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A Meta-Analysis of the Relationship between Public Service Motivation and Job Satisfaction

Research Synthesis

Abstract: *In recent years, much research has been conducted on the relationship between public service motivation (PSM) and various outcomes, including job satisfaction. This article presents a meta-analysis aggregating the effects of PSM on job satisfaction. Meta-regression analysis is used to assess the impact of numerous study characteristics and to identify potential issues of publication bias. The findings, based on 28 separate studies, show no evidence of publication bias and support the positive relationship between PSM and job satisfaction. Furthermore, the results support the importance of providing individuals with the opportunity to serve the public within this relationship. Given the organizational benefits that can be derived from improved job satisfaction and the focus of PSM research on its implications for job satisfaction, these findings are of interest to both academics and practitioners in the field of public administration.*

Practitioner Points

- Activating PSM-related needs is a low-cost driver of job satisfaction.
- Managers aiming to increase job satisfaction in their organizational units through PSM should put particular emphasis on responding to individuals' self-sacrifice and commitment to the public interest.
- Practitioners should actively seek and create opportunities to serve citizens directly when aiming to increase the job satisfaction of their employees.

Public service motivation (PSM) is often proposed as a means to improve performance and overcome incentive problems in the public sector. PSM is defined as "a particular form of altruism or prosocial motivation that is animated by specific dispositions and values arising from public institutions and missions" (Perry, Hondeghem, and Wise 2010, 682). Introduced by Perry and Wise (1990), the concept is based on the argument that the motivation of public servants can be clustered into rational, norm-based, and affective motives. Research on PSM is now widespread (e.g., Andersen 2009; Coursey et al. 2011; Leisink and Steijn 2009; Taylor and Westover 2011; Vandenabeele 2009; Wright and Pandey 2008), and the literature has developed several definitions for it (see Brewer and Selden 1998; Perry and Wise 1990; Vandenabeele 2007).

In this article, our main focus is the relationship between PSM and job satisfaction, which was selected for several reasons. First, the literature provides mixed and partly conflicting findings regarding the positive effects of PSM on job satisfaction (e.g., Gabris and Simo 1995; Lewis and Frank 2002). Second, job satisfaction is one of the most extensively researched areas in organizational behavior (Rainey 2003), and it has been linked to many performance-related outcomes, including turnover (Eby et al. 1999), commitment (Boardman and Sundquist 2009), and organizational citizenship behaviors (Organ and Ryan 1995). Therefore, knowledge about what drives job satisfaction is of interest not only to researchers but also to managers in the public sector. Third, the specific field of PSM research has matured, resulting in a significant number of studies that include correlations between PSM, its dimensions, and job satisfaction. This enables us to use meta-analysis to assess the overall effect ascribed to PSM.

A range of studies have provided evidence for PSM in single countries, including Denmark (Anderson 2009), Malta (Camilleri 2007), South Korea (Kim 2006), China (Liu, Tang, and Zhu 2008), Switzerland (Ritz 2009), and Australia (Taylor 2007). More recently, cross-country comparisons (Houston 2011) have also been conducted. In addition to its traditional home in the field of public administration (Coursey et al. 2011; Leisink and Steijn 2009), researchers in adjacent disciplines such as economics (Delfgaauw and Dur 2008; Francois 2000; Francois and Vlassopoulos 2008; Georgellis and Tabvuma

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2010) and human resource management (Carpenter, Doverspike, and Miguel 2012; Liu, Tang, and Zhu 2008; Melnik, Petrella, and Richez-Battesti 2013) have become interested in PSM.

Notwithstanding the bulk of research providing empirical support for PSM, the concept of PSM is not without challenge. For example, Gabris and Simo (1995) failed to identify a difference in the level of PSM between the public and private sector and suggest abandoning the concept. Others have failed to find evidence for a lower preference for extrinsic rewards among public sector employees (Lyons, Duxbury, and Higgins 2006). Similarly, the work of Tschirhart et al. (2008) supports the idea that individuals who have a preference for helping others (a key component of PSM) will self-select into the public sector but fails to find any effect of salary preferences in relation to sector preference. In contrast, Lewis and Frank (2002) were unable to establish high levels of PSM as a predictor for public sector employment. Another strand of research argues that sector preference is an inadequate proxy for person–organization fit and highlights the interplay between job characteristics and PSM (Christensen and Wright 2011).

Several studies have provided narrative summaries of the existing body of research on PSM. These reviews focus on international research (Kim and Vandenabeele 2010), a comparison against Perry and Wise's (1990) original propositions for the outcomes of PSM (Perry, Hondeghem, and Wise 2010), and a description of the PSM field containing frequency counts and network analyses (Ritz, Brewer, and Neumann 2013). Most recently, Perry (2014, 34) summarized the development of PSM research and identified possible foci for a "third wave of PSM research." The latter includes an emphasis on robust research designs, multiple incentives, improved measures, and a stronger link between theory and practice. All of these works point toward important gaps in the literature and help delineate a comprehensive picture of PSM research.

Given that a large fraction of PSM research is quantitative in nature, it is worthwhile to investigate these varying empirical findings quantitatively using meta-analytic techniques. A body of literature consisting of various and sometimes conflicting empirical findings provides the ideal ground for meta-analysis: "If a number of independent studies have been conducted on a particular subject, using different data sets and methods, then combining their results can furnish more insight and greater explanatory power than the mere listing of the individual studies." (Stanley 2001, 131). Meta-analysis is a widely accepted technique in the management literature (e.g., Joshi, Liao, and Roh 2011; Judge and Ilies 2002) and has also provided meaningful insights in public administration research (Ringquist 2013; Weibel, Rost, and Osterloh 2010).

Thus, it is our argument that a meta-analysis of the PSM–job satisfaction link is well positioned to generate insights of relevance for both academics and practitioners. Consequently, our contribution is twofold. First, we contribute to the empirical assessment of PSM's capacity to influence job satisfaction. Second, on a theoretical level, we contribute to a refinement of the transmission channels attributed to each PSM dimension in relation to job satisfaction.

We apply meta-regression analysis (Stanley 2005) to assess the impact of different study characteristics in order to detect a genuine effect and analyze potential issues of publication bias (Doucouliagos 2005; Stanley 2008). Thus, the analysis follows explicit calls by Ritz, Brewer, and Neumann (2013), who highlight a large number of positive significant findings in their narrative systematic review of the PSM literature, acknowledging the possibility of publication bias in the PSM literature and calling for meta-analytic investigations.

Our work complements but does not replicate that of Warren and Chen (2013), who meta-analytically investigate the relationship between PSM and performance. Another work that has similarities to ours is the thesis by Behaj (2012), which analyzes PSM and job satisfaction. However, the latter focuses exclusively on aggregate PSM, whereas our work makes additional contributions by investigating the individual dimensions of PSM, applying more suitable techniques to investigate publication bias, and by employing meta-regression to explain heterogeneity between studies. Our results provide support for the relationship between PSM and job satisfaction and do not show evidence of publication bias. As such, the findings provide a critical point of view on the PSM field and are useful for academics and practitioners when confronted with the results of primary studies.

PSM and Job Satisfaction

In line with the existing literature, we consider PSM a predictor of job satisfaction. For example, Vandenabeele explains that "[i]n PSM research job satisfaction is considered to be a consequence of PSM" (2009, 15) because public sector employment helps satisfy individuals' prosocial needs. Employees with a high level of PSM are motivated by opportunities to serve the public interest. Because public sector organizations are best placed to provide employees with an opportunity to serve the public interest, we expect PSM to link with job satisfaction among public sector employees (Andersen and Kjeldsen 2013; Bright 2008; Naff and Crum 1999).

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It has also been shown that the PSM–job satisfaction relationship can be moderated by a job's propensity to offer opportunities to serve the public. When employees feel that their jobs give them the opportunity to serve the public, a positive effect of PSM on job satisfaction can be expected. According to Andersen and Kjeldsen, "individuals with high PSM may be better able to act on their motivation in the public sector (compared to the private sector) if this environment is perceived as offering better opportunities for serving the public and if public employees feel that they can 'donate' effort more directly to the 'public' rather than to a private residual claimant" (2013, 253). At its core, this is a person–job fit argument (Kristof-Brown, Zimmerman, and Johnson 2005; Locke 1976; Taylor 2007) showing that the better aligned a job is with a post holder's attitudes, values, and preferences, the higher job satisfaction is likely to be.

PSM is not limited to public sector occupations. Although public sector jobs historically were considered to provide opportunities to serve the public by default, public sector reform has contributed to

increasingly blurred boundaries between the public and private sectors. Recent studies have shown that some private sector firms offer jobs that allow employees to satisfy their public service–motivated needs (Andersen and Kjeldsen 2013), supporting the argument that PSM is not limited to the public sector (Perry, Hondeghem, and Wise 2010). On the other hand, employees may be driven by a need to support individual clients as opposed to doing good for society. This idea has given rise to the concept of "user orientation," understood as the opportunity to serve a specific individual (Andersen and Kjeldsen 2013). However, it has been shown that user orientation has a stronger relationship with job satisfaction in the private rather than in the public sector (Andersen and Kjeldsen 2013). We reflect these discussions in our analysis by coding studies according to whether the respondents' occupations offer opportunities to serve the public.

As mentioned in the introduction, mixed findings have been produced regarding the PSM–job satisfaction relationship (Bright 2008; Steijn 2008; Taylor 2008). A number of studies have found a positive relation between PSM and job satisfaction (Andersen and Kjeldsen 2013; Stazyk 2012; Taylor 2008; Park and Rainey 2008). In contrast, Wright and Pandey's (2008) study does not support the direct effect of PSM on job satisfaction but does provide evidence for value congruence as a mediator. Similarly, in a later study, Wright and Pandey (2011) failed to find a direct effect of PSM on job satisfaction but instead found that the effect is mediated by their measure of mission valence.

Findings show that national context may also play a role in the positive association between PSM and job satisfaction, which, although present in Danish, Australian, U.S., and Dutch samples, was not supported in two other U.S.-based studies. These findings highlight that there may be important country effects when investigating PSM and job satisfaction. Our meta-analysis accounts for these aspects by controlling for the country of origin for each study and ultimately comparing between U.S.- and non-U.S.-based works.

Measurement

At the core of PSM is the idea that individual behavior is driven by a desire to help others and contribute to society (Perry and Hondeghem 2008). Early on, Perry (1996) validated a 24-item PSM scale, and the concept emerged as a construct consisting of four dimensions: attraction to public policy making, commitment to the public interest, compassion, and self-sacrifice.

The measurement debate triggered a set of studies assessing the psychometric properties of PSM measures (Coursey et al. 2008; Kim 2009a, 2009b; Kim et al. 2013). One difficulty identified is the analysis of PSM in different cultural contexts in which the original U.S. conceptualization and measure may not be appropriate. Consequently, Giauque et al. (2011) and Liu, Tang, and Zhu (2008) have highlighted the need to adapt existing measures based on different cultural contexts, and Kim et al. (2013) have developed a measure that can be applied internationally. However, the "attraction to public service" dimension in Kim et al. (2013) has been criticized for not being sufficiently derived from theory (Perry 2014).

Although many researchers have used at least some of these dimensions, Wright, Christensen, and Pandey (2013) point toward the difficulties of measuring PSM using the original 24-item scale. In particular, they highlight the use of long questionnaires, low reliabilities of some dimensions in different contexts, and potential redundancies between dimensions. This has led to the development of shorter scales that Wright, Christensen, and Pandey (2013) refer to as "global measures" of PSM. These global measures include indications of reward preferences, single-item measures contained in panel data sets (Georgellis and Tabvuma 2010), and a five-item measure containing some of the items used in Perry's original scale, all of which are frequently used in PSM studies (e.g., Moynihan and Pandey 2010). This state of the literature creates problems for interpreting the available evidence because "we have only indirect evidence that these different measures can be used interchangeably to produce consistent and trustworthy results" (Wright, Christensen, and Pandey 2013, 199). Our meta-analysis is particularly well positioned to contribute to this discussion because it allows us to conduct moderation analyses on the type of measure employed in each primary study. To achieve this, we follow Wright, Christensen, and Pandey's (2013) distinction between global and multidimensional measures of PSM.

Method

We employ meta-analysis as a systematic and rigorous quantitative approach to reviewing empirical findings (Borenstein et al. 2009; Hunter and Schmidt 2004; Lipsey and Wilson 2001). With a growing number of journals, online platforms for the publication of working papers, and the general increased availability of research results through the Internet, meta-analysis is an ideal tool to aggregate empirical results and assess the current state of knowledge of a given subject (Stanley 2001). Its ultimate goal is to identify and calculate the underlying empirical effect of a certain treatment or relationship across numerous studies. As a second step, we apply meta-regression analysis (Stanley 2005). Its strength is its ability to assess the impact of varying study characteristics, detect a genuine effect, and analyze potential issues of publication bias (Doucouliagos 2005; Stanley 2008).

Sample

We systematically searched EBSCOhost, Web of Science, and Google Scholar using the keywords "public service motivation," "PSM," "motivation in public service," "public sector motivation," and "civil service motivation." Our search covered the time period from 1990 to 2013. The start date for the search was selected to coincide with Perry and Wise's (1990) seminal publication, which laid the groundwork for much future PSM research. We double-checked manually by searching the key journals in the field: *Journal of Public Administration Research and Theory, Public Administration Review, American Review of Public Administration, International Public Management Journal, Public Administration,* and *Review of Public Personnel Administration.* We then cross-checked the references listed in the studies included in our database.

To complement the database of published studies, we included working paper drafts presented at the 2013 annual meeting of the Academy of Management and the 2013 conference of the International Research Society for Public Management, as well as those submitted to a special issue devoted to work motivation in the public sector (Homberg, Tabvuma, and Heine 2014). By including these working papers, we are taking a pragmatic stance and

acknowledge that most of them are likely to be published by the time this meta-analysis appears. We have not taken working papers from earlier years into consideration. Rather, we only include the ones that we could reasonably expect were working through the publication system at the point of coding. Thus, we consider our approach a viable starting point that follows standard guidelines for meta-analysis. The inclusion/exclusion decision can be considered a limitation of meta-analyses (and probably of any research and the delays introduced by the publication system), as time for coding is required, and data collection must be stopped at some point. We excluded conceptual papers, as they cannot be integrated into a meta-analysis. For the purposes of this article, we limit the analysis to papers written in English.

This search procedure yielded 79 studies that potentially qualify for integration into a meta-analysis because of their quantitative nature and focus on PSM. We then excluded studies that did not report a bivariate correlation between PSM (or one of its dimensions) and job satisfaction and those using a single-item measure of PSM. The remaining 28 studies displayed a correlation between an aggregate PSM measure and job satisfaction or dimensions of PSM and job satisfaction (or both), thus generating 43 effect-size observations. Appendix A and Appendix B list the studies in the two subsamples. Subsample 1 ($N = 20$) consists of studies reporting a correlation between an aggregate PSM measure and job satisfaction. Subsample 2 ($N = 8$) consists of studies reporting a correlation between PSM dimensions and job satisfaction.

Procedures

Effect size (ES). Meta-analysis relies on the comparability of empirical findings. In order to make results from different quantitative primary studies comparable, the collected estimates need to be transformed into effect sizes that represent the effects on a common scale. Meta-analysts have developed a range of effect sizes for different purposes (Ellis 2010; Lipsey and Wilson 2001). We followed the approach described in Weibel, Rost, and Osterloh (2010) and coded the zero-order correlations from the primary studies in order to achieve a maximum level of comparability, that is, $ES = r$.

This approach allows for correction of measurement errors following the Hunter and Schmidt (2004) procedures. Original correlations were corrected for measurement reliability using equation (1). Missing data were substituted by the mean reliability of the sample (see also Ellis 2010, 103).

$$r_c = ES/\sqrt{\alpha_{psm} *}\sqrt{\alpha_{jsat}}\,, \tag{1}$$

where ES is the effect size (r); r_c is equal to the corrected correlation; and α_{psm} and α_{jsat} are equal to the Cronbach's alphas for PSM (or its dimensions) and job satisfaction, respectively.

Following common conventions (Ringquist 2013, 109), these corrected correlations were transformed into Fisher's Z, which is the effect size used in the subsequent analyses. For effect size transformations, we use the software Comprehensive Meta-Analysis (Borenstein et al. 2009), which allows for conversion between different effect sizes. Regression analyses were carried out using Stata. Fisher's Z is computed according to equation (2):

$$Z = 0.5\ln[(1 + r_c)/(1 - r_c)], \tag{2}$$

where Z is Fisher's Z and r_c is the corrected correlation.

Moderators. We coded a series of potential categorical moderating variables. First, we distinguish between published and unpublished studies. Second, we record whether a study employed a dimensional or global measure. Third, we control for the origin of the data set, distinguishing between studies using U.S. data and data from the rest of the world.

Fourth, and most complicated, we aim to capture information on whether a particular job offers the opportunity to serve the public. Unfortunately, the concept of "user orientation" (Andersen and Kjeldsen 2003) has been developed only recently, and only one of the studies included in our sample used a comparable construct. Thus, we had to carefully read through the details of the sample description in each primary study and apply the approach suggested by Weibel, Rost, and Osterloh (2010) in order to code the studies into two groups. The first group consists of studies that provide opportunities to serve (coded as 1) and the second of studies that did not (coded as 0). However, it should be noted that most studies did not provide sufficient information on this issue, as they simply report on whether they surveyed "agencies" or "public sector organizations." Thus, for the purposes of coding, we made a number of assumptions. First, when students in master of public administration programs were surveyed, we coded this as 0. Second, when we had a clear indication that there is very little contact with the public and limited opportunity to contribute to society, we coded it as 0 (e.g., one study looked at "office workers"). Third, a few studies used larger surveys capturing a variety of public sector agencies. We took a conservative standpoint here and coded these cases as 0. While we acknowledge that it is unlikely that all of them will be without opportunities to serve the public, we preferred to err on the side of caution rather than include a moderator that is not there.

Meta-regression. The second step of the analysis explores the sources of heterogeneity among the included primary studies, that is, those study-level factors that may affect the results of primary studies. In meta-regression analysis, the dependent variable is the effect size, and the independent variables are study characteristics. Their coefficients reflect distortions that have been introduced by characteristics of primary studies (Stanley and Jarrel 1989). A standard meta-regression model, equation (3), can be specified as follows (e.g., Stanley and Jarrel 1989; Ringquist 2013):

$$ES_i = \alpha + \sum_{k=1}^{K} \beta_k X_{ki} + \varepsilon_i, \tag{3}$$

where ES is the effect size (r_c); α is the true effect; X is the vector of the independent variables (e.g., study characteristics); β_k is the estimated coefficient of the study characteristic; and ε is an error term.

For the meta-regression analysis, we coded a set of study characteristics. We recorded the year of publication and the origin of the data set. From the latter, we computed a dummy variable indicating U.S.-based studies and others. Additionally, we used a dummy variable to capture the publication status, with all working papers being coded as "unpublished." Furthermore, we tried to capture the various

analytical approaches that the authors of primary studies used by distinguishing between global and dimensional measures of PSM.

Publication bias. Ultimately, meta-analytic techniques allow for the investigation of publication bias (Doucouliagos 2005; Stanley 2008). Publication bias refers to the possibility that the published literature is an inaccurate reflection of knowledge. According to Stanley, "publication bias, or the 'file drawer problem,' is the consequence of choosing research papers for the statistical significance of their findings. 'Statistically significant' results are often treated more favorably by researchers, reviewers and/or editors; hence, larger, more significant effects are over-represented" (2008, 104).

However, alternative drivers for the existence of publication bias need to be considered. Rost and Ehrmann (2015) discuss that authors may be reluctant to submit papers containing nonsignificant findings to journals; that editors and reviewers may have a preferences for a certain paradigm, methodological approach, or significant results; and that authors may be less inclined to submit when their results run contrary to standard theory. Recently, researchers have called for the inclusion of publication bias analyses in meta-analyses because data on this matter are needed, and only a small number of meta-analyses (particularly in organization research) investigate it (Kepes et al. 2012). Most recently, Moynihan invoked the "file drawer" problem to justify his "meaningful nonfinding" (2013, 190) on the relationship between PSM and budget maximization. It is particularly important for the field of PSM to investigate potential issues of publication bias because, notwithstanding the growth of PSM studies in recent years, it is still relatively small compared with other research areas in management, organizational behavior, and public administration. Fields such as PSM that are characterized by small groups of researchers are more prone to publication bias.

Publication bias can be analyzed graphically using funnel plots. In a funnel plot, the y-axis plots a measure of precision such as sample size or the inverse of the standard error (Kepes et al. 2012; Stanley and Doucouliagos 2012), and the x-axis displays the chosen effect size metric. The plot should be symmetrical if the literature is unbiased. In the unbiased case, it will also contain a low number of very precise estimates at the top and a large number of not so precise estimates at the bottom. This gives it the shape of an inverted funnel.

In addition to the visual interpretation of the funnel plot, we use Egger's test of the intercept (Egger et al. 1997) to assess publication bias. This requires estimating a regression equation with precision as predictor of the standardized effect size measure. In this case, a significant intercept indicates the presence of publication bias, as in the absence of publication bias, a symmetrical funnel plot would cause the regression to intersect with the origin (Egger et al. 1997; Kepes et al. 2012; Stanley and Doucouliagos 2012). Equation (4) displays the Egger test regression. While there are various procedures to investigate publication bias, we use the test of the intercept because it has been recommended as an advanced approach to the analysis of publication bias (Kepes et al. 2012), whereas, failsafe-*N* techniques have been shown to produce biased results (Banks, Kepes, and McDaniel 2012; McDaniel, Rothstein, and Whetzel 2006).

$$ES_i = \alpha + \beta(1/SE_i) + \varepsilon_i, \quad (4)$$

where *ES* is the effect size (r); α is a constant; $1/SE$ denotes precision (inverse of standard error); β is the estimated coefficient; and ε is an error term.

In meta-analysis, fixed or random effect models can be computed. Fixed-effect models assume that the overall effect size is identical across all studies. This is a conservative assumption that we consider unlikely to hold in the field of PSM. Instead, the random-effects model—which allows for variance of effect sizes between studies—is deemed more appropriate. Following Ringquist, who states that "[i]n virtually all cases meta-analysis in public management, public policy and the social sciences will be conducted using the random effects framework" (2013, 118), all results presented in the next section have been computed using the random-effects model.

Results

We begin by presenting the results for the aggregate PSM measure and job satisfaction. This subsample consists of estimates from 20 studies displaying a correlation between an aggregate PSM measure and job satisfaction. We also consider a number of moderators. First, we analyze whether there is a different effect between published (14 studies) and unpublished studies (6 studies). Second, we compare the estimates between studies applying dimensional and global measures of PSM. Third, we check the effect of country origin by comparing studies using U.S. data to the remainder of the sample. Fourth, we assess the opportunity to serve the public as a potential moderator in the PSM–job satisfaction relationship.

Table 1 summarizes the results for the effect of aggregate PSM on job satisfaction. Several findings emerge. First, and most important, the analysis reveals that PSM has a moderate and significant effect on job satisfaction when aggregating the various studies. Second, the results show that studies using U.S. data do not display stronger effects on aggregate compared with works based on non-U.S. data. Third, the results relating to publication status and the measures employed appear to fall within normal expectations. Both dimensional measures and published studies' effects are associated with slightly stronger effect sizes as opposed to global measures or working papers. Fourth, applying the "opportunity to serve" moderator

Table 1 Overall and Moderating effects of PSM on Job Satisfaction

Random effects analysis	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Sig.
PSM	20	0.3424	0.2287	0.4562	5.8986	0.0000	***
Moderators							
unpublished	6	0.3156	0.0800	0.5512	2.6250	0.0087	***
published	14	0.3541	0.1994	0.5087	4.4875	0.0000	***
dimensional	8	0.3849	0.1790	0.5908	3.6635	0.0000	***
global	12	0.3144	0.1468	0.4820	3.6765	0.0000	***
other	12	0.3772	0.2486	0.5059	5.7473	0.0000	***
US	8	0.2892	0.1303	0.4481	3.5678	0.0000	***
Opportunity to serve	4	0.6151	0.3756	0.8546	5.0342	0.000	***
No opportunity to serve	16	0.2741	0.1542	0.3940	4.4807	0.000	***

Note: All effect sizes displayed as Fisher's Z; effect size across all 43 studies is 0.267.

has a strong effect. The relationship between PSM and job satisfaction becomes increasingly pronounced and is stronger when jobs explicitly offer individuals opportunities to serve the public. These results have implications for the interpretation of findings presented in primary studies. At least from a practitioner's point of view, achieving an increase in job satisfaction by either providing individuals with an opportunity to contribute to society or recruiting individuals who score high on PSM may be a desired, cost-effective strategy for public sector managers.

The relationship between PSM and job satisfaction becomes increasingly pronounced and is stronger when jobs explicitly offer individuals opportunities to serve the public.

Achieving an increase in job satisfaction by either providing individuals with an opportunity to contribute to society or recruiting individuals who score high on PSM may be a desired, cost-effective strategy for public sector managers.

We now turn our attention to the dimensional aspect of PSM: attraction to policy making (ATP), commitment to the public interest (CPI), self-sacrifice (SS), and compassion (Comp). In addition to the 20 studies investigating aggregate PSM and job satisfaction, 8 studies focused on the dimensional aspects of PSM and produced 23 correlations suitable for meta-analysis.

The results displayed in table 2 show that the ATP and Comp dimensions appear problematic. ATP displays a much smaller and less significant effect than CPI and SS, while Comp is not significant. These results raise concerns about the capability of these dimensions to influence job satisfaction. Forest plots summarizing both data sets are displayed in Appendix C (available as an online supplement).

Table 2 PSM Dimensions effects on Job Satisfaction

Random effects analysis	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Sig.
ATP	5	0.1051	0.0087	0.2007	2.1374	0.0326	**
Comp	4	0.0463	–0.0593	0.1520	0.8592	0.3902	n.s.
CPI	8	0.2932	0.2177	0.3686	7.6181	0.0000	***
SS	6	0.2343	0.1456	0.3229	5.1815	0.0000	***

Notes: ATP – Attraction to Policy Making; Comp – Compassion; CPI – Commitment to Public Interest; SS – Self-Sacrifice; all effect sizes displayed as "Fisher's Z".

Analysis of Publication Bias

As outlined in the Method section, several approaches for assessing publication bias are available. As a first step to examine publication bias, we produced the funnel plot for subsample 1, as displayed in panel A of figure 1 (available online). The results fail to show strong signs of publication bias as the graph appears symmetrical. Similarly, panel B of figure 1 displays the funnel plot for all subsamples, and again the graph does not provide evidence of publication bias.

However, the graphical assessment has a subjective component. In order to double-check this result, we ran the Egger test of the intercept, which is displayed in figure 2 (available online). As expected, the absence of bias is indicated by the nonsignificant constant (coef. 2.91, SE 3.84, p= .45 n.s.).

Second, we used the full sample of 43 effect sizes to investigate publication bias. Because some effect sizes are taken from the same study data, dependence may lead to biased results. According to Stanley and Doucouliagos (2012), appropriate weighting of the effect sizes addresses this problem. Thus, we ran the Egger test again, but this time specified as a weighted least squares regression, using precision squared as weights and study ids as clusters. Again, the results fail to show signs of publication bias.

Analysis of Study Heterogeneity

The next step is to compute full meta-regression models in order to investigate the sources of heterogeneity present in primary studies. Table 3 displays the results of the meta-regression models. Models

Table 3 Results of Meta-Regression of PSM and Job Satisfaction

	Fisher's Z (Std)							
	1	2	3	4	5	6	7	8
Precision	0.250***	0.0904**	0.258***	0.248***	0.255***	0.268***	0.309***	0.192***
	(0.0805)	(0.0421)	(0.0841)	(0.0825)	(0.0819)	(0.0797)	(0.0929)	(0.0459)
US			2.503				4.704	33.37**
			(5.381)				(7.648)	(12.39)
Dimensional				–2.295			8.096	-1.911
				(5.283)			(10.97)	(4.128)
Published					3.883		10.63	-6.117*
					(5.604)		(10.06)	(3.314)
Opportunity						8.543	11.60	13.99*
						(6.245)	(6.945)	(7.742)
Constant	2.912	8.474	1.622	3.913	0.0392	0.565	–14.09	1.441
	(3.844)	(6.738)	(4.810)	(4.559)	(5.693)	(4.128)	(14.52)	(5.149)
Observations	20	43	20	20	20	20	20	43
Adjusted *R*-squared	0.314	0.012	0.282	0.281	0.293	0.345	0.289	0.099

Notes: Effect Size (DV): Fisher's Z, standardized; Models 2 & 8 specified as weighted least squares with study clusters to account for multiple estimates per study, Standard errors in parentheses,*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

1, 3, 4, 5, and 6 relate to subsample 1 (i.e., studies investigating aggregate PSM and its effect on job satisfaction). It represents a one-study, one-estimate sample. This helps avoid the issues of data dependency that arise when multiple estimates are taken from the same study. However, the number of effect sizes included in the regression is rather low. In order to avoid overspecification of the regression models, we include only one predictor variable per model.

In contrast, models 2 and 7 include all 43 estimates from the combined subsamples. This aggregation can be challenged on the grounds of comparability among the measures. However, all dimensions make a contribution to PSM, and therefore we conclude that this estimation strategy is viable and consider it an additional robustness check. In this case, data dependency is an issue because several estimates are taken from the same primary study. Thus, weighted least squares models are specified.

Models 1 and 2 are simple replications of Egger's test of the intercept, as described earlier. Model 3 assesses whether U.S. samples have a distorting effect on the results of primary studies. Model 4 includes a dummy variable for studies employing a dimensional PSM measure. Model 5 compares published and unpublished studies. Model 6 includes all study characteristics simultaneously. Finally, model 7 combines the set of studies using the aggregate PSM measure with the set of studies focusing primarily on the dimensions including all study characteristics.

Overall, it appears that the study characteristics do not exhibit any distortion effect on the results of primary studies. Only in model 7 is the U.S. dummy significant in indicating an upward bias of effects for PSM on job satisfaction. The constant remains nonsignificant across specifications. Thus, the analysis provides support for the existence of a genuine effect of PSM under the absence of publication bias.

Discussion

This meta-analysis investigated the relationship between PSM, including its dimensions, and job satisfaction. There is some debate in the literature as to whether this relationship is direct or mediated by other variables such as value congruence (Wright and Pandey 2008). However, aggregating the available evidence meta-analytically reveals the presence of a direct relationship between the two variables. Additionally, we find strong support for the idea that when public service–motivated individuals are given more opportunities to serve the public, they report higher levels of job satisfaction. Furthermore, our results indicate the absence of publication bias in this particular field of literature.

While the field of PSM has grown steadily over the past two decades, it is still dominated by a small set of core contributors. Under these circumstances, publication bias becomes more likely. Therefore, our results are good news for the PSM community, acknowledging explicitly the authors', reviewers', and editors' unprejudiced approaches. Finally, the study characteristics included in this analysis do not exhibit any distorting effect on primary studies, with the exception of the U.S. data sets. This may be attributable to slightly different interpretations of the items used to measure PSM between the United States and other countries.

Researchers benefit from the fact that a positive association between PSM and job satisfaction is not an artifact but holds across studies.

There are three main implications of these findings. First, researchers benefit from the fact that a positive association between PSM and job satisfaction is not an artifact but holds across studies. However, the aggregate effect may appear smaller than expected considering the strong effects of PSM found in some primary studies (e.g., Kim 2005; Liu and Tang 2001; Wright, Christensen, and Pandey 2013). This implies that researchers should actively investigate mechanisms that potentially strengthen the aggregate effect. Some studies focusing on the organizational and institutional antecedents of PSM have already contributed to this discussion (e.g., Moynihan and Pandey 2007; Vandenabeele 2011). The findings of such research may also provide grounds to develop guidelines for practitioners, allowing them to exploit the effect of PSM on job satisfaction to a larger extent. For the PSM research community, the analysis provides clear results on the effect of PSM on job satisfaction across studies. These results force practitioners and academics to seek ways that enable the activation of the PSM in their employees.

The second implication of this study is the strength of the link between PSM and job satisfaction, which varies considerably depending on the dimension being examined. Our analysis of the dimensions of PSM shows that commitment to the public interest (CPI) and self-sacrifice (SS) contribute to job satisfaction, whereas the aggregated effect of attraction to policy making (ATP) and compassion (Comp) dimensions are tiny and only weakly (former) or not significantly (latter) related to job satisfaction. Thus, we stipulate that these two dimensions do not contribute much to the relationship between PSM and job satisfaction. Consequently, it becomes more important for PSM researchers to investigate the distinct effects of the dimensions of PSM. Similarly, practitioners have higher chances of reaping the positive effects of PSM in relation to job satisfaction when responding to the CPI and SS dimensions.

One way to isolate the effects of the PSM dimensions is through experimental research designs, which, as Wright and Grant (2010) argue, have the advantage of disentangling the cause and effect relations. A number of researchers have followed this call and have used experimental designs to investigate PSM (e.g., Bellé 2013; Brewer and Brewer 2011; Carpenter, Doverspike, and Miguel 2012; Christensen et al. 2013; Moynihan 2013). Despite the limited amount of experimental studies that are available to date, a variety of variables have been studied. However, there are few opportunities to compare results on a common variable of interest. While we have not included experimental studies in our meta-analysis, they do provide the ideal setup for such an approach.

The third implication highlights our moderator analyses, which show that effect sizes do not vary strongly between published and unpublished papers. This further corroborates the absence of publication bias. Studies based on non-U.S. data, and those based on dimensional measures of PSM as opposed to global measures, displayed stronger effects. While stronger effects of dimensional

measures may be expected because of a more precise measurement, the stronger effects in non-U.S. samples come as a surprise. These effects may be attributable to slightly different interpretations of the PSM items in different national contexts.

Fourth, the PSM–job satisfaction relationship can be strengthened when individuals are given opportunities to serve the public through their daily jobs. Unfortunately, very few studies in our sample included such measures when assessing PSM and job satisfaction. Therefore, we were not able to analyze this effect at the dimensional level, only on the aggregate PSM level. Also, we were unable to distinguish "user orientation" from an opportunity to serve the public in general. Nevertheless, the strong effect generated by the latter makes it plausible that user orientation is also an important element to consider in the PSM–job satisfaction relationship, and we encourage future research to include this construct.

Taking all the results into account, our work builds a more nuanced understanding of the overall impact of PSM on job satisfaction. As such, it forms another piece in recent efforts to generate an overview of the PSM knowledge base complementing the works of Perry (2014) and Ritz, Brewer, and Neumann (2013). Finally, we contribute to the literature by focusing on the dimensions of PSM. Our results raise questions about the contribution made by ATP and Comp, providing ample opportunities for further research.

Limitations

Although we followed best-practice recommendations in meta-analysis, a significant number of judgment calls are involved in this study (Aguinis et al. 2011). Beginning with the selection of the search terms used to identify studies and including the choice of study characteristics used for the more refined meta-regression analyses, we hope that our justifications for those choices provided previously mitigate this issue to some extent. Nonetheless, we acknowledge that a few limitations exist.

First, we decided to consider studies only that are available in the English language. This approach enabled us to double-check coding within the research team without major problems. Additionally, the academic discourse on PSM takes place mainly in English, encompassing studies from various countries in North America, Europe, and Asia. Thus, while we cannot overcome this limitation, we deem it acceptable.

Second, we did not include a quality indicator for the studies included in the meta-analysis. The main reason for this decision is that those indicators that are commonly used, such as the journal impact factor, Google Scholar citations, or SSRN download patterns, have severe limitations. The impact factor can be artificially driven by citation cartels and is flawed in the sense that all articles in a given journal share the same impact factor regardless of natural variations in quality. Google Scholar citations and downloads in web repositories can be manipulated in similar ways (for a recent discussion, see Davis 2014). All of these measures are indicators of popularity or influence rather than indicators of quality contained in any given paper. Instead of using readily available indicators, we could have created our own scheme for quality assessment of studies. However, this would be similarly arbitrary, and there is no guarantee that our assessment would be shared by others. Therefore, we refrained from including a quality assessment. However, if other authors feel the need to invent a quality scoring scheme for PSM research, we deem this a valuable avenue for future research.

Third, we limit our analysis to the relation between PSM and job satisfaction. This choice was made because this is a widely investigated relation that gave us an acceptable number of studies and estimates to be integrated into the meta-analysis. Even so, from our point of view, it is worthwhile extending the scope to other constructs of interest in relation to PSM. With an increasing number of studies becoming available on this matter, we think an investigation of PSM and red tape is a worthwhile endeavor.

Fourth, while the focus of this article has been on PSM, future research may wish to consider the case of other forms of prosocial motivation such as public values (Bozeman 2007; Jørgensen and Rutgers 2015) that have received a considerable amount of attention in the public administration literature (see Van der Wal, Nabatchi, and de Graaf 2013 for a recent review of the literature). PSM concerns the desire of individuals to serve the public interest, whereas public values focus on the sector's normative ideals (Andersen et al. 2013). While both of these concepts of prosocial motivation have been linked to improved job satisfaction (Andersen and Kjeldsen 2013), it is not possible to integrate the findings for studies on public values with those emerging from the PSM literature. While a number of PSM dimensions imply and correlate with public values, the focus of public values at the systemic level and the inclusion of issues outside motivation makes integration of the concepts neither possible nor desirable (Andersen et al. 2013).

Conclusion

Our study contributes to the growing body of literature exploring the relationship between PSM and job satisfaction by showing that the positive relationship between PSM and job satisfaction is present across studies. According to our analyses, the PSM–job satisfaction literature does not suffer from publication bias. Additionally, our findings provide strong support for the concept of opportunities to serve the public as a moderator in this relationship.

Our findings have important implications for managers and practitioners in the public sector, calling for a redirection of resources toward selecting individuals predisposed to PSM, especially those with a strong commitment to public interest and sense of self-sacrifice. A second implication is that practitioners should try to actively seek and create opportunities to serve citizens directly when aiming to increase the job satisfaction of their employees.

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References

Aguinis, Herman, Dan R. Dalton, Frank A. Bosco, Charles A. Pierce, and Catherine M. Dalton. 2011. Meta-Analytic Choices and Judgment Calls: Implications for Theory Building and Testing, Obtained Effect Sizes, and Scholarly Impact. *Journal of Management* 37(1): 5–38.

Andersen, Lotte Bøgh. 2009. What Determines the Behaviour and Performance of Health Professionals? Public Service Motivation, Professional Norms and/or Economic Incentives. *International Review of Administrative Sciences* 75(1): 79–97.

Andersen, Lotte Bøgh, Torben Beck Jørgensen, Anne Mette Kjeldsen, Lene Holm Pedersen, and Karsten Vrangbæk. 2013. Public Values and Public Service Motivation Conceptual and Empirical Relationships. *American Review of Public Administration* 43(3): 292–311.

Andersen Lotte Bøgh, and Anne Mette Kjeldsen. 2013. Public Service Motivation, User Orientation, and Job Satisfaction: A Question of Employment Sector? *International Public Management Journal* 16(2): 252–74.

Banks, George C., Sven Kepes, and Michael A. McDaniel. 2012. Publication Bias: A Call for Improved Meta-Analytic Practice in the Organizational Sciences. *International Journal of Selection and Assessment* 20(2): 182–96.

Behaj, Shannon D. 2012. A Meta-Analysis Examining the Relationship between Public Service Motivation, Job Satisfaction, and Organizational Commitment. PhD diss., Walden University.

Bellé, Nicola. 2013. Experimental Evidence on the Relationship between Public Service Motivation and Job Performance. *Public Administration Review* 73(1): 143–53.

Boardman, Craig, and Eric Sundquist. 2009. Toward Understanding Work Motivation: Worker Attitudes and the Perception of Effective Public Service. *American Review of Public Administration* 39(5): 519–35.

Borenstein, Michael, Larry V. Hedges, Julian P. T. Higgins, and Hannah R. Rothstein. 2009. *Introduction to Meta-Analysis.* Chichester, UK: Wiley.

Bozeman, Barry. 2007. *Public Values and Public Interest: Counterbalancing Economic Individualism.* Washington, DC: Georgetown University Press.

Brænder, Morten, and Lotte Bøgh Andersen. 2013. Does Deployment to War Affect Public Service Motivation? A Panel Study of Soldiers before and after Their Service in Afghanistan. *Public Administration Review* 73(3): 466–77.

Brewer, Gene A., and Gene A. Brewer, Jr. 2011. Parsing Public/Private Differences in Work Motivation and Performance: An Experimental Study. Supplement 3, *Journal of Public Administration Research and Theory* 21: i347–62.

Brewer, Gene A., and Sally Coleman Selden. 1998. Whistle Blowers in the Federal Civil Service: New Evidence of the Public Service Ethic. *Journal of Public Administration Research and Theory* 8(3): 413–40.

Bright, Leonard. 2008. Does Public Service Motivation Really Make a Difference on the Job Satisfaction and Turnover Intentions of Public Employees? *American Review of Public Administration* 38(2): 149–66.

Camilleri, Emanuel. 2007. Antecedents Affecting Public Service Motivation. *Personnel Review* 36(3): 356–77.

Carpenter, Jacqueline, Dennis Doverspike, and Rosanna F. Miguel. 2012. Public Service Motivation as a Predictor of Attraction to the Public Sector. *Journal of Vocational Behavior* 80(2): 509–23.

Christensen, Robert K., Steven W. Whiting, Tobin Im, Eunju Rho, Justin M. Stritch, and Jungho Park. 2013. Public Service Motivation, Task, and Non-Task Behavior: A Performance Appraisal Experiment with Korean MPA and MBA Students. *International Public Management Journal* 16(1): 28–52.

Christensen, Robert K., and Bradley E. Wright. 2011. The Effects of Public Service Motivation on Job Choice Decisions: Disentangling the Contributions of Person–Organization Fit and Person–Job Fit. *Journal of Public Administration Research and Theory* 21(4): 723–43.

Coursey, David, Jefferey L. Brudney, Laura Littlepage, and James. L. Perry. 2011. Does Public Service Motivation Matter in Volunteering Domain Choices? A Test of Functional Theory. *Review of Public Personnel Administration* 31(1): 48–66.

Coursey, David H., James L. Perry, Jeffrey L. Brudney, and Laura Littlepage. 2008. Psychometric Verification of Perry's Public Service Motivation Instrument: Results for Volunteer Exemplars. *Review of Public Personnel Administration* 28(1): 79–90.

Davis, Gerald F. 2014. Editorial Essay: Why Do We Still Have Journals? *Administrative Science Quarterly* 59(2): 193–201.

Delfgaauw, Josse, and Robert Dur. 2008. Incentives and Workers' Motivation in the Public Sector. *Economic Journal* 118(525): 171–91.

Doucouliagos, Hristos. 2005. Publication Bias in the Economic Freedom and Economic Growth Literature. *Journal of Economic Surveys* 19(3): 367–87.

Eby, Lillian T., Deena M. Freeman, Michael C. Rush, and Charles E. Lance. 1999. Motivational Bases of Affective Organizational Commitment: A Partial Test of an Integrative Theoretical Model. *Journal of Occupational and Organizational Psychology* 72(4): 463–83.

Egger, Matthias, George Davey Smith, Martin Scheider, and Christoph Minder. 1997. Bias in Meta-Analysis Detected by a Simple, Graphical Test. *British Medical Journal* 315: 629–34.

Ellis, Paul D. 2010. *The Essential Guide to Effect Sizes.* Cambridge, UK: Cambridge University Press.

Francois, Patrick. 2000. Public Service Motivation as an Argument for Government Provision. *Journal of Public Economics* 78(3): 275–99.

Francois, Patrick, and Michael Vlassopoulos. 2008. Pro-Social Motivation and the Delivery of Social Services. *CESifo Economic Studies* 54(1): 22–54.

Gabris, Gerald T., and Gloria Simo. 1995. Public Sector Motivation as an Independent Variable Affecting Career Decisions. *Public Personnel Management* 24(1): 33–51.

Georgellis, Yannis, and Vurain Tabvuma. 2010. Does Public Service Motivation Adapt? *Kyklos* 63(2): 176–91.

Giauque, David, Adrian Ritz, Frederic Varone, Simon Anderfuhren-Biget, and Christian Waldner. 2011. Putting Public Service Motivation into Context: A Balance between Universalism and Particularism. *International Review of Administrative Sciences* 77(2): 227–53.

Homberg, Fabian, Vurain Tabvuma, and Klaus Heine. 2014. Work Motivation in the Public Sector—Introduction to the Special Issue. *Evidence-Based HRM: A Global Forum for Empirical Scholarship* 2(1): 2–5.

Houston, David J. 2011. Implications of Occupational Locus and Focus for Public Service Motivation: Attitudes toward Work Motives across Nations. *Public Administration Review* 71(5): 761–71.

Hunter, John E., and Frank L. Schmidt. 2004. *Methods of Meta-Analysis: Correcting Error and Bias in Research Findings.* 2nd ed. Thousand Oaks, CA: Sage Publications.

Jørgensen, Torben Beck, and Mark R. Rutgers. 2015. Public Values Core or Confusion? Introduction to the Centrality and Puzzlement of Public Values Research. *American Review of Public Administration* 45(1): 3–12.

Joshi, Aparna, Hui Liao, and Hyuntak Roh. 2011. Bridging Domains in Workplace Demography Research: A Review and Reconceptualization. *Journal of Management* 37(2): 521–52.

Judge, Timothy A., and Remus Ilies. 2002. Relationship of Personality to Performance Motivation: A Meta-Analytic Review. *Journal of Applied Psychology* 87(4): 797–807.

Kepes, Sven, George C. Banks, Michael McDaniel, and Deborah L. Whetzel. 2012. Publication Bias in the Organizational Sciences. *Organizational Research Methods* 15(4): 624–662.

Kim, Sangmook. 2006. Public Service Motivation and Organizational Citizenship Behavior in Korea. *International Journal of Manpower* 27(8): 722–40.

———. 2009a. Revising Perry's Measurement Scale of Public Service Motivation. *American Review of Public Administration* 39(2): 149–63.

———. 2009b. Testing the Structure of Public Service Motivation in Korea: A Research Note. *Journal of Public Administration Research and Theory* 19(4): 839–51.

Kim, Sangmook, and Wouter Vandenabeele. 2010. A Strategy for Building Public Service Motivation Internationally. *Public Administration Review* 70(5): 701–9.

Kim, Sangmook, Wouter Vandenabeele, Bradley E. Wright, Lotte Bøgh Andersen, Francesco Paolo Cerase, Robert K. Christensen, et al. 2013. Investigating the Structure and Meaning of Public Service Motivation across Populations: Developing an International Instrument and Addressing Issues of Measurement Invariance. *Journal of Public Administration Research and Theory* 23(1): 79–102.

Kristof-Brown, Amy L., Ryan D. Zimmerman, and Erin C. Johnson. 2005. Consequences of Individuals' Fit at Work: A Meta-Analysis of Person–Job, Person–Organization, Person–Group, and Person–Supervisor Fit. *Personnel Psychology* 58(2): 281–342.

Leisink, Peter, and Bram Steijn. 2009. Public Service Motivation and Job Performance of Public Sector Employees in the Netherlands. *International Review of Administrative Sciences* 75(1): 35–52.

Lewis, Gregory B., and Sue A. Frank. 2002. Who Wants to Work for the Government? *Public Administration Review* 62(4): 395–404.

Lipsey, Mark W., and David B. Wilson. 2001. *Practical Meta-Analysis.* Thousand Oaks, CA: Sage Publications.

Liu, Bangcheng, Ningya Tang, and Xiaomei Zhu. 2008. Public Service Motivation and Job Satisfaction in China: An Investigation of Generalisability and Instrumentality. *International Journal of Manpower* 29(8): 684–99.

Liu, Bang-Cheng, and Thomas Li-Ping Tang. 2011. Does the Love of Money Moderate the Relationship between Public Service Motivation and Job Satisfaction? The Case of Chinese Professionals in the Public Sector. *Public Administration Review* 71(5): 718–27.

Locke, Edwin A., ed. 1976. *The Nature and Causes of Job Satisfaction*. Chicago: Rand McNally.

Lyons, Sean T., Linda E. Duxbury, and Christopher A. Higgins. 2006. A Comparison of the Values and Commitment of Private Sector, Public Sector, and Parapublic Sector Employees. *Public Administration Review* 66(4): 605–18.

McDaniel, Michael A., Hannah R. Rothstein, and Deborah L. Whetzel. 2006. Publication Bias: A Case Study of Four Test Vendors. *Personnel Psychology* 59(4): 927–53.

Melnik, Ekaterina, Francesca Petrella, and Nadine Richez-Battesti. 2013. Does the Professionalism of Management Practices in Nonprofits and For-Profits Affect Job Satisfaction? *International Journal of Human Resource Management* 24(6): 1300–21.

Moynihan, Donald P. 2013. Does Public Service Motivation Lead to Budget Maximization? Evidence from an Experiment. *International Public Management Journal* 16(2): 179–96.

Moynihan, Donald P., and Sanjay K. Pandey. 2007. The Role of Organizations in Fostering Public Service Motivation. *Public Administration Review* 67(1): 40–53.

———. 2010. The Big Question for Performance Management: Why Do Managers Use Performance Information? *Journal of Public Administration Research and Theory* 20(4): 849–66.

Organ, Dennis W., and Katherine Ryan. 1995. A Meta-Analytic Review of Attitudinal and Dispositional Predictors of Organizational Citizenship Behavior. *Personnel Psychology* 48(4): 775–802.

Naff, Katherine C., and John Crum. 1999. Working for America: Does Public Service Motivation Make a Difference? *Review of Public Personnel Administration* 19(4): 5–16.

Park, Sung Min, and Hal G. Rainey. 2008. Leadership and Public Service Motivation in U.S. Federal Agencies. *International Public Management Journal* 11(1): 109–42.

Perry, James L. 1996. Measuring Public Service Motivation: An Assessment of Construct Reliability and Validity. *Journal of Public Administration Research and Theory* 6(1): 5–22.

———. 2014. The Motivational Bases of Public Service: Foundations for a Third Wave of Research. *Asia Pacific Journal of Public Administration* 36(1): 34–47.

Perry, James L., and Annie Hondeghem, eds. 2008. *Motivation in Public Management: The Call of Public Service.* Oxford, UK: Oxford University Press.

Perry, James L., Annie Hondeghem, and Lois Recascino Wise. 2010. Revisiting the Motivational Bases of Public Service: Twenty Years of Research and an Agenda for the Future. *Public Administration Review* 70(5): 681–90.

Perry, James L., and Lois Recascino Wise. 1990. The Motivational Bases of Public Service. *Public Administration Review* 50(3): 367–73.

Rainey, Hal G. 2003. *Understanding and Managing Public Organizations.* 3rd ed. San Francisco: Jossey-Bass.

Ringquist, Evan J. 2013. *Meta-Analysis for Public Management and Policy.* Edited by Mary R. Anderson. San Francisco: Jossey-Bass.

Ritz, Adrian, Gene A. Brewer, and Oliver Neumann. 2013. Public Service Motivation: A Systematic Literature Review and Outlook. Paper presented at the Public Management Research Association Conference, Madison, WI, June 20–22.

Rost, Katja, and Thomas Ehrmann. 2015. Reporting Biases in Empirical Management Research: The Example of Win-Win Corporate Social Responsibility. *Business & Society*. Published electronically on February 25. doi:10.1177/0007650315572858.

Stanley, T. D. 2001. Wheat from Chaff: Meta-Analysis as Quantitative Literature Review. *Journal of Economic Perspectives* 15(3): 131–50.

———. 2005. Beyond Publication Bias. *Journal of Economic Surveys* 19(3): 309–45.

———. 2008. Meta-Regression Methods for Detecting and Estimating Empirical Effects in the Presence of Publication Selection. *Oxford Bulletin of Economics and Statistics* 70(1): 103–27.

Stanley, T. D., and Hristos Doucouliagos. 2012. *Meta-Regression Analysis in Economics and Business.* London: Routledge.

Stanley, T. D., and Stephen B. Jarrell. 1989. Meta-Regression Analysis: A Quantitative Method of Literature Surveys. *Journal of Economic Surveys* 3(2): 161–70.

Stazyk, Edmund C. 2012. Crowding Out Public Service Motivation? Comparing Theoretical Expectations with Empirical Findings on the Influence of Performance-Related Pay. *Review of Public Personnel Administration* 33(3): 252–74.

Steijn, Bram. 2008. Person–Environment Fit and Public Service Motivation. *International Public Management Journal* 11(1): 13–27.

Taylor, Jeannette. 2007. The Impact of Public Service Motives on Work Outcomes in Australia: A Comparative Multi-Dimensional Analysis. *Public Administration* 85(4): 931–59.

———. 2008. Organizational Influences, Public Service Motivation and Work Outcomes: An Australian Study. *International Public Management Journal* 11(1): 67–88.

Taylor, Jeannette, and Jonathon H. Westover. 2011. Job Satisfaction in the Public Service The Effects of Public Service Motivation, Workplace Attributes and Work Relations. *Public Management Review* 13(5): 731–51.

Tschirhart, Mary, Kira K. Reed, Sarah J. Freeman, and Alison L. Anker. 2008. Is the Grass Greener? Sector Shifting and Choice of Sector by MPA and MBA Graduates. *Nonprofit and Voluntary Sector Quarterly* 37(4): 668–88.

Vandenabeele, Wouter. 2007. Toward a Public Administration Theory of Public Service Motivation: An Institutional Approach. *Public Management Review* 9(4): 545–56.

———. 2009. The Mediating Effect of Job Satisfaction and Organizational Commitment on Self-Reported Performance: More Robust Evidence of the PSM–Performance Relationship. *International Review of Administrative Sciences* 75(1): 11–34.

———. 2011. Who Wants to Deliver Public Service? Do Institutional Antecedents of Public Service Motivation Provide an Answer? *Review of Public Personnel Administration* 31(1): 87–107.

Van der Wal, Zeger, Tina Nabatchi, and Gjalt de Graaf. 2015. From Galaxies to Universe: A Cross-Disciplinary Review and Analysis of Public Values Publications From 1969 to 2012. *American Review of Public Administration* 45(1): 13–28.

Warren, David C., and Li-Ting Chen. 2013. The Relationship between Public Service Motivation and Performance. In *Meta-Analysis for Public Management and Policy,* edited by Evan J. Ringquist, 442–74. San Francisco: Jossey-Bass.

Weibel, Antoinette, Katja Rost, and Margit Osterloh. 2010. Pay for Performance in the Public Sector? Benefits and (Hidden) Costs. *Journal of Public Administration Research and Theory* 20(2): 387–412.

Wright, Bradley E., Robert K. Christensen, and Sanjay K. Pandey. 2013. Measuring Public Service Motivation: Exploring the Equivalence of Existing Global Measures. *International Public Management Journal* 16(2): 197–223.

Wright, Bradley E., and Adam M. Grant. 2010. Unanswered Questions about Public Service Motivation: Designing Research to Address Key Issues of Emergence and Effects. *Public Administration Review* 70(5): 691–700.

Wright, Bradley E., and Sanjay K. Pandey. 2008. Public Service Motivation and the Assumption of Person–Organization Fit: Testing the Mediating Effect of Value Congruence. *Administration & Society* 40(5): 502–21.

_____. 2011. Public Organizations and Mission Valence: When Does Mission Matter? *Administration & Society* 43(1): 22–44.

Supporting Information

Additional figures and a supplemental appendix may be found in the online version of this article at http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-6210.

Appendix A Subsample 1: PSM and Job Satisfaction

No.	Study	Correlation	Sample Size	Year	Measure Type	Corrected Correlation
1	Caillier, James G. 2011. Are State Government Workers Satisfied with Their Jobs When the Organization Is Effective? *Public Adminkrististration Quarterly* 35(1): 93–127.	0.03	366	2011	Global	0.0347
2	Caillier, James G. 2010. Factors Affecting Job Performance in Public Agencies. *Public Performance and Management Review* 34(2): 139–65.	0.03	369	2010	Global	0.0347
3	Kim, Sangmook. 2006. Public Service Motivation and Organizational Citizenship Behavior in Korea. *International Journal of Manpower* 27(7–8): 722–40.	0.38	1584	2006	Global	0.4959
4	Kim, Sangmook. 2005. Individual-Level Factors and Organizational Performance in Government Organizations. *Journal of Public Administration Research and Theory* 15(2): 245–61.	0.459	1739	2004	Global	0.6021
5	Kjeldsen, Anne Mette, and Jesper Rosenberg Hansen. 2013. Sector Differences in the Public Service Motivation–Job Satisfaction Relationship: The Role of Organizational Characteristics. Paper prepared for the XVII International Research Society for Public Management Conference, Prague, Czech Republic, April 10–12.	0.085	1043	2013	Dimensional	0.1232
6	Liu, Bang-Cheng, and Thomas Li-Ping Tang. 2011. Does the Love of Money Moderate the Relationship between Public Service Motivation and Job Satisfaction? The Case of Chinese Professionals in the Public Sector. *Public Administration Review* 71(5): 718–27.	0.37	167	2011	Dimensional	0.4655
7	McCarthy, Dermot, Fabian Homberg, and Vurain Tabvuma. 2013. The Relationship between Public Service Motivation and Other Forms of Work Motivation: The Case of Non-Managerial Public Sector Workers. Working paper, Bournemouth University.	0.086	232	2014	Dimensional	0.1006
8	McCarthy, Dermot, Fabian Homberg, P. Wei, R. Wu, and Vurain Tabvuma. 2013. What Mediates and Moderates the Relationship Public Service Motivation Has with Job Satisfaction? The Case of Public Sector Workers in China. Working paper, Bournemouth University.	0.551	220	2014	Dimensional	0.6331
9	Mostafa, Ahmed Mohammed Sayed, and Julian Seymour Gould-Williams. 2013. Testing the Effects of Public Service Motivation and Person–Organization Fit on the Relationship between High Commitment HR Practices and Employee Attitudes. Paper prepared for the XVII International Research Society for Public Management Conference, Prague, Czech Republic, April 10–12.	0.38	671	2013	Dimensional	0.4967
10	Moynihan, Donald P., and Sanjay K. Pandey. 2007. Finding Workable Levers over Work Motivation: Comparing Job Satisfaction, Job Involvement, and Organizational Commitment. *Administration & Society* 39(7): 803–32.	0.136	274	2007	Global	0.1809
11	Park, Sung Min, and Hal G. Rainey. Leadership and Public Service Motivation in U.S. Federal Agencies. *International Public Management Journal* 11(1): 109–42.	0.489	6918	2008	Global	0.6097
12	Ritz, Adrian, and Sergio Fernandez. 2011. Intended and Non-Intended Effects of Managing Organizational Change in Public Organizations. Paper presented at the 11th Public Management Research Association Conference, Syracuse, NY, June 24.	0.157	13336	2011	Dimensional	0.2045
13	Stazyk, Edmund C. 2012. Crowding Out Public Service Motivation? Comparing Theoretical Expectations with Empirical Findings on the Influence of Performance-Related Pay. *Review of Public Personnel Administration* 33(3): 252–74.	0.19	1538	2012	Global	0.2478
14	Taylor, Jeannette. 2008. Organizational Influences, Public Service Motivation and Work Outcomes: An Australian Study. *International Public Management Journal* 11(1): 67–88.	0.08	688	2008	Global	0.0988
15	Westover, Jonathan H., and Jeannette Taylor. 2010. International Differences in Job Satisfaction: The Effects of Public Service Motivation, Rewards and Work Relations. *International Journal of Productivity and Performance Management* 59(8): 811–28.	0.1	14192	2010	Global	0.1220
16	Wright, Bradley E., and Sanjay K. Pandey. 2008. Public Service Motivation and the Assumption of Person–Organization Fit: Testing the Mediating Effect of Value Congruence. *Administration & Society* 40(5): 502–21.	0.2	206	2008	Global	0.2516

Appendix A (*Continued*)

No.	Study	Correlation	Sample Size	Year	Measure Type	Corrected Correlation
17	Wright, Bradley E., and Sanjay Pandey. 2011. Public Organizations and Mission Valence: When Does Mission Matter? *Administration & Society* 43(1): 22–44.	0.27	168	2011	Global	0.3346
18	Wright, Bradley E., Robert K. Christensen, and Sanjay K. Pandey. 2013. Measuring Public Service Motivation: Exploring the Equivalence of Existing Global Measures. *International Public Management Journal* 16(2): 197–223.	0.33	449	2013	Global	0.4430
19	Xioahua, Li. 2008. An Empirical Study on Public Service Motivation and the Performance of Government Employee in China. *Canadian Social Science* 4(2): 18–28.	0.473	319	2008	Dimensional	0.5982
20	Cerase, Francesco Paolo, and Domenica Farinella. 2006. Explorations in Public Service Motivation: The Case of the Italian Revenue Agency. Paper presented at the European Group for Public Administration Conference, Milan, Italy, September 6–9.	0.14	1194	2006	Dimensional	0.18

Appendix B Subsample 2: Dimensions of PSM and Job Satisfaction

No.	Study	PSM Dimension	Correlation	Sample Size	Year	Measure Type	Corrected Correlation
1	Hsieh, Jun Yi, and Huan-Jung Huang. 2010. A Multilevel Analysis of the Antecedents of Job Satisfaction Nested in Ministry Level: Does Organization Matter? Paper prepared for the Korean Association for Public Administration Conference, Seoul, Korea, October 7–8.	Comp	0.07	997	2010	Dimensional	0.10
		CPI	0.02	997	2010	Dimensional	0.02
		SS	0.06	997	2010	Dimensional	0.07
2	Liu, Bangcheng. 2009. Evidence of Public Service Motivation of Social Workers in China. *International Review of Administrative Sciences* 75(2): 349–66.	CPI	0.54	474	2009	Dimensional	0.69
		SS	0.4	474	2009	Dimensional	0.50
3	Liu, Bangcheng, Ningyu Tang, and Xiaomei Zhu. 2008. Public Service Motivation and Job Satisfaction in China: An Investigation of Generalisability and Instrumentality. *International Journal of Manpower* 29(8): 684–99.	ATP	0.24	191	2008	Dimensional	0.32
		CPI	0.14	191	2008	Dimensional	0.21
		SS	0.27	191	2008	Dimensional	0.39
4	Ritz, Adrian. 2009. Public Service Motivation and Organizational Performance in Swiss Federal Government. *International Review of Administrative Sciences* 75(1): 53–78.	ATP	0	13532	2009	Dimensional	0.00
		CPI	0.20	13532	2009	Dimensional	0.25
5	Taylor, Jeannette. 2007. The Impact of Public Service Motives on Work Outcomes in Australia: A Comparative Multi-Dimensional Analysis. *Public Administration* 85(4): 931–59.	ATP	0.16	203	2007	Dimensional	0.21
		Comp	0.13	203	2007	Dimensional	0.16
		CPI	0.30	203	2007	Dimensional	0.36
		SS	0.14	203	2007	Dimensional	0.16
6	Vandenabeele, Wouter. 2009. The Mediating Effect of Job Satisfaction and Organizational Commitment on Self-Reported Performance: More Robust Evidence of the PSM–Performance Relationship. *International Review of Administrative Sciences* 75(1): 11–34.	ATP	0.1	3506	2009	Dimensional	0.13
		Comp	0.11	3506	2009	Dimensional	0.14
		CPI	0.18	3506	2009	Dimensional	0.23
		SS	0.2	3506	2009	Dimensional	0.25
7	Vandenabeele, Wouter, Bram Steijn, Peter Leisink, Francesco Cerase, Isabell Egger-Peitler, Gerhard Hammerschmid, Renate Meyer, and Adrian Ritz. 2012. Public Service Motivation and Job Satisfaction. In *Reforming the Public Sector: How to Achieve Better Transparency, Service, and Leadership,* edited by Giovanni Tria and Giovanni Valotti, 68–95. Washington, DC: Brookings Institution Press.	ATP	0.03	22539	2012	Dimensional	0.04
		Comp	0.01	9069	2012	Dimensional	0.01
		CPI	0.25	22445	2012	Dimensional	0.32
		SS	0.13	22386	2012	Dimensional	0.16
8	Cerase, Francesco Paolo, and Domenica Farinella. 2006. Explorations in Public Service Motivation: The Case of the Italian Revenue Agency. Paper presented at the European Group for Public Administration Conference, Milan, Italy, September 6–9.	CPI	0.12	1194	2006	Dimensional	0.16