

Management interventions as conditions for motivation crowding of motivation in the
European commission : a mediational analysis of basic needs satisfaction

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1. Introduction

Motivation of employees is crucial to achieve results within any organization, be it a public or a private organization (Rainey and Steinbauer 1999; Kojasteh 1993). It therefore can be considered to be one of the big questions in current public administration research (Behn 1995).

Despite its importance, motivation is not easily grasped, being a multi-faceted and dynamic phenomenon. Nevertheless, recent efforts have provided openings to more fully understand the motivational processes of public servants. In particular, the current surge of public service motivation research (Perry and Hondeghem 2008) has been helpful in explaining why and how public servants are motivated by the idea of contributing to society. The state of affairs in public service motivation research highlights the impact of institutions in explaining public service motivation, the international incidence of public service motivation and conditions in which public service motivations resorts effect. However, public service motivation is not the only motivation that plays a role in motivating people to be employed, to perform and to retain in/with the public sector. This amalgam of motivations, of which public service motivation is only one, but which includes, among others, salary, work-life balance, tenure or pension rights, is generally considered as public sector motivation (Vandenabeele and Ban 2009). Little is known about the interaction of public service motivation with these other elements of public sector motivation.

This paper would like to contribute to filling some of the voids in the knowledge concerning these interactions. In particular, it would like to investigate the interaction between other, management initiated motivational actions and public service motivation and motivation in general and to what extent the former influences both of the latter types of motivation. It would thus seek to integrate public service motivation theory with other motivational theories,

in particular self-determination theory (Deci and Ryan 2004) and the related theory of motivation crowding (Frey 1997).

The next section therefore first introduce the theoretical concepts associated with these theories, concluded with a set of hypotheses. The remainder of the paper is devoted to testing these hypotheses, based upon the data gathered within the European Commission.

2. Theoretical framework

The theoretical framework provided below discusses the theories and affiliated concepts of public service motivation, self-determination and motivations crowding. Its also endeavours to integrate these perspectives and to lake them come tighter in a set of hypotheses, presented at the end of this section.

2.1. Public service motivation

The idea of public servants who have a drive to contribute to the general interest has been around for ages. It can be traced back to Aristotle and Plato and other historic writers who have dealt with it in their works (Horton 2008). But also more contemporary authors have found this concept appealing when describing (at least some of) the motivations of present-day civil servants (Downs 1967; Mosher 1968; Chapman 1988), albeit in a general or even anecdotal fashion. It was not until Perry and Wise (1990) defined public service motivation as ‘an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions (p. 368)’, that it became a more formally established concept in its own right. Following on this work, some authors have developed their own definitions. Brewer and Selden (1998 : 417) describe public service motivation as ‘the motivational force that induces individuals to perform meaningful public service’. Rainey and Steinbauer (1999 :

23) define it as ‘a general altruistic motivation to serve the interests of a community of people, a state, a nation or humankind’, contrasted to task motivation and mission motivation.

However, apart from these formal definitions, similar concepts exist which do not use PSM terminology at all. Some, mostly non-American, authors do not use the term when studying public service motivated behavior (Chanlat 2003; Pratchett and Wingfield 1996; Woodhouse 1997). In order to overcome these differences and to develop an encompassing definition, Vandenaebale (2007) has defined PSM as ‘the belief, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate (p. 547)’.

Public service motivation is considered to be a multidimensional concept. Perry (1996) found it to consist of four dimensions : ‘politics and policy-making’, ‘public interest’, ‘compassion’ and self-sacrifice’. This factorial structure has been corroborated by other scholars (Camilleri 2006 & 2007; Bright 2007), although some issues have arisen about the exact factorial structure, in particular concerning the relationship between ‘public interest’ and ‘self-sacrifice’, which is rather high. Perry (1996) found a correlation of .89, which is on the verge of redundancy, and Vandenaebale (2008a) found that a model of three dimensions performed better than a four dimension model of public service motivation (with ‘public interest’ and ‘self-sacrifice’ collapsed into one dimension).

However, as the original model (Perry 1996) is based primarily on research in the US, research in other countries has led to identification of other potential dimensions of public service motivation, such as equality, service delivery and bureaucratic governance (Vandenaebale et al 2006; Hondegheem and Vandenaebale 2005). When testing a factor analytic model of an adapted measurement instrument, Vandenaebale (2008b) both corroborated the original four dimensions found by Perry and also identified a fifth dimension: ‘democratic governance’. This dimension refers to the value basis for a

democratic regime and the rule of law (in French, this is called 'les lois Rolland', or laws of the administrative state).

Employment in the EC differs in one significant way from that in national governments: the level of pay and benefits is quite high, higher than in many European national governments, a policy that was expressly set to make service attractive to top people both from government and from the private sector. Thus, one might expect EC staff to show higher levels of motivation based on extrinsic rewards, especially financial ones, than in most national governments. However, recent research (Ban and Vandenabeele 2009; Vandenabeele and Ban 2009) has demonstrated that PSM plays a significant role in organizational behavior within the European Commission. In particular with regard to organizational commitment outcomes (but also with regard to job satisfaction), PSM has been associated with these outcomes within the bounds of an international organization.

2.2. Self-determination

However, it is important to acknowledge that public service is not the only type of motivation. In a public sector environment, be it the European Commission or a national or a decentralised type of government, other motivators play a role (Vandenabeele 2008a; Vandenabeele et al 2004; Buelens and Van Den Broeck 2007; Lewis and Frank 2002). This amalgam of various motives, of which public service motivation is only one, is defined as public sector motivation and often includes such motives as pay, job security or a balance between work and family life.

One particularly interesting approach to motivation, in which many of these motives can be framed, is self-determination theory. This theory (Deci and Ryan, 2004) distinguishes itself from other motivational theories by analyzing motivation in terms of a continuum, rather than thinking in terms of a dichotomy (e.g. Bandura 1997). This results in what Deci

and Ryan (2004) describe as the self determination continuum. On this continuum, motivation is graded from non-autonomous or controlled motivation, which originates from external sources, on the one end, to autonomous motivation, stemming from the person oneself, on the other end. More specifically, they distinguish between five types of motivation, ranked from controlled to autonomous motivation.

Intrinsic motivation is experienced in behaviour when ‘people engage in the activity for its own sake, that is, because they experience the activity as inherently enjoyable and satisfying’ (Vansteenkiste 2005 : 22). In contrast to intrinsic motivation, extrinsic motivation involves doing an activity to attain an outcome that is separable from the activity itself (Ryan and Deci 2000). Contrary to other researchers, Ryan and Deci (2004) discern no less than four types of extrinsic motivation, leaving the traditional dichotomy. These four types of extrinsic motivation range from external regulation on the one end, over introjection and identification to integration on the other end. External regulation is the type of motivation people have whenever they engage in an activity to obtain a reward or to avoid a negative sanction or punishment. In this case, the motivation is not at all internalized, and, if the sanction is removed, the motivation disappears. In the case of introjection or introjected regulation, people intrapsychically apply what happens in the case of external regulation. In this case, the motivation is still not internalized, as it is not part of the self. Instead, what is internalized are the contingencies associated with this kind of behavior. The concept of guilt is closely related to this kind of motivation. In the case of identification or identified regulation, people identify with the value of an activity. This value has become an element of the self, or of a constituting identity, and therefore it is considered to be internalized. In this case people engage in an activity because they feel personally committed to do so, disregarding possible external pressures. The final and most internalized variant of extrinsic motivation is integration or integrated regulation. In this case, people have not only identified themselves with a value,

but this value is congruent to the other values they have internalized. In such a case people have succeeded in aligning the various motivations they have.

SDT also describes the process of internalization. A core element of the theory is that individuals have three basic psychological needs (Ryan and Deci 2004). These basic needs are the need for autonomy, the need for relatedness and the need for competence. They are assumed to be present within each individual and they are considered to be the base for individuals' growth oriented movement and the process of internalization. According to SDT, internalization is positively correlated with the perceptions of autonomy, relatedness and competence (Vallerand and Ratelle 2004).

Self-determination theory is closely related to public service motivation theory in the sense that public service motivation can be considered as being a particular type of autonomous motivation (Vandenabeele 2008c; Crewson 1997; Houston 2000). It therefore is also considered to explanatory in the way public service motivation manifests itself and theorists have used it to further develop public service motivation theory (Vandenabeele 2007; Perry and Vandenabeele 2008). This overlap will enable us to apply similar procedures and research strategies to both types of motivation later on.

2.3. Motivation crowding and hypotheses

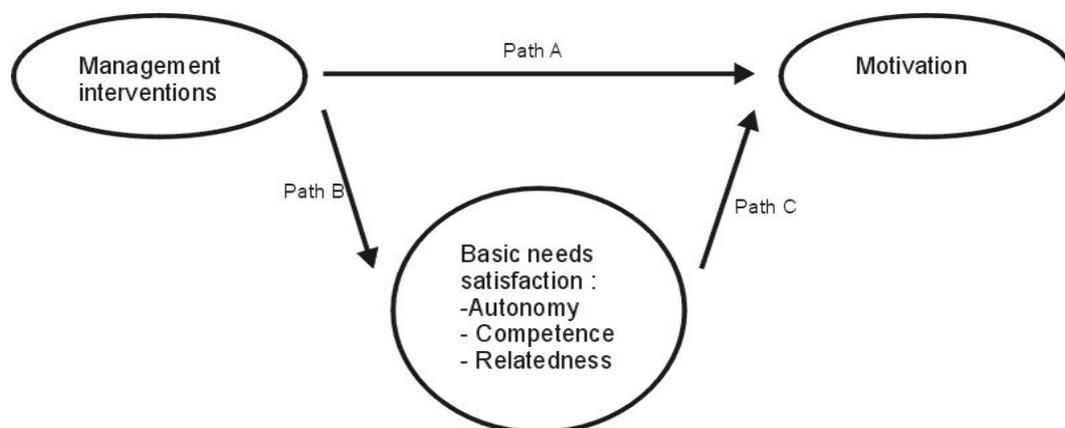
Motivation crowding is the process in which one motivation replaces another. It is based upon the work of Deci (1975; 1978) and Lepper and Greene (1978) and has been recently further developed by Bruno Frey (1997). Three different variants are defined (Frey 1997), one in which an original extrinsic motivation is replaced by intrinsic motivation ('crowding in'), an opposing variant, in which an original intrinsic motivation is replaced by extrinsic motivation ('crowding out') and a variant in which both motivations exist next to one another ('neutral crowding'). To the extent that extrinsic interventions are experienced as controlling, intrinsic

motivation will be replaced and crowding out will take place. If an intervention is however experienced as supportive, intrinsic motivation will be enhanced and crowding in will present itself. Controlling situations are for example a strong contingency between reward and behavior or a lack of participation (Frey 1997).

The explanation for this process is found in self-determination theory (Deci and Ryan 2004).

Controlling situations are those situations in which basic psychological needs are not sufficiently satisfied and this will thus result in controlled motivation, rather than in autonomous motivation. Supportive situations are those in which the basic psychological needs are particularly satisfied and they will therefore result in autonomous motivation. Other additional and partly overlapping explanations suggested by Frey are ‘impaired self-esteem’, when he or she feels that his or her intrinsic motivation is not fully appreciated, which in turn will reduce the effort, and ‘impaired expression possibility’, which refers to a situation in which a person is deprived from exhibiting one’s intrinsic motivation (Frey 1997).

For this paper, the discussion will only address a limited amount of ‘crowding in’ conditions and their influence on different types of motivation. In particular, the influence of managers’ interventions with regard to participation and to the development of personal relationships with employees (propositions 1 and 6 of Frey (1997)).



Therefore, the following hypotheses can be formulated :

H1 : To the degree that employees experience a personal leadership with their supervisor, public service motivation will increase

H2 : To the degree that employees experience a personal leadership with their supervisor, autonomous motivation will increase

Based upon the integration of the various theoretical perspective, we can also expect that basic needs satisfaction will operate a mediator. Thus, some additional hypotheses are formulated :

H3A : Satisfaction of the need for autonomy acts as a mediator in the relationship between crowding in conditions and public service motivation

H3B : : Satisfaction of the need for autonomy acts as a mediator in the relationship between crowding in conditions and autonomous motivation

H4A : Satisfaction of the need for competence acts as a mediator in the relationship between crowding in conditions and public service motivation

H4B : Satisfaction of the need for competence acts as a mediator in the relationship between crowding in conditions and autonomous motivation

H5A : Satisfaction of the need for relatedness acts as a mediator in the relationship between crowding in conditions and public service motivation

H5B : Satisfaction of the need for relatedness acts as a mediator in the relationship between crowding in conditions and autonomous motivation

3. Methods

This section discusses the methods that have been used in this research. A first section is on the collection and description of the data. A second section describes the measures that will be used in analysis later on. A final section is devoted to the discussion of mediation analysis, as this statistical method is not often found in public administration research.

3.1. Data collection

The data used for this paper were gathered by means of a web-based survey, distributed to all employees of the European Commission by DG Personnel and Administration as part of their annual satisfaction survey. The response rate was 28 percent, resulting in 6950 usable forms. The authors of this paper provided some of the questions on motivation for this survey. The socio-demographic distribution, as well as other control variable scores, are provided in table 1A and 1B.

TABLE 1A : Descriptive statistics of variables

Variable	N	Mean	STD	Min.	Max.
Autonomy satisfaction	6860	3,60	0,99	1,00	5,00
Competence satisfaction	6847	3,75	1,02	1,00	5,00
Relatedness satisfaction	6839	4,35	0,84	1,00	5,00
Personal relationship	6629	3,42	1,23	1,00	5,00
Participation	6517	3,45	1,36	1,00	5,00
PSM	6624	3,91	0,69	1,00	5,00
RAI	6131	3,13	3,36	-8,00	12,00

TABLE XB : Descriptive statistics of variables

Variable	Frequency	Percent
Gender		
0. Male	3216	47,96
1. Female	3490	52,04
Missing	244	Not incl.
Age group		
1. up to 29	416	6,16
2. 30 to 39	2078	30,75
3. 40 to 49	2606	38,57
4. 50 to 59	1458	21,58
5. 60 and older	199	2,95
Missing	193	Not incl.

3.2. Measures

Public service motivation is one of the main independent variables of this study. A number of measurement instruments (Coursey and Pandey 2007; Coursey et al 2008; Vandenberghe 2008b) have been derived from the original 24-item measurement instrument developed by Perry (1996). The measure we have used has been operationalized by means of a set of items derived from the instrument developed by Vandenberghe (2008b), as it is more fit to a European environment. However, due to space constraints as well as the need to tailor the questions to the work environment of the European Commission, only eight questions could be selected from the 18-item instrument originally developed. Thus, rather than a questionnaire exploring in detail all of the five dimensions developed by Vandenberghe (2008b), we have constructed a composite public service motivation scale by averaging the score on a select set of public service motivation items in the dataset. Such an approach has been frequently applied in public service motivation research. Brewer and Selden (2000), Naff and Crum (1999) and Kim (2005) used similar instruments, with one item representing each dimension of public service motivation, apart from the dimension ‘politics and policies’ (only measured in Naff and Crum 1999). Lewis and Frank (2002) averaged the score of two items (‘A job that allows to help other people’ and ‘A job that is useful to society’) to construct a measure of public service motivation.

In our instrument, six items were used to measure public service motivation. Again, a five-point response scale (same options as with organizational commitment) was used. Based upon the score, one can conclude that on average, European Commission employees have a substantial degree of public service motivation, similar or even higher than that found in national governments.

Another main independent variable is autonomous motivation. The measurement scale was based upon the Academic Self-Regulation Questionnaire (Grolnick and Ryan 1989). However, it had to be adapted because of a substantially different context. Eight items measuring the type of identity regulation (two items measuring external regulation, introjected regulation, identified regulation and intrinsic regulation; integrated regulation was not included, due to measurement difficulties) were assessed in the work situation (Vandenabeele 2008c). Respondents had to score these items on a five-point scale. This instrument was validated using factor-analysis, using a Diagonally Weighted Least Squares estimation, which accounted for the ordinal nature of the data (RMSEA .048; CFI. 99; GFI 1.00).

Based upon the scores of these items, the Relative Autonomy Index is the construct that will be analyzed (Grolnick and Ryan 1989). This is a summarizing index of self-regulation which illustrates a respondent's feeling of autonomous regulation. It is calculated by multiplying the external regulation score with -2, the introjection scores with -1, the identification scores with 1 and the intrinsic scores with 2 (the extremes of the scale have the strongest impact). In this particular study, the minimum score is -8 and the maximum is 12. The mean score of 3,13 indicates that employees of the European Commission are rather autonomously motivated.

A third construct which is measured in this research is basic needs satisfaction. The basis for the measurement instrument is the 'Basic Psychological Needs at Work Scale' Deci et al (2001). This is a 21 item scale, measuring the three basic psychological needs ('competence',

‘autonomy’ and ‘relatedness’). However, due to constraints within the survey, the entire scale could not be included. Instead, a number of items reflecting the three basic psychological needs were included. The analysis of these items resulted in an internally consistent measurement instrument for the three dimensions, with Cronbach’s alpha levels exceeding .60.

A fourth set of items used in this survey refers to the perception of management interventions for motivation crowding. Two variables, one single-item measure, measuring the degree of participation in decision making, and one two-item measure, measuring the degree to which personal relationships are developed. For this latter instrument, a Cronbach’s alpha of .86 was obtained.

Finally, gender and age are included as control variables. Gender is operationalized by means of a dichotomous variable, with female as a reference category. Age is operationalized as an ordinal variable, with consecutive age category scored from 1 to 5 (see also table 1B).

TABLE 2 : Items used for measurement of variables

Variable and items	Cronbach's α
Public service motivation	
Serving the European public interest is an important drive in my daily life (at work or outside work) [Public interest]	0,71
What I do should contribute to the welfare of European citizens [Public interest]	
To me, serving the European public interest is more important than helping individual persons [Public interest]	
I am prepared to make important sacrifices for the good of the European Union [Self-sacrifice]	
Making a difference in European society means more to me than personal achievements [Self-sacrifice]	
It is important that officials account for the resources that are used [Democratic governance]	
Relative autonomy index	NA
At work, I always do my best because :	
Otherwise, I might create problems for myself [External regulation]	
Otherwise, I risk receiving a negative staff appraisal (CDR) [External regulation]	
Otherwise, I will feel guilty [Introjection]	
Otherwise, I will feel bad about it [Introjection]	
I consider it my duty [Identification]	
I would like to be a good official or member of staff [Identification]	
I enjoy it [Intrinsic]	
I think my job is interesting [Intrinsic]	
Personal relationship	
Management in the Commission seem to care about you as a person	0,86
Management in the Commission support you in times of personal difficulty	
Participation	

Management in the Commission ask for your opinion before taking decisions about your work	NA
Autonomy satisfaction	0,71
The opportunities to take decisions and/or action within your area of work	
At work, my opinions seem to count	
In the Commission I feel respected as an individual	
Competence satisfaction	0,82
At work, every day I have the opportunity to do what I do best	
I feel valued and affirmed at work	
I feel recognised and appreciated at work	
The mission/purpose of my DG makes me feel my job is important	
Relatedness satisfaction	0,61
I enjoy a pleasant working atmosphere	
I have good and supportive working relationships with my close colleagues and team members	

3.3. Statistical analysis

The hypotheses put forward in this paper, come together in a mediation model (see figure 1). This type of model is used to explain how or why relations between independent and dependent variables exist in reality (not to be confused with moderator models looking for interaction effects; see Baron and Kenny, 1986). As a methodological approach, it has been around for a long time in the behavioural sciences (Woodworth 1928). But although such models are extremely useful in explaining and refining correlations between important variables, this methodology is rarely found in public administration journals (although some applications can be found, see for example Vigoda-Gadot 2007; Vandenabeele 2009). Therefore, the following section will elaborate on the use of mediation models.

For a model to exhibit complete mediation, a number of conditions should be met (Baron and Kenny 1986). First, there should be a significant correlation between the independent and the dependent variable (path A). Second, there should be a significant correlation between the independent variable and the mediator variable (path B). Third, there should be a significant correlation between the mediator variable and the dependent variable (path C). Finally, when controlled for the mediator variable (path A', when the mediator is entered in the regression equation describing path A), the correlation in path a should no

longer be statistically significant and thus be eliminated. This implies that the effect between the independent and the dependent variable unfolds itself through the mediator variable.

However, given the multiple causes that exist in social reality, it is unlikely to achieve complete mediation. Therefore, the last condition can be relaxed to ‘a significant reduction of the direct effect’, rather than a complete elimination of the effect. When this is applicable, one speaks of partial mediation. In this case, the mediation effect needs to be assessed for its significance (the Sobel-test). If not, it could be that one terms the effect of a potential mediator variable as mediating, while in fact this effect is non-significant. Although this latter step is not explicitly mentioned as a necessary step in the original Baron and Kenny (1986) article, as it focused on complete mediation (Kenny 2008), it should be incorporated in any model testing partial mediation (Wood et al 2008). In order to test this effect, the mediation effect (β of path a multiplied with β of path b) is divided by its standard error (Sobel 1982), which results in a Z-score. If this score exceeds $|1.96|$, this demonstrates statistical significance at a level of .05 or lower (the details and background of this procedure are elaborated in elsewhere, see for example Baron and Kenny (1986), Holmbeck (2002) or Wood et al (2008)).

4. Analysis and results

A brief look at the correlation matrix (table 3) shows that the possibility of a mediation model is not unrealistic. Both types of motivation are related to the earlier cited management interventions and the mediating variables, while the mediator are also related to the management interventions. This triangular relationship is necessary to make further inquiries into the possible mediation relationship. At the same time, the correlation matrix shows that the relationship between independent and dependent variables is only weak. Due to the large sample size, these small effect size are nevertheless statistically significant.

TABLE 3 : Correlation matrix of the variables included

	1	2	3	4	5	6	7	8	9
1 PSM	1,00								
2 RAI	0,17	1,00							
3 Autonomy	0,16	0,29	1,00						
4 Competence	0,17	0,33	0,78	1,00					
5 Relatedness	0,09	0,20	0,47	0,50	1,00				
6 Pers. relation	0,10	0,17	0,52	0,52	0,37	1,00			
7 Participation	0,10	0,20	0,57	0,52	0,34	0,63	1,00		
8 Gender	-0,09	-0,04	0,01	0,03	0,02	0,04	-0,03	1,00	
9 Age category	0,08	0,08	-0,07	-0,06	-0,01	-0,09	-0,05	-0,15	1,00

Values of over |.03| are significant at $p > .05$

A first step in any mediation relationship is to establish a relationship between the independent variables, in this case the management interventions of developing personal relationships and having employees to participate in decision making, and the independent variables, in this case two different types of motivation. This analysis (paths A in table 4) illustrates that this is indeed the case, as both personal relationship and participation are positively related to public service motivation and autonomous motivation. Also, age category is positively related to both types of motivation (the older people are, the more motivated they are) and gender (being female) is negatively related to public service motivation. As mentioned earlier the effect size are relatively small, as PSM is only explained for 2,3% and relative autonomy is explained for 5,2%.

TABLE 4 : Path A and path A'

	PSM path A		PSM path A'		RAI path A		RAI path A'	
	β	Standard b	β	Standard b	β	Standard b	β	Standard b
Gender	-0,095 ***	-0,070	-0,099 ***	-0,073	-0,163	-0,024	-0,206 *	-0,031
Age category	0,052 ***	0,071	0,054 ***	0,074	0,341 ***	0,093	0,352 ***	0,096
Pers. relation	0,047 ***	0,085	0,016	0,029	0,210 ***	0,076	-0,094 *	-0,034
Participation	0,020 *	0,041	-0,013	-0,025	0,385 ***	0,155	0,091 *	0,037
Autonomy			0,053 ***	0,077			0,237 ***	0,069

Competence		0,074 *** 0,111		0,872 *** 0,261
Relatedness		NA		0,159 *** 0,040
F-value	35,71 ***	45,01 ***	79,11 ***	116,73
R ²	0,023	0,042	0,052	0,125
N	6172	6160	5751	5737

A second step in mediation analysis is assessing the relationship between the independent variables and the mediators. With the same control variables of age and gender included, both independent variables significantly explain all three mediators (autonomy, competence and relatedness). The effect size reported in this model are large to moderate (an R² varying between .162 and .368), illustrating a strong relationship between the independents and the mediators. With regard to the control variables, gender seems to influence the degree of competence and relatedness satisfaction, whereas age seems to influence the satisfaction of autonomy.

TABLE 5 : Path B

	Autonomy		Competence		Relatedness	
	β	Standard b	β	Standard b	β	Standard b
Gender	0,011 0,006		0,054 * 0,027		0,046 * 0,027	
Age category	-0,032 ** -0,030		-0,004 -0,004		0,025 * 0,027	
Pers. relation	0,209 *** 0,259		0,265 *** 0,320		0,181 *** 0,264	
Participation	0,295 *** 0,404		0,237 *** 0,317		0,111 *** 0,180	
F-value	916,33 ***		790,98 ***		304,23 ***	
R ²	0,368		0,335		0,162	
N	6300		6294		6287	

A third step in mediation analysis is assessing whether a relationship exists between the mediators and the dependent variables (table 6). In this case, there is a moderate relationship between all three mediating variables and RAI ($R^2 = .12$), whereas there is weak but significant relationship between autonomy and competence on the one hand and public service motivation on the other hand ($R^2=.038$). Relatedness does not play an explanatory in this relationship, and therefore it will be removed from the mediation analysis of public service motivation. The control variables demonstrate similar relationship for both dependent variables, with negative effects for gender and positive for age.

TABLE 6 : Path C

	PSM		RAI	
	β		β	
	Standard b		Standard b	
Gender	-0,089 ***		-0,208 *	
	-0,065		-0,031	
Age category	0,053 ***		0,369 ***	
	0,072		0,101	
Autonomy	0,060 ***		0,270 ***	
	0,086		0,079	
Competence	0,058 ***		0,847 ***	
	0,086		0,253	
Relatedness	0,015		0,129 *	
	0,018		0,032	
F-value	51,41 ***		162,94 ***	
R ²	0,038		0,120	
N	6455		5792	

After assessing all the necessary conditions for mediation, the mediation effect itself can be assessed and the mediators are brought into the main analysis (see table 4, path A'). For public service motivation, one can observe that both mediators fully mediate the relationship between the development of personal relationships and presence of participation on the one hand and public service motivation on the other hand. For relative autonomy, the relationship between personal relation and the dependent is inverted, and therefore a complete mediation

is achieved. For participation the size of the correlation is reduced, and thus complete mediation is not possible. However, it could still be that the relations between participation and autonomous motivation is partially mediated by basic psychological needs satisfaction. In order to test whether this is the case, as Sobel-test is performed. The Sobel-test, assessing whether the drop in unstandardized regression coefficient of participation for RAI (.2945) is statistically significant. This value is therefore divided by its standard error (.0168) in order to obtain a Z-score. The resulting score of 17.52 is clearly above the cut-off of 1.96 and thus one can conclude that this mediational path is statistically significant. As a consequence, partial mediation is demonstrated.

5. Discussion

The results demonstrate that management interventions (or at least perceptions of management interventions) generate a positive outcome with regard to motivation in general terms and in public sector specific terms in particular. As has been illustrated that these two types of motivation are positively related to overlapping, but also to substantially distinct fields of organizational outcomes, such interventions can be deemed as very important in the management of public sector organizations and their employees. Therefore, hypotheses H1 and H2 are corroborated. An important observation is however that the effect sizes, in particular for public service motivation, but also for autonomous motivation are rather weak. Nevertheless, the findings still have scientific significance. Reality is complex and phenomena know multiple causes by default. It is therefore important to distinguish multiple mechanisms and antecedents that influence variables, in this case public service motivation. Research has already demonstrate many antecedents (Pandey and Stazyk 2008; Perry 1997), and these findings only add up to this knowledge.

However, next to the main effect, it is equally important to assess the mediators by which these antecedents manifest themselves. Such findings are necessary to further develop theory and integrate various concepts. With regard to public service motivation, the effect of the interventions is fully mediated through the satisfaction of the basic psychological needs autonomy and competence. As satisfaction of relatedness does not act as mediator, being excluded from the model, only H3A and H3B were supported. H5A was however rejected based upon this analysis. With regard to the relation between management interventions and relative autonomy, for the development of personal relations, the effect is fully mediated by basic needs satisfaction, whereas for participation, there is a stronger partial mediation effect. Therefore, H3B, H4B and H5B could not fully be supported, nor be fully rejected.

Another drawback is that only a very limited set of Frey's original propositions are tested in this research (Frey 1997). While some of the condition for crowding-in are tested, none of crowding-out propositions are subject to enquiry. Therefore, further research is necessary to develop better understanding of how various motivation theories interact with one another. Nevertheless, despite the shortcomings, these findings enable us to integrate public service motivation theory with as well self-determination, as was suggested in other contributions (Vandenabeele 2007; Perry and Vandenabeele 2008), as with the related motivation crowding theory. It provides thus stronger theoretical foundations for public service motivation theory, while at the same time this result broadens the empirical scope of self-determination theory and the related motivation crowding theory. This integration of different theoretical perspectives will also enable theorists and practitioners to more fully understand motivational aspects of management and how and why some actions will or will resort effect.

Finally, for the control variables, age generates similar effects on both types of motivation. Apparently, older employees are more motivated, in terms of public service motivation and in terms of general autonomous motivation. For public service motivation, female respondents

seems to be less public service motivated than male ones. This could be due to the fact females are in general more employed at lower levels within the organization, and that those lower in the hierarchy are less public service motivated than those at higher positions.

6. Conclusion

The results of this analysis demonstrate that management intervention has a crowding-in effect on public service motivation as well on general autonomous motivation. To a large extent, these effects are mediated by basic psychological needs satisfaction, as suggested by self-determination theory, public service motivation theory and motivation crowding theory. This enables a further integration of various motivational perspectives.

However, some limitations rest upon these results. First, only limited effect sizes are found in the models that have been tested. Despite these small sizes, the effects are still significant and in a complex reality, it is important to assess different individual effects. Second, the analysis was performed on cross-sectional data. This is always a drawback with regard to the causal claims. However, by integrating the model into various theoretical frameworks, internal validity can be increased. Third, not all hypotheses are fully supported and some further analysis is necessary to further refine these findings.

Nevertheless, the results of this analysis indicate that participation of employees by the management and building personal relationships have an influence on the motivation of EU Commission employees. The findings also suggest that basic needs satisfaction mediates this motivational effect. Most importantly, however, the findings suggest that managers can make a difference in their employees' motivation, as long as they satisfy their needs.

7. References

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