Validity of the PSM-performance relationship: a research note on the role of moderators

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1. Introduction

One of the reasons why public service motivation research has surged in the past 20 years (Perry et al 2010; Perry and Hondeghem 2008), is because it is thought to have positive outcomes in terms of public performance. Next to some outcomes that are thought to have a positive influence on the activities of public service providers – for example job satisfaction and commitment – the expected direct relationship between public service motivation (PSM) and performance has driven much of the research on the topic in past decades. Perry and Wise (1990: 370) already stated in their seminal article on PSM that ‘although the evidence is less compelling, […] a similar relationship exists between public service motivation and the decision to perform’. This statement carries a certain amount of clairvoyance in it as twenty years later, the combined outcomes of the research on the PSM-performance relationship is not univocal positive. Despite the existence of some evidence that PSM and individual and organizational performance are related, some of the studies failed to find evidence of the claim by Perry and Wise. In particular Alonso and Lewis (2001: 376) conclude ‘that the links between public service motivation and were clearly not robust’.

These ambiguous findings have urged other authors to further specify models of PSM and performance, involving both a broadened theoretical perspective and more accurate methods (Brewer 2008). A fruitful way of further exploring this question is the inclusion of person-environment fit (Bright 2007; Leisink and Steijn 2009) or job satisfaction or organizational commitment (Vandenabeele 2009) as a mediating variable to explain the positive empirical findings. However, such an approach does not include an explanation for the lack of positive findings – why is the proposed relationship in
some cases missing. This paper would like to further contribute to this particular question. Rather than looking for explanatory mechanisms or mediators, this study would like to investigate whether environment plays a role in the PSM-performance relationship. As such, it is a study of usefulness of moderators, rather than mediators. In this sense, it matches with the call for contextualization in organizational behavior research that has been voiced by Rousseau (2001) and Boxall et al (2007).

To address this question, the following paragraph first discusses the current state of the discipline regarding the PSM-performance question. A second step is testing whether the empirical relationship is invariant or different in environments. This is done by means of a controlled survey in four countries. These results, as well as the possible usefulness of moderators in future models of public service motivation are discussed.

2. Public service motivation, performance and the role of environment

The current body of knowledge on the concepts of issue in this study is reviewed to create a better understanding of what is already known on the above stated research question. PSM, performance, institutions as environment, as well as their respective relationships are studied more in detail below.

2.1 Public service motivation

The assumption that there are individuals who have a desire to serve the public interest lays at the heart of public service motivation (PSM) theory. Perry & Wise (1990 : 368) defined PSM as ‘an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations’. They argued that an individual’s
motivation is multidimensional; an individual is motivated by rational, norm-based and affective motives. However, different studies used different concepts (‘public service ethos’, ‘l’éthique du bien commun’) to describe the same or parts of the same phenomenon, and use different definitions, often focusing on a particular part of PSM such as self-sacrifice (Vandenabeele et al 2006). To overcome these different definitions and conceptualizations Vandenabeele (2007 : 574) integrated various views and concepts into one umbrella definition: ‘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’.

As with the conceptual definition, the operational guise of PSM is also contested. In 1996, Perry developed four dimensions of PSM, based upon the rational, norm-based and affective motives. In this conception, the dimensions of PSM were attraction to policy making, commitment to the public interest, compassion, and self-sacrifice. However, there is no consensus on whether this configuration is universally applicable (Wright 2008). Although these dimensions have been more or less corroborated in most of the research that has been done so far (Bright 2007 & 2008, Vandenabeele 2008b), in some cases not all dimensions have been included (Coursey and Pandey 2007, Coursey et al 2008) whereas in other cases there are differences in wording or item selection (Kim 2009a & 2009b; Anderfurhen et al 2010). Also, additional factors such as democratic governance—referring to values that are central to administrative operations in Western bureaucracies (Vandenabeele 2008a)—or user orientation – referring to the idea of individual service delivery (Andersen et al 2009) have been used. Therefore Kim and Vandenabeele (2010) have reconceptualized the PSM dimensions in order to make them
more suitable for international comparisons, with the resulting dimensions of ‘attraction to public service’, ‘commitment to public values’, ‘compassion’ and ‘self-sacrifice’.

2.2 The role of institutions and context

As research on PSM found different types of socialization – parental, societal, political and educational – (Perry 1997) to determine levels of public service motivation, a focus on institutions is evident. Institutions can be 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). Institutions not only steer and constrain behavioral alternatives, they also, to a certain extent, model individual preferences (March and Olsen 1995).

According to March and Olsen (1989), the behavior of an individual is either shaped by a logic of appropriateness, referring to ‘beliefs, paradigms, codes, cultures and knowledge’ (1989 :22), or by a logic of consequentiality, which is based upon calculating the consequences of actions and thus on rational self-interest. Perry (2000) and Vandenabeele (2007) fitted PSM behavior within the logic of appropriateness, because it is not aimed at fulfilling self-interests but at realizing the beliefs imbedded in institutions. Through socialization processes an individual absorbs values from surrounding institutions, identifying with them, enabling the development of PSM. Perry and Vandenabeele (2008) developed this institutional theory of PSM further, showing how institutions influence the shape of one’s identities, which in turn influence behavior. However, not only on a theoretical level did PSM start to focus on the impact of institutions on the development of PSM, several empirical studies found arguments in support of the theory.
Institutions on various levels may have an impact, which makes it hard to determine which institutional factor is influencing PSM in a certain context. An individual identifies with values from those institutional elements he meets in his life; from micro level family life to macro-level national identity (Scott 1995). Institutional settings do not only influence the level of PSM, but also, through shaping the public service identity of an individual, its effect on behavior and outcomes (Perry & Vandenabeele 2008). Thus, the effect of PSM on work outcomes may also differ according to context. In this study we aim to provide insight in how different contexts (four different cultural and geographical contexts) determine levels of PSM and its effect on the work outcome performance.

2.3 Public service motivation and performance

One of the foundations of PSM research is that PSM can help improve and better the performance of public organizations (Perry & Wise 1990). Therefore it is important to investigate how and how strongly public service motivation can influence performance. The theory on PSM assumes a positive relationship between PSM and performance in public organizations, since doing work in which the individual can serve the public will appeal to his or her public service motivation, making him/her work harder and better than those individuals not motivated to serve the public (Perry & Wise 1990, Perry 2000, Wright 2004). A direct relationship is thus assumed by PSM theory between motivation and individual performance. Several authors have indeed provided evidence that PSM is
positively related to performance. First we will discuss studies finding indirect evidence on the effect of PSM on performance, second studies that have used performance directly. Third, we discuss studies discovering mixed results and mediating variables which shows we still cannot conclude on the relationship between PSM and performance.

First, public service motivation has been found to influence the working behavior of public servants in several ways. Firstly, PSM has been found to positively effect job satisfaction (Taylor 2007, Liu et al 2008, Steijn 2008, Vandenabeele 2009). Secondly, several authors have found positive relations between PSM and organizational commitment (Crewson 1997, Taylor 2007, Moynihan & Pandey 2008, Vandenabeele 2009). PSM is also negatively related to turnover and intentions to quit (Naff & Crum 1999, Steijn 2008). Fourthly, Wright (2004) found that individuals with a high motivation to serve the public felt that their work was more important and were therefore willing to work harder. Although these results show the importance of PSM, since high levels contributed positively to the organizational concepts, it only gives circumstantial evidence that high levels of PSM positively influence performance. Job satisfaction and organizational commitment have in non-PSM related studies been related to higher performance, but several meta-analyses suggest the correlations between job satisfaction and performance are low to medium (Judge et al. 2001; Bowling 2007; Iaffaldano & Muchinsky 1985) and between organizational commitment and performance medium strong (Riketta 2002).

Second, there is also more direct evidence of the PSM-performance relationship. Naff & Crum (1999) found that individuals with high levels of PSM were more likely to
be high performers, whereas Brewer & Selden (2000) found that concern for the public task positively influenced organizational performance. Other authors have corroborated these findings, linking PSM to individual performance (Bright 2007; Vandenabeele 2009) or related concepts as internal efficiency (Ritz 2009) or work effort (Leisink and Steijn 2009). However, some found that the relationship between PSM and performance is mediated. Bright (2007) found that the relationship between PSM and performance is mediated by the fit between the individual and the organization – in particular value-congruence and therefore supplementary fit (Kristof-Brown et al 2005) – using theory on person-environment fit. Leisink and Steijn (2009) argued similarly, showing that the individual needs to feel he or she can act upon its predisposition to serve the public, for it to effect behavior. Vandenabeele (2009) has provided evidence that the relation is partially mediated by job satisfaction and organizational commitment.

However, other authors have found mixed results or results which complicates the relationship between PSM and performance. They show that not only both PSM and performance are multidimensional concepts, the assumption that public servants can always use their motivation to perform well does not find grounding in the real life practices of public servants (Bright 2007, Wright 2001, Moynihan & Pandey 2007). Alonso & Lewis (2001) studied two separate samples in which they tested the relationship between PSM and performance. Their results showed that PSM only affected performance ratings in one sample, not in the other. Furthermore Ritz (2009) found that only one dimension of PSM, commitment to the public interest, had a significant positive effect on performance, concluding that PSM and performance are multidimensional constructs and should be studied as such to truly understand the complex relationship.
The institutional perspective matches with the mediating fit perspective in the sense that fit is an illustration of how behavior is shaped within institutions. If some institutions are based upon public service values, a fit perspective on PSM can help explain the variance in the PSM-performance relationship. However, instead of focusing on fit as mediator, an alternative is to focus on fit as a moderator. The interaction – the match – between an individual set of values determines whether PSM causes behavior (Vandenabeele 2007), not the mere presence of PSM as an individual predisposition. It is only due to the fact that public service values are to some extent generally present within the public sector, that an ostensible direct effect can be detected. However, it would be theoretically more worthwhile to frame it as an interaction or moderator. Therefore, hypothesis H1 will be framed as follows:

H1 The correlation between public service motivation and performance is dependent on context and will therefore be moderated by this context

3. Methods

In this section, the methods of the study are discussed. First, the data-collection and sampling procedure are sketched. Second, the statistical methods are discussed and some particularities are highlighted. Finally, the measures that have been used in this measure are described into detail.
3.1 Sample and data-collection

The data upon which this study is based were collected from civil servants in local governments in Belgium, the Netherlands, Switzerland and the United Kingdom. The principal criterion was that the samples collected in the various countries should be comparable to the largest possible extent, controlling for as many factors as possible. Therefore, we opted for local government as our focus. However, the structure and functions of local governments can differ widely even within countries, and so the survey in each country was focused on town hall bureaucrats in city, county or township government. The respondents were permanent employees from both managerial and non-managerial levels and from both administrative departments (i.e., no direct contact with the public) and service departments (i.e., likely to have direct contact with the public). Despite being employed by local governments in many or all of the countries, police officers, firefighters, school teachers, public transport workers, artists and musicians, as well as nurses and doctors were excluded from the sample.

In Belgium, three municipalities were surveyed on a census base by means of a web survey as all employees had access to a computer. This rendered a response of 120 (22.6%), 79 (75%) and 16 (53%) responses for the respective municipalities, resulting in an overall response rate of 33.1% with 662 invitations being sent out. In the Netherlands, three municipalities were surveyed on a census base by means of a web survey. In total 319 responses of 910 invitations were returned (35%) – 90 (45%), 115 (38%) and 114 (28%) for the respective municipalities. In Switzerland, 516 out of 1326 local employees with e-mail access in a municipality completed the survey, giving a response rate of 38.9%. In the United Kingdom, the survey was posted online and 1360 employees both in
administrative jobs and front-line services of one municipality received an email to complete the survey, rendering a response rate of 19%. In the final dataset, he Dutch and Swiss sample have been resampled to provide equal weights in the sample and avoid bias. This resulted in four subsamples of respectively 214 (Belgium), 249 (the Netherlands), 250 (Switzerland) and 260 (United Kingdom) respondents and a total sample of 973.

3.2 Statistical methods

To assess the relationship between multiple independent and one dependent variable, multiple regression analysis is one of the most widely used methods. This will indicate how various variables relate to one another.

In order to test for moderators, 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. The estimates of the regression parameters are prone to unreliability, due to the joint distribution of the data (also reducing statistical power; 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 also substantial. Even mean-centering, a strategy proposed for reducing multicollinearity (Jaccard et al 1990), does not fully alleviate these problems. As a consequence, MMR is not always capable of specifying the direction of the interaction (positive or negative).
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 does not suffer from multicollinearity as no product terms are involved. In particular, SCC enables to investigate the alleged interaction effect, by statistically comparing sizes of correlation coefficients of different subgroup (tested by means of a Q-statistic, approximately distributed as a chi-square with k-1 degrees of freedom (Jaccard et al 1990)).

Another issue is the validity of the measures of both dependent and independent variables. For PSM, but also for other measures, one cannot simply assume that measures in one environment perform in the same way as they do in other contexts. Research on the measurement model of PSM has demonstrated that the measure as developed by Perry (1996) did not perform equally satisfactorily outside the US as it did in the original dataset (Vandenabeele 2008b; Kim 2009a). Therefore, it is necessary to cross-validate the measures that have been used for the different environments they are applied in (Coursey and Pandey 2007). To do so, the measure of PSM is cross-validated in the four respective countries as well in the full dataset. The model itself was analyzed by means of a Diagonally Weighted Least Squares estimation, to account for the ordinal character of the data (Jöreskög 2005). Goodness-of-fit values should be within acceptable levels (Hu and Bentler 1999) within acceptable levels and both discriminant and convergent validity should be assessed by means of respectively using confidence intervals of inter-factor correlation and significant lambda-values (Anderson and Gerbing 1988).
3.3 Measures used in the study

The main variable in this study is PSM. The first measure of PSM (Perry 1996), although being corroborated within the US (Bright 2007 & 2008), is not always cross-validated in other institutional environments (see above). Therefore, this study approached PSM measurement as suggested by Kim and Vandenabeele (2010), who have reconceptualized the dimensions of PSM to fit it in various international environments. Based upon the information from Kim et al (2011), 12 items have been selected in order to measure PSM in a four-dimensional model, with the dimensions of ‘Attraction to public service’ (APS), ‘Commitment to public values’ (CPV), ‘Compassion’ (COM) and ‘Self-sacrifice’ (SS) (see table 1A). All items were scored on a five-point response scale with 1 being ‘Totally not agree’ and 5 being ‘Totally agree’. Five confirmatory factor models have been run to assess validity in the full sample and the four respective subsamples. Fit indices were within acceptable bounds (see table 1B) and for the full samples both convergent and discriminant validity have been successfully assessed. However, for the subsamples discriminant validity could not always be fully claimed (convergent validity was always successfully assessed), due to larger standard errors of the inter-factor correlations in the subsamples, compared to the full dataset. For all five samples, composite reliabilities of the dimensions were always satisfactorily.
TABLE 1A: Confirmatory factor analysis of PSM measurement model

<table>
<thead>
<tr>
<th></th>
<th>Full sample</th>
<th>Belgium</th>
<th>Netherlands</th>
<th>Switzerland</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>CR</td>
<td>A</td>
<td>CR</td>
<td>A</td>
</tr>
<tr>
<td>Attraction to public service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APP5 I admire people who initiate or are involved in activities to aid my community</td>
<td>.77</td>
<td>.81</td>
<td>.74</td>
<td>.74</td>
<td>.74</td>
</tr>
<tr>
<td>CPI1 Meaningful public service is very important to me</td>
<td>.74</td>
<td>.78</td>
<td>.73</td>
<td>.68</td>
<td>.73</td>
</tr>
<tr>
<td>CPI2 It is important for me to contribute to the common good</td>
<td>.79</td>
<td>.72</td>
<td>.72</td>
<td>.84</td>
<td>.72</td>
</tr>
<tr>
<td>Commitment to public values</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPV1 I think equal opportunities for citizens are very important</td>
<td>.65</td>
<td>.73</td>
<td>.65</td>
<td>.66</td>
<td>.65</td>
</tr>
<tr>
<td>CPV2 It is important that citizens can rely on the continuous provision of public services</td>
<td>.54</td>
<td>.70</td>
<td>.64</td>
<td>.45</td>
<td>.64</td>
</tr>
<tr>
<td>CPV7 To act ethically is essential for public servants</td>
<td>.59</td>
<td>.60</td>
<td>.57</td>
<td>.74</td>
<td>.57</td>
</tr>
<tr>
<td>Compassion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COM2 I feel sympathetic to the plight of the underprivileged</td>
<td>.66</td>
<td>.71</td>
<td>.71</td>
<td>.65</td>
<td>.71</td>
</tr>
<tr>
<td>COM3 I empathize with other people who face difficulties</td>
<td>.60</td>
<td>.62</td>
<td>.63</td>
<td>.49</td>
<td>.63</td>
</tr>
<tr>
<td>COM5 I get very upset when I see other people being treated unfairly</td>
<td>.59</td>
<td>.54</td>
<td>.60</td>
<td>.58</td>
<td>.60</td>
</tr>
<tr>
<td>Self-sacrifice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS2 I am prepared to make sacrifices for the good of society</td>
<td>.81</td>
<td>.83</td>
<td>.81</td>
<td>.81</td>
<td>.81</td>
</tr>
<tr>
<td>SS4 I am willing to risk personal loss to help society</td>
<td>.79</td>
<td>.78</td>
<td>.76</td>
<td>.79</td>
<td>.76</td>
</tr>
<tr>
<td>SS7 I would agree to a good plan to make a better life for the poor, even if it costs me money</td>
<td>.79</td>
<td>.78</td>
<td>.76</td>
<td>.79</td>
<td>.76</td>
</tr>
</tbody>
</table>

All λ-values are significant at p<.05

TABLE 1B: Fit statistics for PSM measurement model

<table>
<thead>
<tr>
<th></th>
<th>X² (SB)</th>
<th>df</th>
<th>GFI</th>
<th>RMSEA</th>
<th>RMSEA-CI</th>
<th>Prob. RMSEA &lt; .05</th>
<th>CFI</th>
<th>NFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full sample</td>
<td>165.88</td>
<td>48</td>
<td>.99</td>
<td>.050</td>
<td>[.042-.059]</td>
<td>.46</td>
<td>.99</td>
<td>.98</td>
</tr>
<tr>
<td>Belgium</td>
<td>79.22</td>
<td>48</td>
<td>.98</td>
<td>.055</td>
<td>[.032-.076]</td>
<td>.33</td>
<td>.98</td>
<td>.96</td>
</tr>
<tr>
<td>Netherlands</td>
<td>82.35</td>
<td>48</td>
<td>.98</td>
<td>.054</td>
<td>[.023-.073]</td>
<td>.36</td>
<td>.98</td>
<td>.96</td>
</tr>
<tr>
<td>Switzerland</td>
<td>58.66</td>
<td>48</td>
<td>.99</td>
<td>.030</td>
<td>[.000-.053]</td>
<td>.91</td>
<td>.99</td>
<td>.97</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>86.01</td>
<td>48</td>
<td>.98</td>
<td>.055</td>
<td>[.046-.074]</td>
<td>.30</td>
<td>.98</td>
<td>.96</td>
</tr>
</tbody>
</table>

For individual performance, two items – ‘I think I am performing well within this organization’ and ‘I think I am a good employee’, also scored from 1 to 5 – were combined in a single score. Cronbach’s α’s for the full sample was .84, whereas for the subsamples is was respectively .87 (Belgium), .90 (The Netherlands), .87 (Switzerland) and .69 (United Kingdom).
Age (year of birth) and gender (male=1; female =2) were included as control variables.

4. Results

The correlation table (table 2) demonstrates that all PSM dimensions significantly and positively related to individual performance, warranting further investigation of the hypothesis stated earlier.

<table>
<thead>
<tr>
<th>TABLE X : Descriptives and correlation for the main variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

Values of over |.06| are significant at p<.05

When running regression models on the full sample and the respective subsamples, all models display significant F-values and R^2’s ranging from .08 to .13. At least one PSM dimension of each model demonstrates a positive relationship with individual performance. However, for the Netherlands and Switzerland, there is also a significant negative relationship with individual performance. None of the control variables is significantly related to performance.
**TABLE 3 : Regression model of PSM on self-reported performance (full sample and subsamples)**

<table>
<thead>
<tr>
<th></th>
<th>Full sample</th>
<th>Belgium</th>
<th>Netherlands</th>
<th>Switzerland</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β (SE)</td>
<td>β (SE)</td>
<td>β (SE)</td>
<td>β (SE)</td>
<td>β (SE)</td>
</tr>
<tr>
<td>Gender</td>
<td>.00 (.04)</td>
<td>-.02 (.07)</td>
<td>.03 (.07)</td>
<td>.09 (.07)</td>
<td>-.04 (.07)</td>
</tr>
<tr>
<td>Age</td>
<td>.00 (.00)</td>
<td>.00 (.00)</td>
<td>.00 (.00)</td>
<td>.00 (.00)</td>
<td>.00 (.00)</td>
</tr>
<tr>
<td>Attraction to public service</td>
<td>.15*** (.04)</td>
<td>.10 (.08)</td>
<td>.14 (.09)</td>
<td>.19** (.07)</td>
<td>.13* (.07)</td>
</tr>
<tr>
<td>Commitment to public values</td>
<td>.12*** (.04)</td>
<td>.23** (.09)</td>
<td>.27*** (.09)</td>
<td>-.08 (.07)</td>
<td>.12 (.07)</td>
</tr>
<tr>
<td>Compassion</td>
<td>.11*** (.04)</td>
<td>.14* (.07)</td>
<td>.02 (.08)</td>
<td>.18*** (.07)</td>
<td>.11 (.07)</td>
</tr>
<tr>
<td>Self-sacrifice</td>
<td>-.02 (.03)</td>
<td>-.09 (.05)</td>
<td>-.13** (.06)</td>
<td>-.11** (.05)</td>
<td>.00 (.05)</td>
</tr>
<tr>
<td>F-model</td>
<td>14.29***</td>
<td>4.75***</td>
<td>4.25***</td>
<td>3.40***</td>
<td>4.55***</td>
</tr>
<tr>
<td>N</td>
<td>934</td>
<td>204</td>
<td>230</td>
<td>241</td>
<td>259</td>
</tr>
<tr>
<td>R²</td>
<td>.085</td>
<td>.127</td>
<td>.103</td>
<td>.080</td>
<td>.097</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>.079</td>
<td>.100</td>
<td>.079</td>
<td>.057</td>
<td>.076</td>
</tr>
</tbody>
</table>

*p<.1; **p<.05; ***p<.01

In order to assess whether these differences in regression coefficients are significant or are rather due to chance, a moderator analysis – in this case a SCC – is performed. In this analysis, the individual correlations (reverted to Z-scores Z1-Z4) between the respective dimensions of PSM and individual performance are tested for their difference with a general assumed population parameter (Z') by means of Q-statistic with three degrees of freedom.
### Table 4: Subgroup correlation comparison table of PSM and self-rated performance by country

<table>
<thead>
<tr>
<th></th>
<th>Belgium</th>
<th>The Netherlands</th>
<th>Switzerland</th>
<th>United Kingdom</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>Z1</td>
<td>Z2</td>
<td>Z3</td>
<td>Z4</td>
</tr>
<tr>
<td>Attraction to public service</td>
<td>.23 ***</td>
<td>.23</td>
<td>.19 ***</td>
<td>.19 ***</td>
<td>.26 ***</td>
</tr>
<tr>
<td>Commitment to public values</td>
<td>.30 ***</td>
<td>.31</td>
<td>.28 ***</td>
<td>.28</td>
<td>.07</td>
</tr>
<tr>
<td>Compassion</td>
<td>.24 ***</td>
<td>.25</td>
<td>.13 *</td>
<td>.18 ***</td>
<td>.18</td>
</tr>
<tr>
<td>Self-sacrifice</td>
<td>.03</td>
<td>.03</td>
<td>-.04</td>
<td>-.04</td>
<td>.01</td>
</tr>
<tr>
<td>N</td>
<td>204</td>
<td>230</td>
<td>241</td>
<td>259</td>
<td>934</td>
</tr>
</tbody>
</table>

*p<.1; **p<.05; ***p<.01

The analysis shows that for attraction to public service, compassion and self-sacrifice no statistical difference can be claimed. The ranges of r’s from .19 to .26 (APS), .13 to .25 (COM) and -.04 to .14 (SS) respectively is not significantly different from one another. However, for commitment to public values, the range of the r-values of .07 to .30 is statistically different (with Switzerland the bottom outlier).

5. Discussion

The results demonstrate that H1 is corroborated, as the alternative hypothesis of no difference is rejected. As well the regression analysis, with different significant regression coefficients, but certainly the SCC analyses indicate that the effect sizes of the relationship between individual PSM-dimensions and individual performance differ depending the environment. After all, both the independent and the dependent variables have been measured identically, with similar measurement model characteristics and with similar samples. The only variable that not has been controlled for is the institutional environment. Therefore, one can safely conclude that this particular variable plays a role in how the relationship is unfolded. However, based upon this analysis, one cannot conclude that country is the particular institution that determines this difference. One cannot distinguish between macro-level institutions as countries, and more meso level
institutional effects of for example organizational institutions or other level institutions (also because the subsamples are not representative for their respective countries). Nevertheless, it is clear from these analyses that PSM is not only generated within institutions (Pandey and Satzyk 2008; Perry 1997; Vandenabeele 2011), but that the relationship between PSM and certain outcomes is moderated by these institutions. The mixed findings with regard to the PSM-performance relationship is may – in the light of this finding – not seem a surprise.

This finding should urge students of PSM to further develop the theoretical framework, but also their empirical designs, in terms of these findings. Concerning theory, it is suggested that research is not framed in an instrumental way, with individual level PSM a direct driver. Instead context and environment should be included and in particular the opportunities that are provided for putting the individual PSM into practice. Person-job fit, person-organization fit and other type of person-environment fit are important to be included, as they indicate indirectly how PSM is harnessed within a given environment. However, it is even more important to measure institutional features directly in order to determine which institutional characteristics explain this institutional moderator effect. It could be organizational characteristics, a national culture or institutions at a level in between, for example the institutionalization of new public management (NPM) as a governance paradigm. After all, NPM has been found to influence the public service ethos – a to PSM related construct – negatively (Prattchet and Wingfield 1996) and it has been suggested that PSM could be crowded out by a market paradigm (Moynihan 2008). It is not surprising that particularly the dimension
commitment to public values demonstrate the most prominent moderator effect. It is precisely this dimension which has the strongest logical links with institutional values.

Applying this theoretical perspective automatically brings changes in design along. Although including mediating variables in a research design can help to identify possible moderators, as is the case with fit-variables, it is not sufficient. Mediators of this type only identify interactive effects in a limited spectrum (i.e. when a direct effect can be measured). It is therefore necessary to also include contextual variables (when including multiple contexts). When not trying to explain the institutional interaction, it is at least necessary control for it. This means running multiple models on subsamples of various institutions, integrating product-terms in regression models or doing SCC. Only when working with representative data and when the aim is to generalize towards a particular (institutional) population (which is hardly ever the case), this precaution can be omitted. When purposely testing for interaction or moderator effects, the situation becomes even more complex. Moderated multiple regression models may – contrary to the claim their name evokes – not be the most satisfying way to proceed. In particular when using survey data, the conjoint distributions of the data may be unfavorable for detecting moderator effects. Instead, using SCC, despite its lower statistical power, could be an alternative. Another type of design might be fruitful in working around this problem is an approach where survey, scenario-studies, panel designs and field or quasi-experiments meet one another (Wright and Grant 2010). When the distributions of the variables can be managed, conjoint distributions can be avoided and the statistically more powerful MMR can be applied to its full extent.
Finally, the findings have some consequences for practitioners who try to apply the existing knowledge in their day-to-day practice. First, one should be careful by simply generalizing earlier findings to other environments. Important institutional features may not be reported in earlier studies, and the present results show that disregarding the environment may negatively influence a relationship that in other circumstances may be strongly positive. Second, simply focusing on PSM will not suffice to create added value. If such a focus does not match with an organizational environment – or if the environment is not made to match – efforts will be in vain. Implementing PSM as a motivational strategy as a quick win, without addressing appropriate contextual consideration is bound to be ineffective. Instead, a full-range approach as proposed by Paarlberg et al (2008) is probably more effective, as this perspective does not only address HR-processes but also contextual issues at various institutional levels. Moreover, it could be worthwhile to focus on particular profiles, as research point out that particular dimensions have more of an influence and that therefore particular profiles could be suited better to perform.

6. Conclusions
The results of this study indicate that the relationship between PSM and performance is real, but that this relationship is moderated by the institutional environment. Not every environment will render the same performance when individual PSM-levels are similar. Therefore, it is necessary to include institutional environment in as well the theoretical approach and the research design. Such an inclusion would create a better external and internal validity of the studies claiming to investigate the relationship between PSM and
individual performance and their results. It would also enable practitioners to more fully understand how PSM impacts on performance how the interplay of individual dispositions and institutional arrangements creates conditions that foster this relationship.

However, some caution is warranted, as this study has some drawbacks. A main caveat is the limited measure of individual performance that is used. As it is only limited to individual performance, other types of performance, as well as other types of behavior, remain undiscussed. Also, the self-reported nature of the outcome variable has some drawbacks, as the validity of such a measure can be disputed. Finally, the present study does not distinguish between various institutional levels and which institutions play a role in this respect. However, in spite of these caveats, the results of the presented research are sufficient to draw attention of both scholars and practitioners to the influence institutions exert not just on the development of PSM but also on the relationship between PSM and outcome variables as individual performance.
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