

Explaining public service motivation : the role of leadership and basic needs satisfaction

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Abstract

Both leadership and public service motivation are important issues in contemporary public administration. By connecting these issues, the aim of this paper is to assess the impact of transformational leadership behavior (promoting public values) on public service motivation development. Two hypotheses were tested with a dataset of 3506 state civil servants in Belgium. The analysis shows that a positive relation exists, and that it is moderated by a set of basic psychological needs (security, autonomy, competence and relatedness). The results demonstrate the validity of an institutional theory of public service motivation.

## Explaining public service motivation : the role of leadership and basic needs satisfaction

Although antecedents of public service motivation have been studied by a number of researchers (Camilleri 2007; Perry 1997; DeHart-Davis et al 2006), little empirical research has been devoted to exploring the institutional or organizational origins of public service motivation. According to Pandey and Stazyk (2008), ‘research has yet to elaborate upon ... pathways for antecedents... of public service motivation’. Nevertheless, the available research focusing on these issues, as well theoretically (Perry 2000; Vandenabeele 2007a; Perry and Vandenabeele 2008) as empirically (see for example Moynihan and Pandey 2007; Perry 1997), points to an empirical relationship between institutional origins of public service motivation.

This paper would like to further this research by investigating the potential institutional origins of the concept. It would like to provide an answer to this question by studying the relationship between public service motivation and leadership. Although there has been substantially less attention for leadership in the public sector (Terry 2003), it nevertheless is an important issue, both with academics and practitioners (Van Wart 2003). In particular, the focus will be on the relationship between the values of direct supervisors and the public service motivation levels of their subordinates. This perspective is an illustration of the (often informal) process of institutional socialization (Perry and Vandenabeele, 2008; Vandenabeele 2007a), being an example of a structured interaction with the supervisor which leads to a transfer of values from the organizational reality, operationalized by symbolic or relational systems (Scott 2001), to the level of the individual.

First, some theoretical issues concerning both independent variables and public service motivation are reviewed. Second, the data and methodology are further discussed. Third, the

results of the analyses are presented. Finally, the paper ends with a discussion about the results before formulating some general conclusions.

## 1. Theoretical overview

This theoretical framework provides an overview of the literature concerning the important concepts for this paper. First, various types of leadership are discussed and assessed on their motivational merits. Second, the relationship with public service motivation is discussed. In the end, a set of hypotheses based upon this review will be developed.

### 1.1 Transformational leadership in the public sector

In current management research, leadership has many guises. Until the late 1970s, leadership was primarily focused on transactional leadership (Rainey 1997). This type of research was ‘transactional’ in the sense that ‘leaders approach followers with an eye to exchanging (Burns 1978 : 4)’. Afterwards, the focus shifted towards transformational leadership (Conger and Hunt 1999). This type of leadership research aimed at a different kind of leader. Transformational leadership results in ‘shifts in the beliefs, the needs, and the values of followers (Kuhnert and Lewis 1987 : 648)’. This type of research originated from three sub-schools, transformational leadership, with a focus on organizational change, charismatic leadership, focused on the influential processes, and entrepreneurial leadership, borrowing from the two former and integrating it (Van Wart 2003).

Both transactional and transformational types of leadership are commonly said to operate on different levels. Where transactional leaders are mainly presented as small group, ‘direct supervisor’-style leaders, transformational leaders are often conceived as higher up the hierarchy, ‘top executive’ style leaders (Van Wart 2003), despite the claim that, in order to

create an effective leadership style, both transactional and transformational elements should be taken into account (Trottier et al 2008).

In this paper, the analysis will be limited to transformational leadership, as the aim is to investigate the impact of leadership on a value-laden concept as public service motivation. In an organizational context, this is one of the aims of transformational or charismatic leadership. By influencing the self-concept of organizational members through leader behavior, the goal is to obtain social identification and to internalize certain values within the organizational members (Shamir, House and Arthur 1993), which in turn can motivate followers. Next to this, transformational leadership also strengthens moral behavior of institutional members (Dvir et al 2002), which demonstrates its particular aptitude for public service motivation related research. Bass (1999) also distinguishes four elements in transformational leadership : individualized consideration, idealized influence, intellectual stimulation and inspirational motivation. This latter element is a connection to public service motivation, and it will therefore be the main focus of this paper.

However, public administration theory on leadership did not follow the developments towards transformational leadership as found in the general management literature. Instead, it sets out its own course with the main focus of the debate on the ‘constraints and unique environment of administrative leaders (Van Wart 2003 : 224)’. Moreover, some voiced their doubts on whether transformational leadership was at all suited for the public sector. Certain conditions influence both the emergence and the effectiveness of transformational leadership (Shamir and Howell 1999), and these conditions not always fit a public environment, dramatically decreasing the emergence of charismatic leadership in a bureaucracy. The impact of charismatic or transformational leadership in a public sector environment therefore remains to be discussed (Javidan and Waldman 2003). Some also state that, as the organizational features of a public sector organization substitute for leadership (Kerr and Jermier 1978),

leadership is less influential (or needed) in public sector environment (see for an overview Hooijberg and Choi 2001). Nevertheless, others still urge their colleagues to refer to transformational leadership as a means to establish a value-based management in the public sector (Denhardt and Campbell 2006; Paarlberg and Perry 2007; Trottier et al 2008).

A last issue to which particular attention needs to be devoted is that of transformational leadership, in the sense of transforming an employee's identity, is not limited to the highest levels of the organization. Numerous examples have demonstrated that also direct supervisors, located much lower in the organizational hierarchy, have a substantial impact on someone's work-related identity. Supervisors are used as an intra-organizational referent, from which essential value-laden information can be obtained (Settoon and Adkins 1997; Filstad 2004). Therefore, direct supervisors make as much sense as socializing agents as executive leaders do in representing a set of institutionalized values.

## 1.2. Fitting transformational leadership into a theory of 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). More contemporary authors have also found this concept appealing to describe (at least some of) the motivations of present-day civil servants (Downs 1967; Mosher 1968; Chapman 1988), albeit treating it 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. Next to this definition, 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, similar concepts exist which do not apply PSM-terminology at all. Some, mostly non-American, authors do not use the term at all 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, Vandenabeele (2007a) 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)’.

Although little empirical work has been done on the institutional antecedents of public service motivation (Pandey and Stazyk, 2008), the available empirical (Moynihan and Pandey 2007) and theoretical work (Vandenabeele 2007a; Perry 2000; Perry and Vandenabeele 2008) suggests that institutions, play an important role in its development. Institutions, defined as ‘a formal or informal, structural, societal or political phenomenon that transcends the individual level, that is based on more or less common values, has a certain degree of stability and influences behavior (Peters 2000 : 18)’, are held responsible for the transmission of (public service) values from the institution in which they are embedded to the individual’s identity as a member of the institution.

Elaborating this idea, Vandenabeele (2007a) combines it with the concepts of the self-determination theory of Deci and Ryan (2004). Public service motivation can be considered as an autonomous type of identity regulation which is based upon internalized values that are the foundation of an institution and its related identity. This type of self-regulation corresponds to the institutional logic of appropriateness (March and Olsen 1989 & 1995), where individuals act in accordance to institutional values because they have internalized these (Scott 2001; Berger and Luckman 1966). In terms of public service motivation, people will be public

service motivated because they have internalized public service values. According to Ryan and Deci (2005), this process of internalization (or the socialization of an autonomous regulated identity) is enhanced by the satisfaction of the individual basic psychological needs of autonomy, competence and relatedness. These 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. To the extent that these needs are satisfied, an identity (and the value(s) it is based upon) will be internalized better, resulting in a more autonomous regulation of the identity (Ryan and Deci 2005) and consequently in a higher public service motivation score.

Transformational leadership or socialization by leaders can help to illustrate this institutional theory of public service motivation. First, the values promoted by the supervisor can be considered to be an instantiation of the institutional values. Scott (2001) refers to the influence of symbolic or relational systems (in this case the social beliefs and the norms promoted by the supervisor) as 'carriers of institutions' to explain agency within institutions. Furthermore, the organization in which one is employed somehow responds to the basic psychological needs located within each individual (Ryan and Deci 2004).

This results in a set of hypotheses concerning the impact of leadership promotion of public service values on the level of individual public service motivation (figure 1).

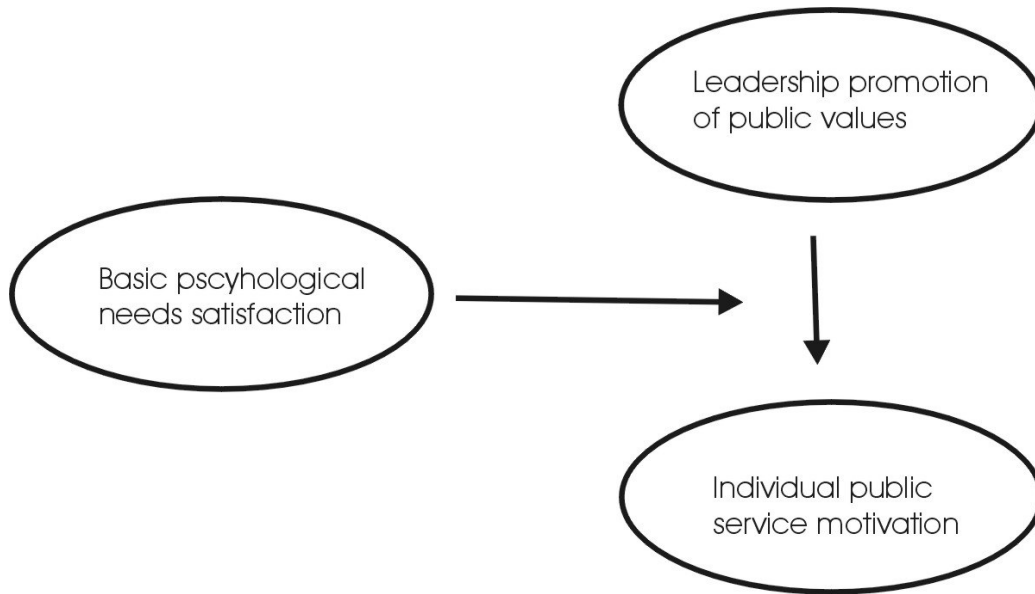


Figure 1 : Graphical representation of the hypotheses

First, transformational leadership and co-workers can be considered as a way to promote and socialize institutional values. Therefore H1 states :

H1 : Promotion of institutional public service values by supervisors is positively correlated with the individual level of public service motivation.

This hypothesis is further refined in H2, which adds another institutional element as a moderator. H2 is thus formulated as follows :

H2 : The correlation between the leadership promotion of public service values and public service motivation is positively moderated by the identity basic psychological needs satisfaction within the organization.

## 2. Methods

The data upon which the analysis in this paper is based, are of a quantitative nature. Therefore, a short description of the data collection and the sample, as well as a discussion of the measurement instruments and the statistical techniques are provided.

## 2.1. Sample and data

The data upon which this paper is based were collected in a survey among Flemish state civil servants of the central ministries and some associated agencies. However, some parts of the state government also chose not to be involved in the sample for a variety of reasons. Nevertheless, most of the central ministries (approximately 75% of the workforce) and a number of agencies engaged themselves, through explicit consent of their chief executive officers, to take part in this survey.

The survey itself was an internet-based e-mail survey. As all employees of state government (even the lowest levels) have access to the internet, the risk of coverage error was reduced. A drawback is that web-surveys return in general a lower response rate compared to mail-surveys (Crawford et al 2001). Couper (2000) attributes this to the lack of tried and tested techniques for increasing response, the discouraging impact they have on subjects who are less familiar with the internet or confidentiality issues raised by electronic communication.

In order to increase absolute responses and response rates, a number of strategies were applied. First, the population was sampled on a census-base (entire population), increasing the sample to the maximum available. Second, both the technology and the design of the survey were chosen to secure maximum technological and psychological accessibility, reducing the perception of burden (Crawford et al 2001). The consent of the chief executive officer, a voucher lottery, anonymity preservation, maximum visibility of the researchers and a low technological threshold all were applied to achieve a maximal sample size. Third, one week

after the first e-mail, a reminder was sent out. However, due to the constraints of anonymity, this was sent out to the entire sample, asking whether they had replied to the survey.

When reviewing the data quality, suspicious entries (doubles, inconsistent or monotonous response patterns) were deleted and 3506 usable responses were retained. Response rates for the organizations varied from 21 % to as much as 90 %. As table 1A demonstrates, the bulk of the data were collected with civil servants of the core ministries (which were at the time the largest group of civil servants in our surveyed population). The average respondent was 42 years old at the time of the survey and had been in service for just over 11 years. Table 1B shows that both sexes are more or less equally represented in the survey. When looking at the grades (grade A requires a master degree or equivalent; grade B requires a bachelor degree; grade C requires high school education and grade D requires no education), most of the respondents belonged to grade A, while the smallest group belonged to grade D. This could be evidence of a bias towards grade A, especially because higher level employees tend to participate more in web-surveys (Couper et al 1999). However, due to the permanent changes in the state government, no accurate population data are available. Nevertheless, because representative sampling is less important in some instances (Krosnick 1999) and correcting for demographic biases demonstrates very little impact in the case of correlational analyses (Brehm 1993), no weighting procedure was applied.

TABLE 1A : *Response rates in the various organizations*

	<b>E-mails sent</b>	<b>Respondents</b>	<b>Response rate</b>
Core ministries	9492	3096	.33
Agency on educational infrastructure	72	26	.36
Agency on Flemish tourism	205	44	.21
Agency on public collection and processing of waste	393	210	.53
Agency on regulating the energy market	20	18	.90
Institute for scientific and technological development	141	47	.33
Institute for agricultural research	N.K.*	66	N.K.*

\* N.K. : Not known

TABLE 1B *Some demographic statistics*

Variables	N	%
Gender		
Male	1813	51.71
Female	1691	48.23
Missing	2	.06
Level		
A	1419	40.47
B	716	20.42
C	1008	28.75
D	326	9.30
Missing	37	1.06

## 2.2. Dependent and independent variables in the analysis

The concept of public service motivation was first described by Perry (1996), who identified four dimensions of public service motivation, ‘Attraction to politics and policy making’, ‘Public interest’, ‘Compassion’ and ‘Self-sacrifice’. Later research (Coursey et al 2008; Coursey and Pandey 2007; Vandenabeele 2008; Bright 2007; Camilleri 2006 & 2007) more or less confirmed this factorial structure, although in some cases subtle or more marked differences could be noted. Vandenabeele (2008) found an additional dimension ‘Democratic governance’ and renamed ‘Attraction to politics and policy making’ to ‘Politics’, whereas Coursey et al (2008) left out the dimensions ‘Attraction to politics and policy making’ altogether. Coursey and Pandey (2007) in their turn did not include the dimension ‘Self-sacrifice’. This paper will use the typology by Vandenabeele consisting of the dimensions ‘Attraction to politics’, ‘Public interest’, ‘Compassion’, ‘Self-sacrifice’ and ‘Democratic governance’. The general procedure for the development of this measurement scale was to split the data in two random datasets of equal size, of which one acted as the set in which the model was calibrated, and another one in which the model was cross-validated to avoid capitalization on chance (MacCallum et al 1994). The model itself was analyzed by means of a Diagonally Weighted Least Squares estimation, to account for the ordinal character of the data (Jöreskog 2005). The specifics of the factor analysis used in the development of this

measurement scale are not considered here, as they are described thoroughly elsewhere (Vandenabeele 2008; see also appendix 1).

Although public service motivation consists of a number of dimensions, this paper only considers an aggregate instrument of public service motivation, not the individual dimensions, in order to limit the size of the analysis. This instrument involves averaging the score on the set of public service motivation items, scored from 1 to 5 (1. ‘I totally disagree’ to 5. ‘I totally agree’; or the inverted scores, if applicable). Although this measure provides less information on the individual dimensions of public service motivation, an aggregate approach has been frequently applied in public service motivation research (Brewer and Selden 2000; Naff and Crum 1999; Kim 2005; Lewis and Frank 2002). In total, 18 items, relating to five dimensions of public service motivation found by Vandenabeele (2008), are averaged.

TABLE 2 : *Public service motivation measurement scale (Vandenabeele 2008)*

<b>Politics</b>
I do not care about politicians 'Politics' is a dirty word
<b>Public interest</b>
To me, before anything, good civilians should think of society Serving the public interest is an important drive in my daily life (at work or outside work) I voluntary and unselfishly contribute to my community To me, serving the public interest is more important than helping individual persons
<b>Self-sacrifice</b>
Much of what I do is for a cause bigger than myself I am prepared to make enormous sacrifices for the good of society I feel people should give back to society more than they get from it Making a difference in society means more to me than personal achievements
<b>Compassion</b>
To me, helping people who are in trouble is very important I seldom think about the welfare of other people whom I don't know personally Without solidarity, our society is doomed to fall apart Fighting poverty is an important duty of government To me, patriotism includes seeing to the welfare of the others
<b>Democratic governance</b>
Everybody is entitled to a good service, even if it costs a lot of money Even in the case of major disasters, public service should be maintained It is important that public servants account for all the costs they make

In order to measure leadership promotion of public service values (limited to the direct supervisor), respondents were asked to what extent their direct supervisors discussed a set of public service values with them. These values correspond to the five dimensions distinguished in the public service motivation : ‘Supervisor Politics’ , ‘Supervisor Public Interest’ , ‘Supervisor Compassion’ , ‘Supervisor Self-sacrifice’ and ‘Supervisor Democratic Governance’ (table 3). As is the case with the public service motivation instrument, these items are measured on a five-point scale (from 1. ‘I totally disagree’ to 5. ‘I totally agree’). However, they are not the same items that were used in the public service motivation instrument. Many respondents would find it impossible to comment on such detailed items as used in the public service motivation instrument on behalf of their supervisor. After all, measuring supervisor public service motivation was not the intention of this instrument. The aim was to give an overview of the values promoted by the supervisor, as a reflection (of the perception) of the institutionalized public service values within this organization. In the case of ‘Supervisor Public Interest’ , ‘Supervisor Compassion’ and ‘Supervisor Self-sacrifice’ , a single item is used to measure the value. In two other cases, two or more items are used. In the case of ‘Supervisor Democratic Governance’ , the internal consistency of this scale is sufficient, as the Cronbach’s  $\alpha$  is .71. In the case of ‘Supervisor Politics’ , the  $\alpha$  of .47 is below the suggested lower boundary of .60. However, in order to have an as broad as possible sketch of the institutional value, even if it lacks some internal consistency, the scale will remain in the analysis.

TABLE 3 : *Leadership promotion of public service values*

<b>Supervisor Politics</b>
My direct supervisor reminds me in our discussions about the political sensitivity of our job
My direct supervisor reminds me in our discussions about the influence we exert on public policy
<b>Supervisor Public Interest</b>
My direct supervisor reminds me in our discussions about our contribution to the public interest
<b>Supervisor Compassion</b>

My direct supervisor reminds me in our discussions about the importance of compassion to fellow citizens who have a hard time

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**Supervisor Self-sacrifice**

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My direct supervisor reminds me in our discussions about the necessity to forgo my own interests

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**Supervisor Democratic Governance**

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My direct supervisor reminds me in our discussions about the importance of equal treatment

My direct supervisor expects me to account for my actions

My direct supervisor reminds me in our discussions about the importance of honesty and trustworthiness

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The final construct which is measured in this chapter is basic psychological needs satisfaction. The basis for the measurement instrument is the ‘Basic Psychological Needs at Work Scale’ (Baard et al 2004). This is a 21 item scale, measuring the three basic psychological needs (‘competence’, ‘autonomy’ and ‘relatedness’). Again, the dataset was randomly split, resulting in one calibration dataset and one validation dataset, preventing capitalization on chance. The analysis resulted in a 14-item instrument, measuring three dimensions (see appendix 1). This reduction demonstrated the need for cross-validation of measurement instruments in other environments.

TABLE 4 : *Factor model Basic Needs Satisfaction at work*

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**Autonomy**

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I feel like I can make a lot of inputs to deciding how my job gets done.

I am free to express my ideas and opinions on the job.

My feelings are taken into consideration at work.

I feel like I can pretty much be myself at work.

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**Relatedness**

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I really like the people I work with.

I get along with people at work.

I pretty much keep to myself when I am at work (I).

I consider the people I work with to be my friends.

People at work care about me.

People at work are pretty friendly towards me.

The people with whom I work, seem to like me

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**Competence**

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People at work tell me I am good at what I do.

I have been able to learn interesting new skills on my job.

Most days I feel a sense of accomplishment from working.

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(I) Inverted coded

\*  $p < .05$

Next to these variables, a number of control variables were also included in the analysis ('gender', 'year of birth' and 'grade'). While 'gender' is a dichotomous dummy variable, with males being the reference group (scoring '0'), 'grade' has four categories ('grade A' requiring master degree, 'grade B' requiring bachelor degree, 'grade C' requiring high school education and 'grade D' requiring no education). Grade D is excluded from the analysis and therefore the reference category (Hardy 1993). 'Year of birth' is a metric variable.

### 2.3. Statistical techniques

Regression analysis is the most appropriate method for examining the relation between a set of independent variables and a single dependent variable. Multiple Ordinary Least Squares (OLS) regression is probably the most widely used variant of regression analysis. A number of points are of particular interest when interpreting OLS regression results. First, in the case of nominal independent variables, dummy variables are used. This entails the existence of a reference group, to which the other categories stand out (Hardy 1993). Second, it is important to consider the problem of multicollinearity. If two independent variables highly correlate, regression results become spurious (Fox 1991) and results are not clearly attributable anymore. Product-terms in particular, as used in MMR (see further), are prone to this phenomenon.

In order to test the hypotheses stated earlier in this chapter, the analysis should be able to incorporate interactive effects. More specifically, when testing H2, the analysis should be capable of assessing the effect of promotion of public service values on public service motivation for different levels of the moderator variables, in this case the basic psychological needs satisfaction. An obvious methodology would be interactive or moderated regression

(Moderated Multiple Regression; MMR) using product-terms of the independent and the moderator variables (Jaccard et al 1990; Baron and Kenny 1986).

However, in comparison to experimental settings, MMR is often underachieving in detecting moderator variables in survey data, although compelling theoretical reason for such a relationship exists. Although the general model statistics (Model F,  $R^2$ ) are in these cases reliable, the estimates of the regression parameters ( $\beta$ 's and standard errors) are especially prone to unreliability, due to the joint distribution of the data (for an overview, see McClelland and Judd 1993 or O'Connor 2006). As cross-products are highly correlated with both independent variables, the risk of multicollinearity is substantial. Even mean-centering, a strategy proposed for reducing multicollinearity (Jaccard et al 1990), does not alleviate these problems. As a consequence, MMR is not always capable of specifying the direction of the interaction (positive or negative). Furthermore, statistical power of MMR is also sometimes very low because of the joint variable distribution (O'Connor 2006).

Therefore, other ways of detecting interactions should be added to supplement MMR. One of these possible approaches is the comparison of subgroups (Subgroup Correlation Comparison; SCC). Although the statistical power of SCC is lower than MMR (Stone-Romero and Anderson 1994), it suffers less from multicollinearity as no product terms are involved. In particular, SCC enables to investigate the direction of the alleged interaction effect, by comparing sizes of correlation coefficients. In order to compare subgroups, the null-hypothesis of equal correlations between two subgroups (a higher and a lower scoring group on the moderator) needs to be tested by means of the Q-statistic. This statistic is based upon the Fisher's Z-scores of the correlations of the different subgroups and it is approximately distributed as a chi-square with  $k-1$  degrees of freedom (Jaccard et al 1990).

### 3. Analysis of the data and presentation of the results

Before analyzing the regression equation, the correlation table of the variables (table 5) is investigated. One can observe that the main dependent variable, public service motivation, is positively correlated to the promotion of public service values by the supervisor. This warrants a further investigation of this relation by means of regression analysis. Due to the large sample size, correlations of over  $|.04|$  are statistically significant. These, however, will result in very small effect sizes.

TABLE 5 : Correlation matrix of variables included in the analysis (observations with missing values excluded)

	Mean	Std	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Public service motivation	3.67	.43	1.00													
2 Supervisor Politics	2.39	1.32	.18	1.00												
3 Supervisor Public Interest	3.38	1.18	.20	.15	1.00											
4 Supervisor Compassion	2.40	1.20	.16	.11	.45	1.00										
5 Supervisor Self-sacrifice	2.73	1.20	.13	.18	.43	.45	1.00									
6 Supervisor Democratic Governance	3.57	.84	.21	.22	.68	.47	.51	1.00								
7 Autonomy	5.04	1.10	.15	.04	.25	.18	.13	.33	.37	1.00						
8 Competence	5.34	1.05	.27	.10	.28	.18	.16	.35	.40	.63	1.00					
9 Relatedness	4.89	.74	.15	.00	.22	.15	.13	.25	.23	.56	.45	1.00				
10 Gender	1.48	.50	-.15	-.06	-.02	.03	-.05	-.02	-.02	.00	-.04	.02	1.00			
11 Year of birth	1964	10.81	-.14	.14	-.08	-.03	-.03	-.06	-.02	.05	.00	.03	.23	1.00		
12 Grade A	.41	.49	.15	.40	-.07	-.08	.01	.04	.09	.06	.08	-.01	-.06	.63	1.00	
13 Grade B	.21	.40	-.05	-.09	.01	.09	-.01	.00	-.01	.03	.02	.01	.04	-.42	.63	1.00
14 Grade C	.29	.45	-.05	-.23	.01	-.02	-.02	-.05	-.04	-.08	-.07	-.04	-.01	-.52	-.32	.63

Correlations of |.04| and over are significant at level  $p < .05$

### 3.1. Main effect of leadership promotion

Any MMR model consists of two major steps. At the beginning of any such model, the main effect is tested. By entering the independent and the control variables into the regression equation, the relationship between independent and dependent variables is controlled for other possible effects incorporated in these variables. The results in table 6 demonstrate the presence of a statistically significant relationship between public service motivation and all supervisors promoted public service values but ‘Supervisor Self-sacrifice’. Moreover, gender, age and grade also have a statistical significant impact on the individual level of public service motivation. Whereas gender and year of birth show a negative coefficient (female respondents and younger respondents score lower on public service motivation), grade has a positive relationship (compared to Grade D, the other, hierarchically higher grades, score higher). The model accounts, with an R<sup>2</sup> of .12, for a substantial part of the individual public service motivation variance.

TABLE 6 : *Testing the effect of leadership public service values promotion on PSM*

	$\beta$ (B)	SE
Gender	-.09 ***	.01
Year of birth	-.10 ***	.00
Grade A	.21 ***	.03
Grade B	.24 ***	.03
Grade C	.12 ***	.03
Supervisor Politics	.11 ***	.03
Supervisor Public Interest	.03 ***	.01
Supervisor Compassion	.09 ***	.01
Supervisor Self-sacrifice	.04 ***	.01
Supervisor Democratic Governance	.11 ***	.01
	.03 ***	.01
	-.01	.06

F-model	45.34 ***
N	3425
R <sup>2</sup>	.117
Adj. R <sup>2</sup>	.115

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\* p<.05; \*\* p<.01; \*\*\* p<.001

### 3.2. Moderator effect of relative autonomy on the leadership effect

The next step in developing a MMR model is entering the moderator effects into the regression. This step is subdivided in two other steps. First, the main effect of the moderator variables needs to be entered, by adding the alleged moderator variable(s). Second, the product-terms of the main independent variables with the moderator variables need to be entered into the regression. If the difference in explanatory power (difference in R<sup>2</sup>) between both regression models is statistically significant, as measured by the F-ratio statistic (hierarchical analysis), presence of a moderator effect is detected.

As the results of the analysis in table 6 still stand, no new analysis of the main effect is required. Therefore, we can proceed directly to analyzing the moderator effect of basic needs satisfaction. In a first step, the main effect of ‘Autonomy’, ‘Competence’ and ‘Relatedness’ are added to the regression model. This results in a statistically significant model with an R<sup>2</sup> of .16. Satisfaction of all three basic psychological needs display a significant, albeit positive for ‘Competence’ and ‘Relatedness’ and negative for ‘Autonomy’. Also, the effect of ‘Supervisor Democratic Governance’ found in table 6 has disappeared. All the other previously found effects remain significant. In the following steps the interaction variables, first the one based upon ‘Autonomy’, next the ones based upon ‘Competence’ and ‘Relatedness’, are added to the model. As stated before, only the R<sup>2</sup> and the F-ratio are considered when evaluating these models. By adding the variables regarding ‘Autonomy’ results in a statistically significant increase in statistical power of the model, with an F-ratio of 6.26. Adding the product-terms regarding ‘Competence’ and ‘Relatedness’, does not result in

a significantly improved model. Hence, for ‘Autonomy’, a moderator effect is detected, whereas for ‘Competence’ and ‘Relatedness’, no interaction can be found.

TABLE 7 : Hierarchically testing the effect of leadership public service values promotion on PSM

	$\beta$ (B)	SE	$\beta$ (B)	SE	$\beta$ (B)	SE	$\beta$ (B)	SE
Gender	-.08 ***	.01	-.08 ***	.01	-.08 ***	.01	-.08 ***	.01
	-.09		-.09		-.09		-.09	
Year of birth	-.01 ***	.00	-.01 ***	.00	-.01 ***	.00	-.01 ***	.00
	-.13		-.13		-.13		-.13	
Grade A	.20 ***	.03	.20 ***	.03	.19 ***	.03	.20 ***	.03
	.22		.22		.22		.22	
Grade B	.10 ***	.03	.10 ***	.03	.10 ***	.03	.10 ***	.03
	.10		.09		.09		.09	
Grade C	.10 ***	.03	.10 ***	.03	.10 ***	.03	.10 ***	.03
	.10		.10		.10		.10	
Supervisor Politics	.03 ***	.01	.03	.02	.05	.03	.07	.04
	.09		.11		.14		.21	
Supervisor Public Interest	.03 ***	.01	.12 ***	.04	.16 ***	.04	.16 **	.05
	.09		.32		.43		.43	
Supervisor Compassion	.03 ***	.01	-.07 *	.03	-.13 **	.04	-.14 **	.05
	.08		-.19		-.34		-.39	
Supervisor Self-sacrifice	.00	.01	.01	.03	.00	.04	-.01	.05
	-.01		.03		.00		-.03	
Supervisor Democratic Governance	.00	.01	-.18 ***	.05	-.20 **	.06	-.21 **	.08
	.00		-.35		-.38		-.41	
Autonomy	-.02 **	.01	-.13 ***	.02	-.11 ***	.03	-.11 **	.03
	-.06		-.33		-.29		-.27	
Competence	.09 ***	.01	.09 ***	.01	.07 *	.03	.07 *	.03
	.21		.22		.16		.18	
Relatedness	.04 ***	.01	.04 ***	.01	.04 ***	.01	.01	.04
	.07		.07		.06		.01	
Supervisor Politics X Autonomy			.00	.00	.00	.01	.00	.01
			-.01		.03		.08	
Supervisor Public Interest X Autonomy			-.02 *	.01	-.01	.01	-.01	.01
			-.30		-.10		-.10	
Supervisor Compassion X Autonomy			.02 **	.01	.01	.01	.00	.01
			.32		.08		.04	
Supervisor Self-sacrifice X Autonomy			.00	.01	-.01	.01	-.01	.01
			-.05		-.10		-.12	
Supervisor Democratic Governance X Autonomy			.04 ***	.01	.03 *	.01	.03 *	.01
			.55		.48		.46	
Supervisor Politics X Competence					.00	.01	.00	.01
					-.09		-.07	
Supervisor Public Interest X Competence					-.02	.01	-.02	.01
					-.32		-.32	
Supervisor Compassion X Competence					.02 **	.01	.02 **	.01
					.40		.38	
Supervisor Self-sacrifice X Competence					.01	.01	.00	.01
					.09		.08	

Supervisor Democratic Governance X Competence			.01	.01	.01	.01
			.11		.09	
Supervisor Politics X Relatedness					-.01	.01
					-.13	
Supervisor Public Interest X Relatedness					.00	.01
					-.01	
Supervisor Compassion X Relatedness					.01	.01
					.11	
Supervisor Self-sacrifice X Relatedness					.00	.01
					.05	
Supervisor Democratic Governance X Relatedness					.01	.02
					.08	
F-model	49.43 ***	38.04 ***	3.35 ***	24.99 ***		
F-ratio	-	6.26 **	1.38	-.57		
N	3423	3423	3423	3423		
R <sup>2</sup>	.159	.168	.170	.171		
Adj. R <sup>2</sup>	.155	.163	.165	.164		

\* p<.05; \*\* p<.01; \*\*\* p<.001

### 3.3. Subgroup correlation comparison for the leadership effect

Due to the unreliability of product-terms in the models in table 7, caused by multicollinearity of the variables, we need to supplement this analysis with techniques less prone to multicollinearity. After all, one can only assess the significance of the additional effects, not the direction. As stated above, one such method is ‘Subgroup Correlation Comparison’ (SCC), which compares the correlation coefficient  $r$  between two variables in a lower and a higher scoring group of the hypothesized moderator variable. The dataset was split for the score on the moderator variables, resulting in six datasets, three lower scoring groups and three higher scoring groups. In this case, five comparisons of lower versus higher scoring groups are made for ‘Autonomy’, ‘Competence’ and ‘Relatedness’: one for each independent variable (supervisor value).

The results of this analysis are presented in table 6.10. For ‘Autonomy’, the lower scoring group contained 1640 (non-missing) respondents, while the higher scoring group counted 1787 subjects. When looking at the coefficient  $r$ , four out of five variables demonstrate a higher correlation with public service motivation than is found in the lower

scoring group (the correlation for ‘Supervisor Politics’ is lower in the higher scoring group). However, only two of these, ‘Supervisor Compassion’ and ‘Supervisor Democratic Governance’ are statistically significant. For ‘Competence’, split into two groups of respectively 1321 and 2106 respondents, similar results are found. All five variables show a higher correlation in the higher scoring group, but only ‘Supervisor Compassion’ and ‘Supervisor Democratic Governance’ are statistically stronger correlated in the higher scoring group of ‘Competence’. Finally, for ‘Relatedness’, splitting the dataset renders two groups of respectively 1732 and 1695 respondents. Four of the five variables display a pattern in which lower correlations are found in the lower scoring group, compared to the higher scoring group (‘Supervisor Politics’ correlation with public service motivation is slightly higher in the lower scoring group). However, only for ‘Supervisor Compassion’ the difference for is assessed to be statistically significant.

TABLE 8 : Subgroup correlation comparison of higher and lower scoring on Basic Needs

<b>Autonomy</b>							
	Lower scoring group			Higher scoring group			
	r	Z1	r	Z2	Z'	Q	
Supervisor Politics	.17 ***	.17	.16 ***	.17	.17	.01	
Supervisor Public Interest	.16 ***	.16	.19 ***	.19	.18	.44	
Supervisor Compassion	.09 ***	.09	.18 ***	.18	.14	8.07 **	
Supervisor Self-sacrifice	.09 ***	.09	.14 ***	.14	.12	2.07	
Supervisor Democratic Governance	.14 ***	.14	.22 ***	.22	.18	5.98 *	
N	1640			1787			
<b>Competence</b>							
	Lower scoring group			Higher scoring group			
	r	Z1	r	Z2	Z'	Q	
Supervisor Politics	.15 ***	.15	.15 ***	.16	.15	.01	
Supervisor Public Interest	.14 ***	.14	.16 ***	.16	.16	.27	
Supervisor Compassion	.08 **	.08	.16 ***	.16	.13	5.72 *	
Supervisor Self-sacrifice	.07 **	.07	.12 ***	.12	.10	2.09	
Supervisor Democratic Governance	.10 ***	.10	.19 ***	.19	.15	6.06 *	
N	1321			2106			
<b>Relatedness</b>							
	Lower scoring group			Higher scoring group			
	r	Z1	r	Z2	Z'	Q	
Supervisor Politics	.18 ***	.18	.17 ***	.17	.18	.06	
Supervisor Public Interest	.17 ***	.17	.19 ***	.19	.18	.38	
Supervisor Compassion	.10 ***	.10	.18 ***	.18	.14	5.33 *	
Supervisor Self-sacrifice	.11 ***	.11	.12 ***	.13	.12	.15	
Supervisor Democratic Governance	.17 ***	.17	.21 ***	.21	.19	1.45	
N	1732			1695			

#### 4. Discussion

The results of these analyses reveal interesting information concerning the origins of public service motivation. According to these results, not only direct, but also moderated or interactive processes are involved.

First, concerning the direct effect stated in hypotheses of leadership socialization (H1), evidence of such an effect is provided.

Promotion of public service values by the direct supervisor is for all values but ‘Supervisor Self-sacrifice’ related to public service motivation. This observation fits the framework developed earlier, which states that the institutional values, being a part of the supervisor’s organizational and therefore institutional role, are transmitted to the employee’s identity. The findings thus corroborate to a large extent H1 as, according to the data, leadership at a supervisory level is indeed able to influence employees’ public service motivation levels, which are a part of the identity, substantially. This is in keeping with the findings of Bruce (1994), who found that (attitudes towards) exemplary behavior by supervisor is positively correlated to ethical employee behavior. The lack of effect for promotion of self-sacrifice could be due to the specific content of these values, which may be ambiguous in a professional context. After all, self-sacrifice is the odd one out in a professional relationship with a supervisor in a professional organization in general. A supervisor is not only an institutional role-model, it is also the person which exerts control and has, to a certain extent, power over his/her employees. It could be due to the measurement of ‘Supervisor Self-sacrifice’, which explicitly refers to sacrificing one’s own interests, without stating why they should sacrifice these. If these acts of sacrifice would have been linked to society or the public interest, the result might have been otherwise.

Second, the hypotheses concerning an interaction effect of institutional socialisation and basic needs satisfaction is also corroborated up to a certain extent. Both the MMR and SCC found evidence of such an moderator effect. Where the MMR only found 'Autonomy' have a moderating effect for both leadership and co-worker value promotion, the SCC found a significant effect for 'Autonomy', 'Competence' and 'Relatedness' (at least for some promoted values). This is a remarkable finding, as SCC is said to have a lower statistical power than MMR and therefore should have a lower likelihood of detecting population effects. However, this finding is due to the hierarchical nature of the MMR analyses. Instead of testing the moderating effect of 'Competence', MMR tests the unique effect of 'Competence', controlling for the part of the effect of 'Competence' which is correlated with 'Autonomy'. Similarly, the effect of 'Relatedness' is in fact the effect of 'Relatedness' which is controlled for both 'Autonomy' and 'Competence'. As 'Autonomy', 'Competence' and 'Relatedness' are strongly correlated; it is evident that no unique effects are found after the first moderator variable has been entered. As SCC is not susceptible to multicollinearity, moderator effects for 'Competence' and 'Relatedness' are found.

The results demonstrate that leadership socialization of 'Supervisor Compassion' and 'Supervisor Democratic Governance' is stronger for those who perceive a higher autonomy in their workplace, as well as those who have a stronger feeling of competence in their job. For those experiencing higher relatedness at work, only 'Supervisor Compassion' is stronger related to public service motivation. Satisfaction of basic psychological needs appears to have impact on socializing effect of leaders on compassion and democratic governance. There seems to be no effect on socializing the importance of politics and the public interest. This may be due to the nature of the respective public service motivation dimensions; the significant dimensions could be more than the other dimensions of public service motivation linked to the job and the immediate work environment, on which level basic psychological

needs satisfaction is situated. Feeling satisfied (related, autonomous and competent) at work may therefore enhance the transmission of values derived from the supervisor's example at those specific domains. Compassion with fellow citizens or realizing concrete democratic principles as a civil servant indeed fit more into this picture than a sound interest in politics or the general public interest do. Possibly, these effects are moderated by other factors such as organizational effectiveness in influencing policy or remedying general social problems. However, this is only speculative and further research should look deeper into this matter.

Finally, the analysis of the control variables demonstrates that grade, age and gender have a significant effect in generating public service motivation.

The effect of grade could be explained by the fact that higher level employees have less fragmented jobs, which result in higher levels of work motivation (Hackman and Oldham 1980). This could well be the case for public service motivation. However, this does not mean that public service motivation is only for higher level employees. Public servants can acquire public service motivation outside their work environment, as demonstrated by Perry (1997). Moreover, having high levels of public service motivation is one thing; another question is what the precise effect is of those levels. Vandenaabeele (2007b) already showed that public service motivation has a higher impact on job satisfaction and organizational commitment for low level employees than it has for higher level employees.

The effect of age could be due to various reasons, according to Camilleri (unpublished). First, according to Perry (1997), moral development increases with age and experience. As public service motivation, and upholding the values of an institution, are related to moral development (Kohlberg 1973), this observation makes sense. Second, it could be related to the idea of Erikson's idea of generativity (1964). This means that people in the later stages of their development are more inclined to 'give back' to society. Third, it could also be related to generational differences. Older generations have a higher stock of social

capital (Putnam 2000), which might explain the decline in public service motivation for the younger respondents. Finally, it could also be due to organizational socialization. As older respondents have been socialized longer, the effect of this socialization demonstrates itself in higher public service motivation levels. However, in order to give some foundation to these claims, longitudinal research should clarify this issue.

The gender effect on the degree of public service motivation is not entirely conform what has been reported in the literature where DeHart-Davis et al (2006) report higher public service motivation levels for women (controlling however for more control variables than this study). This lower level could be due to the more ‘masculine’ culture that is pervasive in public organizations and politics (Duerst-Lathi and Johnson 1990). Again, however, further research is needed to sort this out.

## 5. Conclusion

At the end of this paper, one can evaluate the merits of the presented research. The most important finding is, without any doubt, that institutional elements seem to have a substantial and significant influence on the individual public service motivation level. In the case of this research, the results in this paper demonstrate that the institutional values of a public organization (the Flemish government), crystallized in the behavior of supervisors, possibly have a socializing effect on the individual, and therefore may generate public service motivation. These results therefore provide evidence of ‘transformational leadership’ at the direct supervisor level, showing that this concept, as middle managers are able to transform the employee’s identity, has been unjustly reserved for executive leaders only.

However, other institutional elements moderate this relationship. The extent to which basic psychological needs are satisfied within this institutional context, determine how strong the socialization effect is. When the environment of the employee is experienced as granting a

certain degree of autonomy to the individual and enabling people to achieve real results, and when this environment is sufficiently social in nature, the socializing effect of public service values from within the institution is enhanced (except for the interest in politics). Apparently, not only the ‘what’ (which values), but also the ‘how’ (perception of the environment in which is socialized) is important in developing an institutional, in this case a public service, identity.

Despite these interesting conclusions, some limitations rest upon the results of the research in this chapter. First, the conclusions are based upon a cross-sectional database. This is a possible threat to the internal validity of the conclusions. Although this was somewhat remedied by embedding the conclusion in a sound theoretical framework and by controlling for other variables which point to other possible explanations, the danger of a lower internal validity is still looming at the back. Therefore, additional research should be carried out to strengthen these findings, in different environments and with both cross-sectional and longitudinal ways of collecting data. Moreover, also the measurement of the institutional public service values is limited. Only single items, or at best two-item scales were used, providing only a narrow perspective on these values. If sufficient resources are available, future research should incorporate more elaborated scales and may extend the search for institutional values to other levels than the ones used in this research.

Nevertheless, the findings presented in this paper provide interesting insights which can help to further develop a public administration theory of public service motivation.

## 6. Appendix : Specifics of the measurement scales

In this appendix, the specifics of the public service motivation measurement scale and the basic psychological needs satisfaction measurement scales are provided. Tables A provide the factor model (estimated with Diagonally Weighted Least Squares), the individual loading of the items and the composite reliability of the dimensions, whereas the tables B provide the fit statistics for the model in the calibration sample and the cross-validation ('loose' being the validation of the factorial structure, with no other parameters fixed; 'partial', being the validation with the loadings fixed).

TABLE A.1A : Factor model public service motivation (Vandenabeele 2008)

		$\lambda$	Composite reliability
<b>Attraction to politics</b>			.69
VAR44	'Politics' is a dirty word (I)	.62 *	
VAR27	I do not care much about politicians (I)	.81 *	
<b>Public interest</b>			.65
VAR45	I voluntary and unselfishly contribute to my community	.61 *	
VAR28	Serving the public interest is an important drive in my daily life (at work or outside work)	.67 *	
VAR72	To me, serving the public interest is more important than helping individual persons	.44 *	
VAR22	To me, before anything, good civilians should think of society	.54 *	
<b>Compassion</b>			.72
VAR73	To me, patriotism includes seeing to the welfare of the others	.79 *	
VAR69	Fighting poverty is an important duty of government	.60 *	
VAR47	I seldom think about the welfare of other people whom I do not know personally (I)	.52 *	
VAR57	Without solidarity, our society is doomed to fall apart	.52 *	
VAR30	To me, helping people who are in trouble is very important	.54 *	
<b>Self-sacrifice</b>			.68
VAR39	Much of what I do is for a cause bigger than myself	.52 *	
VAR74	Making a difference in society means more to me than personal achievements	.70 *	
VAR70	I feel people should give back to society more than they get from it	.48 *	
VAR48	I am prepared to make enormous sacrifices for the good of society	.63 *	
<b>Democratic governance</b>			.50
VAR41	Everybody is entitled to a good service, even if it costs a lot of money	.45 *	
VAR59	Even in the case of major disasters, public service should be maintained	.60 *	
VAR66	It is important that public servants account for all the costs they make	.45 *	

(I) Inverted coded

\* p<.01

TABLE A.1B : *Fit statistics for public service motivation factor model*

	$\chi^2$ (SB)	df	GFI	RMSEA	Prob. RMSEA < .05	CFI	NFI
Null model	6980.21	1059	.910	.056	.000	.864	.843
PSM model	749.15	125	.983	.053	.062	.963	.957
PSM model (loose)	812.35	125	.981	.056	.003	.960	.953
PSM model (partial)	850.93	138	.978	.054	.021	.959	.951

TABLE A.2A : *Factor model Basic Needs Satisfaction at work*

		$\lambda$	Composite reliability
<b>Autonomy</b>			.74
VAR97	I feel like I can make a lot of inputs to deciding how my job gets done.	.49 *	
VAR106	I am free to express my ideas and opinions on the job.	.64 *	
VAR113	My feelings are taken into consideration at work.	.64 *	
VAR118	I feel like I can pretty much be myself at work.	.80 *	
<b>Relatedness</b>			.84
VAR98	I really like the people I work with.	.84 *	
VAR103	I get along with people at work.	.81 *	
VAR104	I pretty much keep to myself when I am at work (I).	.43 *	
VAR107	I consider the people I work with to be my friends.	.68 *	
VAR115	People at work care about me.	.77 *	
VAR122	People at work are pretty friendly towards me.	.55 *	
VAR 194	The people with whom I work, seem to like me	.49 *	
<b>Competence</b>			.69
VAR101	People at work tell me I am good at what I do.	.52 *	
VAR109	I have been able to learn interesting new skills on my job.	.69 *	
VAR112	Most days I feel a sense of accomplishment from working.	.74 *	

(I) Inverted coded

\* p < .01

TABLE A.2B : *Fit statistics for Basic Needs Satisfaction model*

	$\chi^2$ (SB)	df	GFI	RMSEA	Prob. RMSEA < .05	CFI	NFI
Null Model BNS	1706.79	186	.971	.0683	.0000	.940	.934
BNS model	514.88	74	.990	.0583	.0019	.979	.976
BNS Model (loose)	511.72	74	.990	.0581	.0025	.978	.978
BNS Model (partial)	547.49	85	.988	.0557	.0168	.980	.977

## 7. References

- Baard, P. P., Deci, E. L. and Ryan, R. M. 2004. Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology*. 34 : 2045-2068.
- Baron, R. M. and Kenny, D. A. 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *Journal of personality and social psychology*. 51 (6) : 1173-1182.
- Bass, . M. 1999. Two decades of research and development in transformational leadership. *European journal of work and organizational psychology*. 8(1) : 9-32
- Berger, P. L. and Luckmann, T. 1967. *The social construction of reality*. New York: Anchor books.
- Brehm, John O. 1993. *The phantom respondents : Opinion Surveys and Political Representation*. Ann Arbor : Michigan university press
- Brewer, G. A. and Selden, S. C. (2000). Why elephants gallop: assessing and predicting organizational performance in federal agencies. *Journal of public administration research and theory*. 10 (2) : 685-711.
- Bruce, W. 1994. Ethical people are productive people. *Public productivity and management review*. 17 (3) : 241-252

- Burns, J. M. 1978. *Leadership*. New York : Harper and Row
- Camilleri, E. 2006. Towards developing an organizational commitment – public service motivation model for the Maltese public service employees. *Public policy and administration*. 21 (1) : 63-83
- Camilleri, E. 2007. Antecedents affecting public service motivation. *Personnel review*. 26 (3) : 356-377
- Camilleri, E. Unpublished. *The relationships between personal attributes, organization politics, public service motivation and public employee performance*.
- Chanlat, J.-F.. 2003. Managerialism and the common interest ethic : the question of work motivation in public administration [Le managérialisme et l'éthique du bien commun : la question de la motivation au travail dans les services publics]. In : Duvillier, T., Genard, J. L. en Piraux, A. (eds.). *The work motivation in the public services [La motivation au travail dans les services publics]*. Paris : L'Harmattan, 51-64
- Chapman, R. 1988. *Ethics in the British civil service*. London: Routledge.
- Conger, J. A. and Hunt, J. A. 1999. Overview charismatic and transformational leadership : taking stock of the present and future (part 1). *Leadership quarterly*. 10 (2) : 121-127
- Couper, M. P. 2000. Web surveys : a review of issues and approaches. *Public opinion quarterly*. 64 : 464-494

- Couper, M. P.; Blair, J. and Triplett, T. 1999. A comparison of mail and e-mail for a survey of employees in US statistical agencies. *Journal of official statistics*. 15 (1) : 39-56
- Coursey, D. and Pandey, S.. 2007. Public service motivation measurement : testing an abridged version of Perry's proposed measurement scale. *Administration and society*. 39 (5) : 547-568
- Coursey, D., Perry, J. L., Brudney, J. L. and Littlepage, L. 2008. Psychometric verification of Perry's public service motivation instrument : results for volunteer exemplars. *Review of public personnel administration*. 28 (1) : 79-90
- Crawford, S. D.; Couper, M. P. and Lamias, M. J. 2001. Web surveys : perceptions of burden. *Social science computer review*. 19 (2) : 146-162
- Deci, E. L. and Ryan, R. M. 2004. *Handbook of self-determination research*. Rochester: University of Rochester press.
- DeHart-Davis, L., Marlowe, J. and Pandey, S. J. 2006. Gender dimensions of public service motivation. *Public administration review*. 66 (6) : 873-887
- Denhardt, J. V. and Campbell, K. B. (2006). The role of democratic values in transformational leadership. *Administration and society*. 38 (5) : 556-572
- Downs, Anthony. 1967. *Inside bureaucracy*. Boston : Little, Brown and Company.

- Duerst-Lathi, G. and Johnson, C. M. 1990. Gender and style in bureaucracy . *Women and Politics*. 10 (4) : 67-120.
- Dvir, T., Eden, D., Avolio, B. J. and Shamir, B. 2002. Impact of transformational leadership on follower development and performance: a field experiment. *Academy of management journal*. 45 (4) : 735-744
- Erikson, E. H. 1964. *Insight and responsibility*. New York: W.W. Norton.
- Filstad, C. 2004. How newcomers use role models in organizational socialization. *Journal of workplace learning*. 16 (7) : 396-409
- Fox, J. 1991. *Regression diagnostics*. Newbury Park: Sage.
- Hackman, R. J. and Oldham, G. R. 1980. *Work redesign*. Reading : Addison-Wesley
- Hardy, M. A. 1993. *Regression with dummy variables*. Newbury Park: Sage.
- Hooijberg, R. and Choi, J. 2001. The impact of organizational characteristics on leadership effectiveness models: an examination of leadership in a private and a public sector organization. *Administration and society*. 33 (4) : 403-430
- Horton, S. 2008. History and persistence of an idea and an ideal. In : Perry, J. L and A. Hondeghem (eds), *Motivation in public management : the call of public service*, Oxford : Oxford university press, 17-32

- Jaccard, J., Turisi, R. and Wan, C. K. 1990. *Interaction effects in multiple regression*.  
Newbury Park : Sage
- Javidan, M. and Waldman, D.A. 2003. Exploring charismatic leadership in the public sector: measurement and consequences. *Public administration review*. 63 (2) : 229-242
- Jöreskog, K. 2005. *Structural equation modeling with ordinal variables using LISREL*.  
<http://www.ssicentral.com/lisrel/techdocs/ordinal.pdf>
- Kerr, S., and Jermier, J. M. 1978. Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*. 22 : 375-403.
- Kim, S. M. 2005. Individual-level factors and organizational performance in government organizations. *Journal of public administration research and theory*. 15 (2) : 245-261.
- Kohlberg, L. (1973). The claim to moral adequacy of a highest stage of moral judgment. *The journal of philosophy*. 70 (18) : 630-646
- Krosnick, J. A. 1999. Survey research. *Annual review of psychology*. 50: 537-567
- Kuhnert, K. W. and Lewis, P. 1987. Transactional and transformational leadership : a constructive/developmental analysis. *Academy of management review*. 12 (4) : 648-657

- Lewis, G. B. and Frank, S. A. 2002. Who wants to work for government? *Public administration review*. 62 (4) : 395-404.
- MacCallum, R. C., Roznowski, M., Mar, C. M. and Reith, J. 1994. Alternative strategies for cross-validation of covariance structure models. *Multivariate behavioral research*. 29 (1) : 1-32
- March, J. G. and Olsen, J. P. 1989. *Rediscovering institutions*. New York: The free press.
- March, J. G. and Olsen, J. P. 1995. *Democratic governance*. New York: The free press.
- McClelland, G. H. and Judd, C. M. 1993. Statistical difficulties of detecting interactions and moderator effects. *Psychological bulletin*. 114 (2) : 376-390
- Mosher, F. C. 1968. *Democracy and the public service*. New York: Oxford University Press.
- Moynihan, D. P. and Pandey, S. K. (2007). The role of organizations in fostering public service motivation. *Public Administration Review*. 67 (1) : 40-53
- Naff, K. C. and Crum, J. 1999. Working for America - does public service motivation make a difference. *Review of public personnel administration*. 19 (4) : 5-16.
- O'Connor, B. P. 2006. Programs for problems created by continuous variable distributions in moderated multiple regression. *Organizational research methods*. 9 (4) : 554-567

- Paarlberg, L. and Perry, J. L. 2007. Values management: aligning employee values and organizational goals. *American review of public administration*. 37 (4) : 387-408
- Pandey, S. K. and Stanzyk, E. C. 2008. Antecedents and Correlates of Public Service Motivation. In : Perry, J. L and A. Hondeghem (eds), *Motivation in public management : the call of public service*, Oxford : Oxford university press, 101-117
- Perry, J. L. and Vandenaabeele, W. 2008. The behavioral dynamics of Public Service Motivation. In *Motivation in public management : the call of public service*, edited by Perry, J. L. and Hondeghem, A. Oxford : Oxford University Press, 56-79
- Perry, J. and L. R. Wise. 1990. The motivational bases of public service. *Public administration review*. 50 (3): 367-373.
- Perry, James L. 1996. Measuring public service motivation: an assessment of construct reliability and validity. *Journal of public administration research and theory*. 6 (1): 5-23.
- Perry, J. L. 1997. Antecedents of public service motivation. *Journal of public administration research and theory*. 7 ( 2) : 181-197.
- Perry, J. L. 2000. Bringing society in : toward a theory of public service motivation. *Journal of public administration research and theory*. 10 (2) : 471-488.
- Peters, B. G. 2000. *Institutional theory in political science : the new institutionalism*. London:

Continuum.

Pratchett, L. and Wingfield, M. 1996. Petty bureaucracy and woolly-minded liberalism ? The changing ethos of local government officers. *Public administration*. 74 (4) : 639-656.

Putnam, R. 2000. *Bowling alone: the collapse and revival of American community*. New York : Simon and Schuster.

Rainey, H. G. and Steinbauer, P. 1999. Galloping elephants: developing elements of a theory of effective government organizations. *Journal of public administration research and theory*. 9 (1) : 1-32.

Rainey, H. G. 1997. *Understanding and managing public organizations*. San Francisco : Jossey-Bass

Ryan, R.M. and Deci, E.L. (2004) An overview of self-determination theory: an organismic-dialectic perspective. In Deci, E.L. and Ryan, R.M. (eds). *Handbook of self-determination research*. Rochester: University of Rochester press, 3-33

Ryan, R. M. and Deci, E. L. 2005. On assimilating identities to the self : a self-determination perspective on internalization and integrity within cultures. In : Leary, M. R. and Tagney, J. P. (Eds). *Handbook of self and identity*. New York : Guilford. 253-272

Scott, W. R. 2001. *Institutions and organizations*. Thousand Oaks: Sage.

- Settoon, R. P. and Adkins, C. L. 1997. Newcomer socialization: the role of supervisors, co-workers, friends and family members. *Journal of business and psychology*. 11 (4) : 507-516
- Shamir, B., House, R. J. and Arthur, R. B. 1993. The motivational effects of charismatic leadership: a self-concept based theory. *Organization science*. 4 (4) : 577-594
- Shamir, B. and Howell, J. M. 1999. Organizational and contextual influences on the emergence and effectiveness of charismatic leadership. *Leadership quarterly*. 10 (2) : 257-283
- Stone-Romero, E F. and Anderson, L. E. 1994. Relative power of moderated multiple regression and the comparison of subgroup correlation coefficients for detecting moderating effects. *Journal of applied psychology*. 79 (3) : 354-359
- Terry, L. D. 2003. *Leadership of public bureaucracies – The administrator as conservator*. Armonk : M. E. Sharpe
- Trottier, T., Van Wart, M. and Wang, X. 2008. Examining the nature and significance of leadership in government organizations. *Public administration review*. 68 (2): 319-333
- Van Wart, M. 2003. Public sector leadership theory : an assessment. *Public administration review*. 63 (2) : 214-228
- Vandenabeele, W. 2007a. Towards a theory of public service motivation : an institutional

approach. *Public Management Review*. 10 (4) : 545-556

Vandenabeele, W. 2007b. *Public service motivation as an element in job retention*. Paper presented at the IRSPM XI conference, Potsdam

Vandenabeele, W. 2008. Development of a public service motivation measurement scale: corroborating and extending Perry's measurement instrument. *International public management journal*. 11 (1) : 143-167

Woodhouse, D. 1997. *In pursuit of good administration - ministers, civil servants and judges*. Oxford : Clarendon Press.