with the original two-item construct by Gagné et al. (2010); all confirmed hypotheses from the trimmed base model could be confirmed except for hypothesis 4b ( $p = .131$ , two-tailed).

<sup>6</sup>The number of municipalities is decreasing year by year, mainly because municipalities are 'merging' in order to be better able to deal with new tasks that are decentralized to municipalities and the (presumed) 'economies of scale'. To illustrate this decline in the number of municipalities: in the year 1910 there were 1,121 municipalities, in the year 2000 the number had decreased to 537 and in the year 2010 there were only 431 municipalities. These numbers were retrieved from the Dutch Central Bureau for Statistics, <http://www.cbs.nl/>, on 23 July 2015.



**Table 1.** Descriptive statistics sample

Variable	Frequency	Percentage
Age respondents ( <i>n</i> = 142)		
20–30 years	5	4%
31–40 years	17	12%
41–50 years	43	30%
51+ years	77	54%
Gender Respondents ( <i>n</i> = 142)		
Female	97	68%
Male	45	32%
Experience in current function ( <i>n</i> = 142)		
0–10 years	60	42%
11–20 years	43	30%
21–30 years	25	18%
40+ years	14	10%
Experience in organization ( <i>n</i> = 142)		
0–10 years	45	32%
11–20 years	52	36%
21–30 years	24	17%
40+ years	21	15%
Department size (employees) ( <i>n</i> = 105)		
0–15 employees	33	31%
15–35 employees	45	43%
36–55 employees	17	16%
56+ employees	10	10%
Organization size (employees) ( <i>n</i> = 105)		
0–200 employees	36	34%
201–400 employees	37	35%
401–600 employees	13	13%
600+ employees	19	18%
Municipality size (inhabitants) ( <i>n</i> = 105)		
0–30,000 inhabitants	39	37%
30,001–60,000 inhabitants	36	34%
60,001–100,000 inhabitants	13	13%
100,000+ inhabitants	17	16%

Although municipalities have a high degree of freedom as to how they want to organize themselves, studies of Dutch municipalities demonstrate that in practice the management structures of municipalities are highly comparable (van der Kolk et al., 2015; van Hengel, Budding, & Groot, 2014).

Apart from Groen et al. (2017), most prior studies focusing on MC and motivation relied on responses from managers (e.g. de Baerdemaeker & Bruggeman, 2015) or from students in experimental settings (e.g. Christ et al., 2012). Tessier and Otley (2012), however, argued that there is a difference between how managers and subordinates perceive MC, indicating that it matters which perspective is used to examine MC. This has led prior studies to call for research examining MC and its effects from the employee perspective (cf. Hall, 2016; van der Kolk & Kaufmann, 2018) in a ‘less lab-like setting’ (Cerasoli & Ford, 2014, p. 281). We extend this literature by examining the relation between MC and motivation from the perspective of employees. Respondents of our survey work in PA departments, and are endowed with similar tasks, e.g. issuing official documents such as passports and drivers licenses, and recording life events of its inhabitants, such as birth, marriage and death. The PA department is often referred to as the ‘front office’ of the municipality, because of its visibility and importance to inhabitants. By conducting the

**Table 2.** Early and late respondents

Construct	Early respondents	Late respondents
Personnel controls	4.17	4.27
Cultural controls	4.95	4.97
Results controls	3.53	3.74
Action controls	5.56	5.10
Intrinsic motivation	6.07	5.72
Extrinsic motivation	4.24	4.13
Performance	4.67	4.43

Note: Means of key constructs for early ( $n = 30$ ) and late ( $n = 30$ ) respondents. All collected responses were classified as early, middle and late respondents, based on the starting date and time of the survey. The means and variances of the key constructs for these groups were not significantly different at  $p$ -value  $< 0.05$  (two-tailed).

study in these departments, we control for so-called contractibility. This means that the degree to which the following three conditions are met does not differ greatly: (1) *ex ante* unambiguous goal specification, (2) the ability to select undistorted performance measures and (3) employees' ability to predict likely outcomes of their courses of action (Speklé & Verbeeten, 2014, p. 134). We also control for national culture effects by only sending the survey to employees working in Dutch organizations.

In June 2015, after the pre-test, we sent an online survey to members of the Dutch Association for Public Administration (DAPA)<sup>7</sup> and to subscribers of their weekly newsletter. The survey was sent to 2918 officially validated e-mail addresses from municipalities.<sup>8</sup> As an additional incentive to fill out the survey, we promised to report our findings to DAPA. Two and three weeks after our first invitation, we included a reminder to take the survey in DAPA's newsletter. All e-mails regarding the survey were sent by DAPA's communication department and were signed by DAPA's director and vice-president, and by the authors, in order to increase the respondents' confidentiality in the research project. After exactly one month, we closed the online survey and counted 351 responses (response rate: 12%). After removing unfinished surveys that lacked important data or that included suspicious data, 268 useful responses remained. Since, for the purposes of this study, our main variable, motivation, should be measured at the 'employee' level, we use the responses from employees without any managerial responsibilities. By specifically focusing on employee responses our study shows high degrees of 'sample prototypicality' and 'sample relevance' (Speklé & Widener, 2018): the respondents are probably the best informants to survey when we are specifically interested in employee motivation. In total, useful responses from 142 employees are used in this study. These respondents are located in 105 different Dutch municipalities. When multiple employees in a municipality filled out the survey, we compute their average scores on the main variables in our analysis.<sup>9</sup> The information about municipal size (inhabitants) comes from the central government in the Netherlands.<sup>10</sup> The raw variables

<sup>7</sup>In Dutch: Nederlandse Vereniging Voor Burgerzaken (NVVB), [www.nvvb.nl](http://www.nvvb.nl).

<sup>8</sup>2,918 were official municipal e-mail accounts, other email addresses (846) were 'unofficial' Hotmail or Gmail addresses, or were even linked to other, non-municipal organizations such as consulting firms, who were also subscribed to DAPA's online newsletter.

<sup>9</sup>We have multiple respondents (two, three, four or five) from 27 organizations and one respondent for the remaining 78 organizations. The number of municipalities with multiple respondents is low, which does not allow robust statistical analyses to check for interrater reliability. We visually inspected the data and we can verify that there was consensus among employees within municipalities about the use of different categories of MC elements. For instance, the average standard deviation for the MC-related items on the surveys from those working in the same municipality was significantly lower than the average standard deviations for the full sample.

<sup>10</sup>In three cases, we inserted a computed value on the basis of our sample for municipal size (employees) and in one case for the variable departmental size (employees), because respondents filled in '0'. We used the relation between

for age, years of experience in organization and department, and the three size variables showed characteristics of nonnormality, which ‘detracts from the ability of the correlation coefficient to represent the relationship between it and another variable’ (Hair, Black, Babin, Anderson, & Tatham, 2006, p. 176). Therefore, the size and year variables have been transformed by taking the natural logarithm of the raw variables, in order to allow for a better measure of the relationships in the table (Hair et al., 2006, p. 176; Kline, 2011, pp. 63–64).

In our descriptive statistics of the sample (Table 1), we report all individual responses ( $n = 142$ ) and in the remainder of the analyses we use the averaged cases per municipality ( $n = 105$ ).

We investigate early and late respondents and find no significant differences in their means and standard deviations for our main constructs of interest (see Table 2). Since late respondents can be considered as a proxy for non-response, this analysis indicates that non-response bias is not a concern in our study. As an additional check for non-response bias, we conduct an independent sample t-test to compare the sizes of the 105 municipalities from which we received one or more responses and the 290 municipalities from which we did not receive a response from an employee. We find a significant difference ( $p$ -value  $< 0.01$ , two-tailed) between the average number of inhabitants of municipalities from which we have at least one respondent (68,358) and municipalities from which we have no respondents (33,988): the municipalities from which we did not receive a response are smaller in terms of their average number of inhabitants. This can be explained by the fact that in larger municipalities more employees are a member of DAPA or receive their weekly newsletter, which increases the likelihood that more responses are received from employees working in larger municipalities than those working in smaller municipalities. We also examined the information regarding gender that was available for a subgroup of the people to whom the survey was sent; the members of DAPA. From the 1462 DAPA members whose gender was known, 37.6% was male and 62.4% was female. In the data we examined for this test, 31.7% was male and 68.3% was female (see Table 1). We conducted a t-test to compare these values, which showed that the difference was not significant ( $p = 0.24$ ), which suggests that a non-response bias in this respect is not a concern in our study.

In order to test for common method bias, we run a Harman’s single-factor test on the 34 items used in the current study. The first extracted factor, with an eigenvalue of 8.31, explains only 24.4% of the total variance, which can be seen as a reliable absence of a common method bias (Podsakoff & Organ, 1986). In addition, we examine the standard deviation per case for all the relevant items, i.e. the extent to which respondents filled out the same values for multiple items, in order to check for ‘suspicious’ cases. We visually inspect the 10 cases with the lowest standard deviations, ranging from 0.868 to 1.055, and find no reason to exclude these cases from our analysis. A correlation table is included in Appendix B.

### 3.3. Data Analyses

We test the univariate normality of all the main constructs included in our analysis, and find that all seven constructs are at acceptable values, i.e. the maximum Kurtosis value (1.3) does not exceed the accepted values (between  $-7$  and  $7$ ), and the most extreme value for skewness ( $-.94$ ) is also acceptable (between  $-2$  and  $2$ ). We also conduct analyses to check for multicollinearity, and none of the values for the Variance Inflation Factor (VIF) exceeds 2.4, which is

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the variable that was missing and size (inhabitants) to insert a value, referred to by Kline (2011, p. 58) as ‘regression-based imputation’. This is a relatively advanced technique that is accepted for imputing missing values when preparing for conducting structural equation modeling. Using regression-based imputation was necessary in order to be able to produce a full correlation table for all 105 observations.

well below the maximum acceptable score of 10.0 (Kline, 2011, pp. 53–54). We have no missing data in the 148 cases or in the 105 departments for the seven main constructs of this study, because we let the survey software automatically check whether the respondents filled out all the items of our main constructs; if they were not completed yet, the respondent could not progress to the next page of the survey and he or she received a warning message.

The measurement model specifies the relations between the observed items and the seven constructs (PRS, CUL, ACT, RES, INTM, EXTM, PERF). Multiple-item constructs ‘are preferred because they allow the most unambiguous assignment of meaning to the estimated constructs’ (Anderson & Gerbing, 1988, p. 415). PRS, CUL, ACT and RES are formative constructs, this means that the measured items together ‘cause’ the construct (Edwards, 2011; Hair et al., 2006, p. 771). The individual items should be added up or averaged in order to be able to examine the construct, and it is therefore theoretically not possible to remove items from the construct. INTM, EXTM and PERF are latent constructs, which means that they cannot be measured directly and that they have to be represented and measured by one or more different variables. An acceptable score for unidimensionality of a latent construct is important, because that demonstrates that the combined measure is reliable. Low values for unidimensionality of the formative constructs, however, can still be acceptable for theoretical reasons. It might, for instance, be the case that individual items within the category ‘action controls’ do not strongly correlate.

In order to test the unidimensionality of the multiple-item constructs, we run a measurement model in *IBM SPSS AMOS 24* including all constructs and items, yielding standardized factor loadings, which are reported in Appendix C. Although the Chi-square values are significant, indicating a poor fit, (Chi-square = 838.558,  $p < 0.01$ )<sup>11</sup>, the other fit indices of the measurement model show acceptable values (RMSEA = 0.08; CMIN DF = 1.664). All loadings of the individual items on the factors are significant at  $p < 0.01$  (two-tailed), except ACT<sub>(b)</sub>, which is significant at  $p < 0.05$ , and PRS<sub>(b)</sub>, ACT<sub>(a)</sub> and RES<sub>(e)</sub>, which are significant at  $p < 0.1$ . Given that these are parts of the formative constructs PRS, ACT and RES, these lower significance levels form no reason to remove items from the analysis (see Appendix C). Cronbach’s alpha’s for the reflective constructs INTM (0.82), EXTM (0.63) and PERF (0.91) are respectively very good, adequate and excellent (Kline, 2011, p. 70), which indicates that the reliability of the reflective constructs is acceptable (Hair et al., 2006).

Given the theoretical constraints that we adopt in our study, the measurement model indicates adequate construct validity for the constructs used in our analysis. Because the size of our sample is 105 observations, we treat the constructs as manifest variables, using the summated scores of all the relevant items discussed above. Manifest variables can be recommended ‘when working with small sample sizes since it reduces the number of parameters that are estimated thus accommodating smaller samples’ (Widener, 2007, p. 775).<sup>12</sup>

<sup>11</sup>This value for the Chi-square test is not surprising given our sample size, see Hair et al. (2006, p. 753).

<sup>12</sup>To determine the full model including all the original items in a structured equation model without manifest variables would mean that 34 additional parameters have to be estimated. Because the rule of thumb for similar studies is that about 5–10 observations are necessary for every parameter that is estimated, this would mean that we would need at least 16 (the original relations and the covariances between the control types) + 34 (additional parameters) = 50 \* 5 (minimum for rule of thumb) = 250 observations, which we do not have in the current study. A way to deal with this is using the manifest variables (summated scores for the constructs). A disadvantage of this method is that some of the variance of the original survey data is lost. However, the method allows us to estimate a path model, also for studies with smaller sample sizes (Kline, 2011, pp. 8–9, 11–12; O’Rourke & Hatcher, 2013, p. 9; Schreiber et al., 2006, p. 326; Widener, 2007).

## 4. Findings

We use structural equation modeling (SEM) to examine the relations between MC, motivation and performance. We choose to adopt this method because it allows the simultaneous estimation of multiple dependent variables, and the possibility to define a model to explain the full set of relationships examined (Hair et al., 2006, p. 711). This method was recommended and used in a number of accounting studies (see e.g. de Baerdemaeker & Bruggeman, 2015; Maas & Matejka, 2009; Widener, 2007) and is recommended for theory-testing studies (Hair, Ringle, & Sarstedt, 2011). We use IBM SPSS 24 and IBM SPSS AMOS 24 software to conduct all analyses that are reported in this paper.

Our analysis consists of three steps, following Widener (2007, p. 775). First, we estimate a model based on Figure 1, which we coin the base model. Subsequently, we trim the model for insignificant paths that are not hypothesized, after which we trim the model guided by empirics in order to derive a more parsimonious trimmed base model, which can be found in Table B1. Second, we use the trimmed base model to examine the hypotheses. Third, we conducted several robustness analyses to test whether the hypotheses also hold when changes were made to the models.

### 4.1. Estimating the Structural Model

We report multiple indicators for model fit: the Chi-square, Chi-square divided by the model degrees of freedom (CMINDF), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). A good fit is reached when the Chi-square is insignificant, the CMINDF is less than 3, the CFI is on or above .95 and when the RMSEA is less than .08 (Schreiber, Nora, Stage, Barlow, & King, 2006, p. 330).

The base model examines the relations between the constructs in a path diagram, see Table 3.<sup>13</sup> Following Widener (2007, p. 775), we trim the base model for insignificant links that are not hypothesized, after which we trim the model to derive a parsimonious, well-fitting base model. The trimmed base model has a very good fit with the data ( $\chi^2$  is insignificant,  $p = .159$ , CMINDF = 1.453, CFI = .978 and RMSE = .066). The chi-square difference test showed no significant difference between the base model and the trimmed base model, which indicates that the model is not trimmed ‘too much’ (Kline, 2011).

### 4.2. Hypotheses Testing

In Table 3, we also include our hypotheses about each of the relations in the structural equation model, which can be tested by analyzing the coefficients and their  $p$ -values. Hypotheses 1 and 2 are supported, given the significant ( $p < 0.05$ ) positive coefficients of PRS  $\rightarrow$  INTM and CUL  $\rightarrow$  INTM. So, both personnel and cultural controls are positively associated with intrinsic motivation. Hypotheses 3a and 4a are not supported, because the path coefficients for ACT  $\rightarrow$  INTM and RES  $\rightarrow$  INTM are insignificant. The findings suggest that there is no significant association between action controls, results controls and intrinsic motivation. Action controls and extrinsic motivation show no significant association, which leads to the rejection of H3b.

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<sup>13</sup>We do not hypothesize or include a direct relation between INTM and EXT M in our base model (although including it would not affect our findings. We make this choice because the literature on which we draw states extrinsic controls may simultaneously enhance EXT M and reduce INT M, but the literature does not explicitly state, to the best of our knowledge, that a direct relation exists between the two types of motivation should be expected. Including a covariance between EXT M and INT M does not alter our findings, but because the first SEM model should be in line with what can be expected on the basis of the theory (Hair et al., 2006; Kline, 2011), we chose to report the base model excluding a direct effect from one type of motivation on another.

**Table 3.** Base model, trimmed base model and hypotheses

Relation	Model 1 (Base model)	Model 2 (Trim. base model)	Hypothesis	Support?
	Coeffic. ( <i>p</i> )	Coeffic. ( <i>p</i> )		
PRS → INTM	.171* (.072)	.171** (.046)	H1	Accepted
CUL → INTM	.196* (.074)	.182** (.050)	H2	Accepted
ACT → INTM	-.027 (.821)	-	H3a	Rejected
RES → INTM	-.001 (.989)	-	H4a	Rejected
ACT → EXT M	-.052 (.708)	-	H3b	Rejected
RES → EXT M	.224** (.032)	.208** (.029)	H4b	Accepted
EXT M → PERF	.112 (.108)	.143** (.040)	H6	Accepted
INT M → PERF	.121 (.153)	.161* (.075)	H5	Accepted
ACT → PERF	.466*** (.000)	.565*** (.000)		
RES → PERF	.035 (.679)	-		
PRS → PERF	.069 (.462)	-		
CUL → PERF	.084 (.434)	-		
<i>Model fit</i>				
X <sup>2</sup>	10.136	13.073		
<i>p</i> -value	.017	.159		
Df	3	9		
CMINDF	3.379	1.453		
CFI	.962	.978		
RMSEA	.151	.066		
<i>X<sup>2</sup> diff. test</i>				
X <sup>2</sup> difference (df)		2.937		
<i>p</i> -value		Ns		

Note: In this table we present the findings of our structural equation models. Model 1 is the base model, which includes all relations discussed in section 2. \*, \*\* and \*\*\* indicates respectively two-tailed significance at  $p < 0.1$ ,  $p < 0.05$  and  $p < 0.01$ .

There is, however, a positive association between results controls and extrinsic motivation, so H4b is supported ( $p < 0.05$ ). The hypothesized crowding-out effect (underlying hypotheses 3a and 3b) is therefore not supported by our findings.

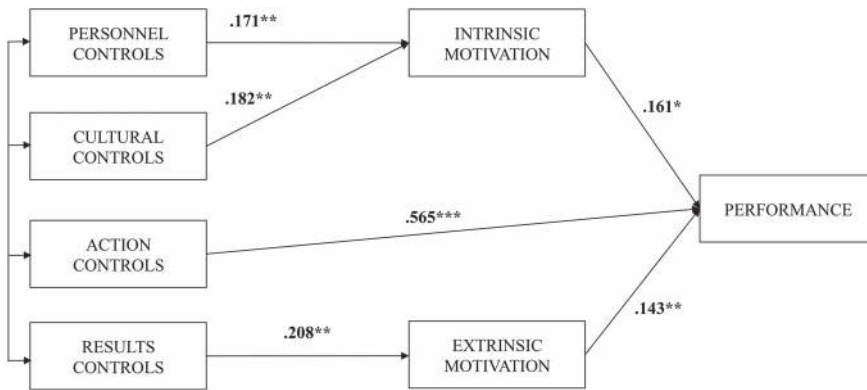
The relations INTM → PERF ( $p < 0.10$ ) and EXT M → PERF ( $p < 0.05$ ) are supported given the significant coefficients. This means that higher intrinsic (H5) and extrinsic employee motivation (H6) is positively associated with performance. Furthermore, we find that ACT → PERF ( $p < 0.01$ ) is significant suggesting a direct association between action controls and performance. The trimmed model and the significant paths that reflect the accepted hypotheses are depicted in Figure 2.

### 4.3. Robustness

The correlation table (Appendix B) did not show a relation between any of the potential control variables (numbers 8 to 14) and both an independent and a dependent variable in our main model, suggesting that these variables should not be included as control variables in the main analysis.

Large organizations (compared to small organizations) have been associated with higher levels of efficiency because they have ‘more power in controlling their operating environment’ (Chenhall, 2003, p. 148). Organization size might therefore – eventually – relate to performance, while at the same time it has been suggested that size (of the department or organization) is related to the use more formal MC (Chenhall, 2003, p. 147; Luft & Shields, 2003). To test for the possible presence of this spurious relationship, we examined whether our results were robust when a size-related control variable was added as a direct relation to performance. We considered three control variables related to size: municipality size in number of inhabitants, organization size





**Figure 2.** Trimmed base model with standardized regression weights.

Note: \*, \*\* and \*\*\* indicate respectively significance (two-tailed) at  $p < 0.1$ ,  $p < 0.05$  and  $p < 0.01$

(fte), and department size (fte).<sup>14</sup> All confirmed hypotheses in the trimmed base model also held in these alternative models that included one of the size-related control variables.

## 5. Discussion and Conclusions

Although the literature has since long acknowledged the relation between MC and employee motivation, it is still unclear which types of MC relate to which types of motivation. This study unravels these relations by examining theoretically and empirically how the use of four different types of control (i.e. personnel, cultural, action, and results control) is associated with intrinsic and extrinsic motivation, and how these types of motivation are associated with performance. We envision two contributions of this study to the literature.

First, we shed light on the debate regarding the desirability of a focus on results control in the public sector. Proponents of NPM argue that business-like practices, and an emphasis on performance measurement and results control in particular, can be important in the management and control of organizations in the public sector (cf. Hood, 1995). Yet, other, more critical, studies have pointed to the differences between the public and the private sector, and signal that results control may be problematic in the public sector given the complexity and the ambiguity of objectives in this sector (Frey et al., 2013). We seek to shed light on this debate by analyzing survey data obtained from employees working in public administration departments in the Dutch public sector. Our findings oppose the idea that results control should not play an important role in the public sector by demonstrating how results controls positively relate to extrinsic motivation and do not lower intrinsic motivation, and how extrinsic motivation in turn relates to performance. While our findings do not provide support for the hypothesized relation between action controls and extrinsic motivation, they do show that action controls have a strong direct relation with performance. Apparently, a high use of actions controls leads to a high level of performance. This direct effect may be due to the specific context, since we surveyed employees who work in departments of public administration. In these departments, the use of rules and procedures is paramount for good overall performance because of the delicate and sensitive nature of their tasks, such as issuing passports. If the process of issuing a passport is not in accordance with the prevailing rules (which are demanded by national and international law), this could have

<sup>14</sup>Fte stands for full time equivalent. These raw size variables had to be transformed because of nonnormality (Hair et al., 2006, p. 176), after which their skewness and kurtosis values were at the acceptable values (see Appendix B).

severe consequences for society, for instance because it would make identity theft easier. While our findings demonstrate positive effects of action control and results control, negative effects of results and action controls on intrinsic motivation, as hypothesized based on motivation crowding theory and SDT (Frey & Jegen, 2001), are not identified in our study. A possible explanation for this finding could be that the strength of the crowding-out effect depends on the context in which it is studied, which would be in line with Deci et al. (1999, p. 659): ‘there are conditions under which [extrinsic motivators] do not necessarily undermine intrinsic motivation’. Although more research would be needed to make a more generalizable claim (e.g. research comparing and contrasting the crowding-out effect in different work settings), the smaller role for monetary incentives in the setting that we studied might explain why the crowding-out effect was not readily observable in our findings. A related possible explanation for not finding support for our hypotheses about the negative relation between action and results controls on the one hand and intrinsic motivation on the other hand, is that the controlling and the informing aspects (cf. Osterloh & Frey, 2000) of these controls ‘neutralized’ each other’s effects on intrinsic motivation. The controlling aspect of action and results controls and the informative aspect may thus have yielded relations with intrinsic motivation in opposing directions, which may have led to the neutralization of the relation between both types of MC and intrinsic motivation. Apart from this, we have to keep in mind that in the setting we examined, the level of goal ambiguity is relatively low. The relations between MC and motivation could be different in, for instance, more policy-focused public sector departments with higher levels of goal ambiguity.

Second, we contribute to the literature on management accounting and control in the public sector by showing that personnel and cultural control play an important role in motivating public sector employees to perform well. The study provides evidence on the importance of personnel and cultural control for the performance of public sector employees through its effect on intrinsic motivation. Our study particularly points to the role personnel controls play in enabling employees to foster feelings of competence and autonomy, while cultural controls contribute more to a feeling of relatedness (Ryan & Deci, 2000b). This suggests that these types of control create a work environment that strengthens the intrinsic motivation of employees in the public sector. While it is already clear from the literature that public sector employees attach much importance to intrinsic motivation (e.g. Georgellis et al., 2011), the importance of intrinsic motivation is also empirically demonstrated in this study by its effect on performance. More in general, it is worth noting that we found a positive association between the two types of motivation and performance, which stresses the importance of having a motivated workforce in the public sector. Furthermore, survey responses from employees, i.e. those *subjected to* MC (instead of managers, i.e. the ones *using* MC) allowed an investigation of the employee perspective on MC and motivation. Our paper complements existing findings that either relied on managerial perceptions about MC (cf. Tessier & Otley, 2012) or perceptions from participants in an experimental setting without a real work context (Christ et al., 2012). In addition, this study adds to the literature by conducting a so-called ‘cross-level’ study, connecting ‘individual level’ employee motivation to ‘department level’ MC and performance, which were often studied in isolation in prior studies (cf. Hall, 2016; Luft & Shields, 2003; van der Kolk & Kaufmann, 2018).

Our findings and conclusions are subject to several limitations. Key threats to the reliability of survey studies relate to sample selection, non-response bias and common method bias. Although surveying employees who work in similar departments with similar tasks has strong advantages such as controlling for tasks and environment-related factors (cf. Speklé & Widener, 2018), it also limits the potential generalizability of the findings (Whetten, 1989). Related to this limitation, it is possible that certain employees with a particular motivation self-select to work for public sector organizations, which is sometimes referred to as the ‘matching process’ (Gerhart & Fang, 2015, p. 511). SDT, however, assumes that all employees have similar needs, regardless

of the sector, and that research should therefore focus on the extent to which a particular setting can fulfill these needs. Although the matching process may thus limit the range of answers to specific questions in our sample, meaningful conclusions can still be drawn from our data because we are interested in the cross-sectional variance in motivation related to the setting that we study. The reported comparisons between respondents and non-respondents did not suggest the presence of non-response bias, and the results of Harman's single factor test indicated that the common method bias was not able to explain the large variety in responses found in our study. We conducted robustness analyses to find out whether correlated omitted variables could provide an alternative explanation for the reported findings, but our findings were robust for the included control variables. Furthermore, we demonstrated that our analyses show a positive relation between results controls and employee motivation, supporting claims by NPM proponents that results controls may indeed enhance performance in the public sector. It may, however, be that this enhanced performance comes 'at the expense' of other factors that we did not focus on in this study, such as administrative bureaucratization or employee stress (cf. Diefenbach, 2009).

Besides replications of the current study in different settings, extensions of our research in other directions can also provide fruitful avenues for future research. SDT further distinguishes four types of extrinsic motivation on the basis of the extent to which extrinsic motivation is autonomous versus controlled: further unpacking extrinsic motivation and exploring differences between the effect of MC on these types of motivation forms an interesting direction for future research. Moreover, the relation between these different types of extrinsic motivation and performance can be scrutinized in future studies. Comparisons among employees with complex and non-complex tasks could also further enhance our understanding of the relation between the task environment, MC and motivation. Future research may benefit from the research instrument we developed to capture the four types of MC in the control framework by Merchant and van der Stede (2007).

In this study, we examined the relations between MC, motivation and performance. We found partial support for the hypotheses we developed on the basis of motivation crowding theory and SDT, indicating that different types of MC catalyze different types of motivation. Future research may benefit from the developed survey instrument to examine an organization's configuration of MC elements, and build further on the paths we identified in the current study. More specifically, future research may examine whether the type of use of MC elements affects its association with extrinsic motivation. Prior studies distinguished different uses of control, such as an enabling or coercive use (Ahrens & Chapman, 2004), and a decision-influencing or decision-facilitating use (van Veen-Dirks, 2010). Future research could extend this stream of research by examining how different uses of MC may yield different effects on employee motivation and performance.

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## **Appendix A – Constructs & Survey Items**

### *Personnel Controls*<sup>15</sup>

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree):

- (a) Many opportunities for training and education are being offered
- (b) Employees do not receive possibilities to become more self-managed (RC)
- (c) New hires receive elaborate training and learning time
- (d) New employees are being selected by a strong selection process
- (e) Job and task descriptions are being used to provide employees with clarity about their tasks

### *Cultural Controls*

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree):

- (a) Employees provide each other with solicited and unsolicited feedback
- (b) Norms and values are seldom communicated to employees (RC)
- (c) Employees know what is expected from them from the prevailing culture
- (d) Employees check each other's activities regularly
- (e) Employees know what is expected from them from the exemplary behavior of superiors

### *Results Controls*

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree):

- (a) Performance targets are created for every employee
- (b) The obtained results per employee are being measured
- (c) Employees are being rewarded for good results
- (d) Employees are being sanctioned for bad results
- (e) Achieved results are seldom being communicated to employees (RC)

### *Action Controls*

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree):

- (a) Complying with rules and procedures is very important for tasks at our department
- (b) Employees are seldom alerted at complying to rules and procedures (RC)
- (c) Activities of employees are registered and/or monitored
- (d) Work plans and division of labor schemes are used to control employees
- (e) Employees are being kept responsible for the activities they carried out

### *Intrinsic Motivation*

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree).

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<sup>15</sup>Within each of the constructs in the survey we randomized the sequence of the appearance of the questions. (RC) means that the question is reverse-coded.

I do this job . . .

- (a) because I enjoy this work very much
- (b) because I have fun doing my job
- (c) for the moments of pleasure that this job brings me

*Extrinsic Motivation*

Please rate the extent to which you agree or disagree with the following statements (1 = strongly disagree, 7 = strongly agree).

I do this job . . .

- (a) because this job affords me a certain standard of living
- (b) because it allows me to make a lot of money
- (c) because it provides me with economic certainty
- (d) for the status it provides me

*Performance*

How do you rate the performance of your unit relative to other, comparable units (in the public, but perhaps also in the private sector) on each of the following dimensions? (1 = far below average, 7 = far above average)

- (a) The amount of work and/or the number of products produced in your unit
- (b) The accuracy of work produced in your unit and/or the quality of the goods delivered
- (c) The number of innovations, process improvements, or new ideas implemented by your unit
- (d) The reputation for work excellence of your unit
- (e) The attainment of production or service level goals of your unit
- (f) The efficiency of operations within your unit
- (g) The morale of unit personnel

**Appendix B. Correlation Table**

**Table B1.** Correlation and descriptives table (*N* = 105)

CONSTRUCT	MN	SD	SKW	KRT	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) PRS	4.25	1.06	-.08	-.03													
(2) CUL	4.88	.97	-.50	-.17	.567***												
(3) RES	3.66	1.06	.01	-.41	.535***	.372***											
(4) ACT	5.38	.81	-.36	-.05	.343***	.601***	.417***										
(5) INTMOT	5.94	.82	-.94	1.27	.341***	.339***	.191*	.187*									
(6) EXTMOT	4.23	1.06	-.41	.38	.114	.268***	.210**	.055	.039								
(7) PERFORM	4.72	.91	-.59	1.24	.342***	.466***	.335***	.536***	.245**	.198**							
(8) EXPFUNC	2.49	.81	-.81	.97	.029	.144	.029	.041	.184*	-.038	.118						
(9) EXPORG	2.61	.75	-1.09	1.89	-.084	-.071	-.032	-.071	.065	.09	.026	.317***					
(10) AGE	3.89	.19	-1.53	3.81	.104	.168*	-.034	.112	.149	-.021	.017	.384***	.467***				
(11) SIZEINH	10.67	.88	.51	1.01	-.091	-.210**	.045	.004	-.117	-.023	-.018	-.194**	.019	-.019			
(12) SIZEORG	5.77	.97	1.04	1.89	-.09	-.158	.096	.062	-.083	.034	.043	-.109	-.059	-.012	.881***		
(13) SIZEDEP	3.06	.79	-.26	-.33	-.043	-.124	.12	.032	-.111	.065	-.016	-.202**	.022	.036	.549***	.554***	
(14) GENDER	.71	.43	-.93	-1.03	-.038	-.023	-.031	-.169*	.074	-.087	-.026	.042	-.038	.02	-.183*	-.218**	-.078

\*, \*\* and \*\*\* indicate respectively significance at the 0.01, 0.05 and 0.10 level (2-tailed).

MN = Mean, SD = Standard deviation, SKW = Skewness, KRT = Kurtosis.

(1) Personnel control, (2) Cultural control, (3) Results control, (4) Action control, (5) Intrinsic motivation, (6) Extrinsic motivation, (7) Performance, (8) Natural logarithm of experience respondent in current function, (9) Natural logarithm of experience respondent in organization, (10) Natural logarithm of age, (11) Natural logarithm of size municipality in inhabitants, (12) Natural logarithm of size organization in fte, (13) Natural logarithm of size department in fte, (14) Gender (male = 0, female = 1).

Appendix C – Measurement Model

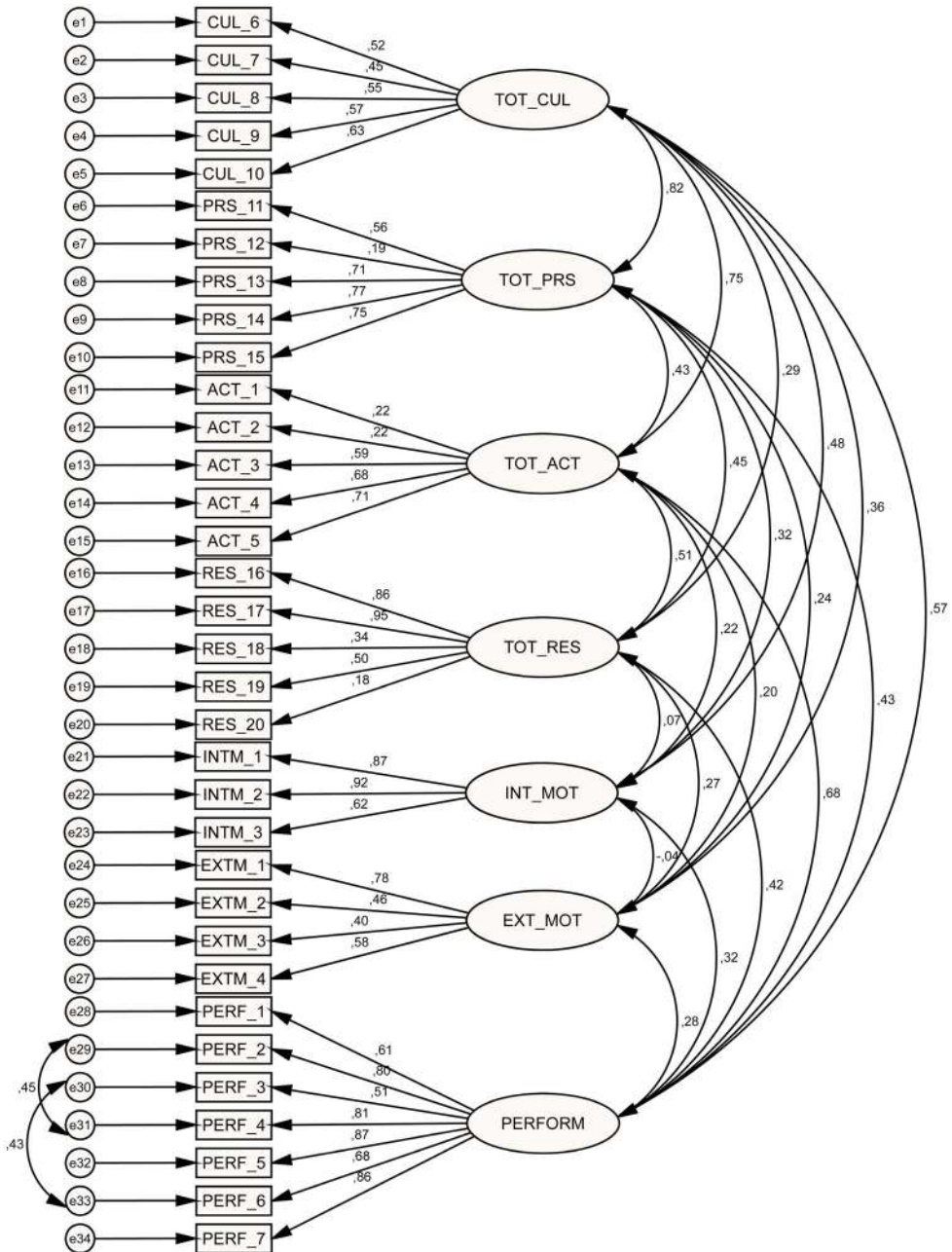


Figure C1. Measurement model.

Note: This figure is a print of the output generated by IBM SPSS AMOS 24