



Research Article

# Are public managers more risk averse? Framing effects and status quo bias across the sectors

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**Abstract:** Modern reforms meant to incentivize public managers to be more innovative and accepting of risk are often implicitly based in the longstanding assumption that public employees are more risk averse than their private sector counterparts. We argue, however, that there is more to learn about the degree to which public and private managers differ in terms of risk aversion. In order to address this gap, we field a series of previously validated experiments designed to assess framing effects and status quo bias in a sample of public and private sector managers. Our results indicate that public managers are not more risk averse or anchored to the status quo than their private sector counterparts; in fact, the findings suggest the opposite may be true under some conditions. In addition, our results fail to confirm previous findings in the literature suggesting that public service motivation is associated with risk aversion. We conclude with a discussion of the implications of these results for the study of risky choice in the public sector and for modern public management reforms.

**Keywords:** Public management, Risk, Framing effects, Status quo bias

**Supplements:** [Open data](#), [Open materials](#), [Pre-registration](#)

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Modern performance management reforms rely on several key assumptions about the decision making of public managers. Here, we focus on two: 1) public managers are reticent to accept risk and need to be pushed to be more risk tolerant and 2) public managers are not sufficiently entrepreneurial but incentive schemes used in the private sector can induce public managers to be more entrepreneurial in their decision making. However, we believe that questions about the degree to which public decision makers are more or less risk averse or adhere more or less closely to descriptive theories of risky choice than their private sector counterparts, remain at least partially unanswered. Moreover, the answers to these

questions have significant implications for both the need for and the potential success of modern reform prescriptions meant to incentivize risk taking in the public sector.

This study explores this topic through the lens of psychology by focusing on two types of cognitive bias that may influence certain choices made in the public sector: framing effects and the status quo bias. The first refers to the well-documented observation that people tend to exhibit greater risk tolerance when asked to choose among negatively framed outcomes. The latter is another well-validated finding that decision makers disproportionately stick with the current state of affairs when given a choice between the status quo and some alternative. Drawing on literature from psychology, we develop the expectation that any differences in risk preference across the sectors is likely due to the ways in which alternatives of risky choice are presented and by the impact of public service motivation on the interpretation of those choices.

Specifically, we test the expectations described above in previously validated experiments meant to detect framing effects (Tversky & Kahneman,

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1981) and the status quo bias (Samuelson & Zeckhauser, 1988; Burmeister & Schade, 2007) in a panel of 150 public managers and 150 private managers. In order to explore the relationship between public service motivation (PSM) and risk aversion suggested in previous work, we additionally assess our experimental findings using previously validated approaches designed to measure that concept.<sup>1</sup>

Our results indicate that public managers are neither systematically more risk averse nor anchored to the status quo than their private sector counterparts. In fact, our results provide evidence that the opposite is sometimes true. The findings also support our assertion that important components of PSM, such as altruism and prosocial motivations, lead to neutral or even positive associations between public service motivation and risk tolerance depending on how the outcomes of risky choice are framed. We conclude with a discussion of the implications of these results for the study of risky choice in the public sector and for modern public management reforms.

### **Research on Risk in the Public Sector**

Despite the common “wisdom” that public sector employees are more risk averse than their private sector counterparts, the body of work that empirically examines risk-taking by public managers and employees, is surprisingly small. Before reviewing the literature, it is important to note that numerous decisions made by public managers in various government settings are likely influenced by their orientation towards risk. For managers at the federal level, we can think of choices about the adoption of employee engagement practices despite added costs and an unclear timeline for payoff of such results. At the state level, risk tolerance will likely influence the decision to increase regulation of daycare facilities despite certainty about pushback from some stakeholders and uncertainty about the future probability of an injury to a child. In a more mundane example, state actors may consider the adoption of new case management software despite uncertainty about the impact on average benefits or case processing speed. Locally, a mayor or city manager, might need to decide how to allocate police resources for a permitted demonstration, despite uncertainty about the number of

participants and the likelihood of unrest. We believe these examples point to the need to better understand risk preferences among public managers and, if we are to argue that incentives or reforms from the private sector will help public employees make more “innovative” decisions in these scenarios, to understand differences in risk preferences across the sectors.

Studies in this area have usually employed a relatively standard definition of risk aversion, where individuals have a stronger preference for avoiding losses, relative to acquiring equivalent gains. In other words, risk averse decision makers faced with a known outcome and an unknown outcome with the potential for a higher payoff, will choose the former in order to reduce uncertainty in the decision making process. The limited set of studies that explore the distinct, but related, concept of loss aversion (see for example Salge, 2011; Nicholson-Crotty et al., 2016) also rely on the standard conceptualization that people tend to have a stronger preference for avoiding losses, relative to acquiring equivalent gains. We rely on these same definitions throughout the remainder of this study. Yet, this approach remains subject to the critique inherent in much of the common wisdom about public managers—they are more risk averse than managers in the private sector. Here, we argue that in order to understand how public managers respond to risk requires understanding both *risk tolerance* and an individual’s orientation to *status quo decisions*.

Generally speaking, scholars have suggested that public sector actors are more risk averse than their private sector counterparts. Studies using self-reported risk tolerance find that public sector employees score significantly lower than private sector employees (Hartog et al., 2002; Guiso & Paiella, 2008). In a study of public and private sector employees in the Netherlands, Buurman et al. (2012) provide experimental evidence that the former (public) are more risk averse than the latter (private). These authors find that this is particularly true among those with higher public service motivation.

A series of studies have suggested that risk-aversion may not only arise from the conditions of public sector employment, but also be a predictor of selecting into government. Indeed, the largest body of work on cross-sectoral risk preferences has focused on questions of employment selection. This work has shown public sector employees have

a stronger preference for job security than private sector employees (Houston, 2000) and that job security does more to draw people to public sector employment than other “intrinsic” rewards (Lewis & Frank, 2002). Similarly, Luechinger, Stutzer, & Winkelmann (2007) find that sector selection on unobservable factors is reduced after controlling for preferences towards risk taking. The authors explain this finding by suggesting that public sector jobs have higher security and that risk averse persons prefer that security over the wage premium in private sector jobs (Bellante & Link, 1981). In related work, Fuchs-Schündeln and Schündeln (2005) show that risk aversion explains why risk-averse people are more likely to work in low-risk occupations. Finally, in recent work utilizing an experimental approach, Pfeifer (2011) confirms that risk averse individuals are more likely to select into government and demand a higher wage premium to accept the insecurity of private sector employment.

It is important to note, however, another body of work has challenged the correlation between risk aversion and government employment. Through a review of risk taking in scholarly studies, Bozeman and Kingsley (1998) suggest that there is little difference in risk aversion across the sectors. Similarly, studies using stated preferences about job security find limited evidence regarding differences among the sectors (see e.g. Rainey, 1982, Crewson, 1997, and Lewis & Frank, 2002).

Several studies have also sought to understand the *conditions* under which public employees might take greater risks. These have demonstrated that hierarchy and red tape are negatively correlated with risk-taking among public managers, while employee-supervisor trust is positively associated (Turaga & Bozeman, 2005; Nyhan, 2000). Morris and Jones (1999) find that entrepreneurship in public organizations, including risk-taking behavior, is often a strategic response to environmental turbulence. Studies have shown that the attitude of senior management towards change and risk taking is a good predictor of innovative behavior in public organizations (Damanpour, 1991; Vigoda-Gadot & Kapun, 2005; Vigoda-Gadot, 2009). The UK government has found that clear performance targets linked to sanctions or rewards may induce more risk-taking among public employees and managers (NAO, 2006).

Very recently, a small handful of studies have also sought to understand the relationship between

performance and the willingness to take risks. Most of these draw heavily on the behavioral theory of the firm (Cyert & March, 1963), suggesting that organizations are more willing to look for innovative or new solutions when performance falls below target levels. Salge (2011) finds that, in a sample of English hospitals, performance feedback is correlated with innovativeness. At the individual level, Nielsen (2014) finds that negative performance information induces Danish school principals to reorder the multiple goals that their organizations are asked to pursue, emphasizing areas in which they are doing particularly poorly. Meier et al. (2015) build a theory that imagines performance as a key driver of decision making by public managers. Specifically, the authors take a Bayesian approach in which the distance between current performance and the manager’s prior regarding acceptable performance shapes the choices they make regarding prospector (aggressive) versus defender (protectionist) strategies. Finally, Nicholson-Crotty et al. (2016) show that performance relative to a predefined reference point is a significant predictor of innovation and other risk-taking behavior in public sector organizations. These studies suggest that public sector risk preferences may be accurately described by prospect theory. They are, however, primarily observational and often focused at the organizational level and, thus, limited in their ability to tell us about risky choice by individuals in the public sector.

A recent study in this area compares risky choice across the sectors using a traditional compound lottery game to test if there are different levels of risk tolerance among those preparing to work in the public versus the private sector. Tepe and Prokop (2018) find that, while MPA students report being more risk averse, their choices in the experimental setting are not significantly different than those of MBA or Law students; though they find that the former take longer to make those choices. Finally, the authors find that self-reported public service motivation is correlated with risk averse choices in the lottery game.

The Tepe and Prokop paper represents a significant step forward in a literature that has already produced important insights into our understanding of risky choice among public managers. However, it also leaves open a number of opportunities for additional research. As one example of these opportunities, we still do not

know if *actual* public and private managers differ in their tolerance for risky alternatives. Tepe and Prokop make clever use of professional students as a proxy for actual decision makers, but research from other fields, such as international relations, suggests that students sometimes make very different decisions in experimental settings relative to trained professionals (Mintz, Redd, & Vedlitz, 2006). Additionally, Tepe and Prokop, along with much of the other literature on risk tolerance across the sectors, depend heavily on expected utility theory (EU), which assumes that levels of risk aversion are fixed in individuals. This approach ignores important insights from psychology, which suggest many individuals regularly violate the tenets of EU and that risk tolerance is asymmetric within individuals. It is also dependent on framing, perceived position relative to some reference point, and loss aversion (see Kahneman, Knetsch & Thaler, 1991). Thus, this study fits into the growing literature on behavioral public administration (BPA).

### **Framing Effects and Status Quo Bias in the Public vs. the Private Sector**

One aim of the BPA School is to understand the psychological foundations of bureaucratic decision making. In order to address the second issue raised in the last paragraph (i.e., potential violations of expected utility theory), we draw on work which examines framing effects and status quo bias in public and private sector decision makers. Specifically, we explore whether these actors exhibit different deviations from EU when loss aversion, or the tendency to overweight losses relative to equivalent gains, is activated through different decision frames or through the establishment of the status quo as a reference point. We focus on these two areas to search for differences across the sectors because each has significant implications for the ways in which decision makers respond to reforms designed to incentivize increased risk taking.

#### *Framing effects*

Framing effects occur because of a systematic violation of the invariance axiom under EU. This axiom suggests that decision makers should be indifferent to equivalent choices regardless of whether outcomes are framed positively or negatively. Considerable research has

demonstrated, however, that decision makers are consistently more risk seeking when presented with an outcome framed as a loss relative to an equivalent outcome framed as a gain (see Kühberger, 1998 for a review). In the initial experiment to investigate adherence to the axiom, Tversky and Kahneman (1985) asked decision makers to select a course of action to combat a disease that will take 600 lives if nothing is done. They demonstrate that preferences are risk averse when subjects are given a choice between a 100% chance to *save* 200 lives versus a 1/3 probability of saving 600 lives and a 2/3 probability of saving none. Alternatively, preferences are risk seeking when subjects are given the choice between a 100% chance of 400 people *dying* versus a 1/3 chance that nobody will die and a 2/3 chance that all 600 will die. The “Asian Disease Problem” study and the framing effect that it uncovers have been widely replicated and validated.<sup>2</sup>

#### *Status quo bias*

The status quo bias is a widely observed phenomenon where decision makers exhibit a strong preference for the current state of affairs (Samuelson & Zeckhauser, 1988; Burmeister & Schade, 2007; Nicolle et al., 2011). Like framing effects, the preference is closely related to the more general phenomenon of loss aversion, where a potential loss relative to a predetermined reference point is weighted more heavily than a potential gain. In this case, the potential disadvantages of changing the current state of affairs loom larger than the potential advantages for most decision makers. Research suggests that this is due in part to the fact that decision makers have higher certainty regarding outcomes of the status quo prospect (See Martin, 2017; Weyman & Barnett, 2016).

#### *Public service motivation and risk preference*

Before moving to experimental tests of differences in risk preference, framing effects, and status quo bias among public and private managers, it is important to discuss why we *should* expect any differences to exist. The fact that human beings regularly violate the axioms of expected utility theory has been demonstrated across a wide variety of subjects and scenarios (see Kahneman et al., 1991); so, if we are going to hypothesize unique effects for government employees, we need to identify some way in which these individuals are

systematically different from the remainder of society.

One of the key dimensions of uniqueness identified by scholars is what has come to be called “Public Service Motivation.” Broadly speaking, it is a concept used to explain the selection and persistence of employees into public sector jobs despite lower extrinsic rewards relative to the private sector. Originally defined as “predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations” (Perry & Wise, 1990, p. 368), the definition of PSM has expanded to include “the beliefs, 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” (Vandenabeele, 2007, p. 547).

Two studies have found that public service motivation, which is consistently found to be higher in public sector workers, is associated with risk averse choices (Buurman et al., 2012; Tepe & Prokop, 2018), but we suggest that significant questions regarding the relationship between PSM and risky choice remain unanswered. This is because the literature to date has not sufficiently explored the reasons *why* PSM should influence risk tolerance or the conditions under which that influence should be most apparent. While this represents an early step in this direction, we believe there is considerable room to explore this topic and develop our understanding of the PSM-risk relationship.

In order to close this gap, we focus on 2 foundational elements of PSM identified by scholars in order to develop expectations that, under certain choice scenarios, higher public service motivation will lead to higher, rather than lower risk tolerance. The first of these is the closely related concept of altruism. Some define PSM as a “general, altruistic motivation to serve the interests of a community of people, a state, a nation or humankind” (Rainey & Steinbauer, 1999) and numerous studies have identified generalized altruism as an important component of PSM (see Perry, Hondeghem, & Wise, 2010; Brænder & Andersen, 2013; Brewer, Ritz, & Vandenabeele, 2012; Bright, 2008; Pandey, Wright, & Moynihan, 2008). Not surprisingly, scholars seeking to identify PSM as a unique theoretical construct have sought to distinguish it from simple altruism (see Perry, 2014), but even in these accounts the two concepts

remain complimentary (see Perry & Hondeghem, 2008a).

The relationship between altruism and PSM is particularly important. Research suggests that altruism can significantly increase loss aversion when people make choices that affect the welfare of others (Crockett et al., 2014). More specifically, higher levels of altruism make people even more *risk seeking* when choosing among outcomes framed as a loss for others. This may mean that previous studies which examined the relationship between PSM and risk aversion arising in the context of an individual monetary payoff (e.g. a lottery game) may have missed an important component of this relationship. More specifically, it implies that public sector actors, who generally have higher levels of PSM, may in fact be more risk seeking than their private sector counterparts when making decisions that could harm others.

We can turn now to another foundational concept of PSM, prosocial behavior. As noted above, contemporary descriptions rest heavily on concepts of acting for the benefit of others or of society as a whole. For example, Wright and Pandey (2008, p. 503) conceive of public service motivation “as work-related values or reward preference such as the employees’ desire to help others, benefit society, or engage in meaningful public service.” Similarly, scholars suggest that PSM is a “specific expression of prosocial, other-oriented motives, goals and values” (Perry & Hondeghem, 2008b, p. 295) or “a mix of motives that drives an individual to engage in an act that benefits society” (Taylor, 2007, p. 934). It is important to note, however, that in the context of PSM, these prosocial motives are often assumed to be activated by the nature of government work or the characteristics of public institutions (see for example Ritz, 2009).

Previous work found a negative correlation between public service motivation and the willingness to take risks in return for an individual monetary payoff. We suggest that the prosocial motivations associated with PSM may influence risk tolerance differently when the payoffs for risk taking are framed as benefits for others, rather than the individual.

## **Subjects and Experiments**

In order to test these expectations, we conduct a set of experiments to detect framing effects and a

status quo bias and also collect information on Public Service Motivation in a sample of 150 public and 150 private sector managers. Subjects come from a Qualtrics panel collected during May of 2017. We recruited respondents directly through Qualtrics to avoid some of the potential pitfalls of using other online survey platforms (Stritch et al., 2017). With the stipulation that respondents were managers in their organization, all were initially targeted by a partner of Qualtrics through self-reporting. Subjects were then screened to remove misidentified respondents using red-herrings and other techniques to ensure sample accuracy. Subjects were screened one last time regarding sector, experience, and responsibilities at the beginning of the survey to remove individuals whose answers did not match responses from previous screenings.<sup>3</sup> Individuals in the nonprofit sector are not included in the sample. This panel helps us address another potential shortcoming in recent scholarship, namely the reliance on professional students rather than actual managers.

On average, our sample is 46 years of age, with more than 25 years in the workforce and more than 10 years in their current positions. The median respondent manages between 100 and 249 people. Almost 1/3 of subjects are responsible for more than 1000 employees. In other words, these are experienced managers and that is the group to which we can most safely draw inference from the results of this study. Approximately, 64% of the sample have at least a bachelor's degree, and 29% completed post graduate work. The sample is roughly divided between men and women. All subjects work in organizations based in the United States.

Subjects were randomly sorted into different conditions for all manipulations described below. We also randomize the presentation of experiments to subjects in order to avoid ordering effects. Transue and colleagues (2009) suggested randomizing the order of experiments “prevents experiments from systematically affecting each other by distributing whatever influences that might exist”. The descriptive statistics from the randomizations are presented in Appendix, Tables 1 and 2. These tests confirm that there do not exist significant differences on key variables of interest across control and treatment groups in any of the experiments.

#### *Framing effects*

To test framing effects, we use the classic Asian Disease Problem (ADP) developed by Kahneman and Tversky. Specifically, subjects are asked to:

“Imagine that the U.S. is preparing for the outbreak of an unusual disease, which is expected to kill 600 people if nothing is done. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:”

In the first condition, subjects are asked to choose between Program A which will save 200 people and Program B in which there is a 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved. In Condition 2, subjects are told that if Program A is adopted, 400 people will die, while if Program B is adopted, there is a 1/3 probability that nobody will die, and 2/3 probability that 600 people will die. The probabilistic outcome is the riskier choice. Years of validation of the original experiment suggest that subjects will be more likely to choose that outcome when presented with the negative, or lives lost, frame.

#### *Status quo*

To test for status quo bias, we use two experiments<sup>4</sup>, both of which are slight variants of experiments developed by Burmeister and Schade (2007). Their earlier experiments were designed to test for differences in status quo bias between entrepreneurs and other business professionals. Those experiments were themselves heavily modeled on the original status quo bias experiments developed by Samuelson and Zeckhauser. In the first experiment, subjects are presented with a vignette that reads:

“Your unit has issued an RFP for the collection and analysis of data on regulatory impact and compliance. This a competitive bid and you will award the contract to the proposal with the most attractive offer. You have the capacity to do the analysis on your own, but it would cost you about \$10,000 and take about 1 month to complete. As it turns out, you have worked with all three groups that submit a proposal before, so you can derive probabilities for how likely they are to complete the work on the promised date. Which proposal will you accept?”

The neutral treatment contains no reference to the amount the unit expects to save when contracting out, while the other treatments include the line “In the past, you have sought a {15%; 20%; 25%} savings on contract versus in-house work to cover the cost of contract monitoring.” Subjects are then presented with the following response options:

- You accept the bid for \$8500 from an organization that you believe has a 70% chance of completing the work in 1 month as promised.
- You accept the bid for \$8000 from an organization that you believe has a 60% chance of completing the work in 1 month as promised.
- You accept the bid for \$7500 from an organization that you believe has a 50% chance of completing the work in 1 month as promised

In the second status quo bias experiment, subjects are presented with a vignette which reads:

“In order to increase efficiency, you have decided that you need to optimize your unit’s internal workflows. Therefore, you need a software solution and, after some market research, you consider three packages. Switching from your old software to any of the new solutions implies switching costs which are the same for three all solutions: A, B, and C. Which of the following software packages would you purchase?”

In the neutral treatment, no current software provider is identified. In other treatments, subjects are told “Your company is currently using an older version of software package {A, B or C}, which does not comply with the present requirements anymore.” They are then presented with the following options:

- You decide in favor of software package A. It is relatively expensive but very flexible and will also meet future requirements.
- You decide in favor of software package B. It has a medium price and wholly meets all present requirements.

- You decide in favor of software package C. It has a relatively low price and meets most present requirements but with a few acceptable flaws.

All of the experiments described above have appeared in published research, in some cases multiple times. Using validated manipulations has both advantages and disadvantages. On the one hand, these have been demonstrated to effectively solicit framing effects and status quo bias, which are the key violations of EU in which we are interested. As such, any differences we observe across public and private managers can more confidently be ascribed to those sector differences (and underlying differences in the characteristics of respondents from each), rather than to some element of the design. Alternatively, the use of previously published experiments means that we cannot tailor them perfectly to our sample. In the case of status quo bias we are less worried about this because we use experiments that compare private sector entrepreneurs and bankers. As such, the stretch to public and private sector managers is not that great and we change the opening sentence of the vignettes slightly in order to close that gap.

We are also not particularly concerned that the Asian Disease Problem (ADP) references a decision that may not be identical to one actually made by the managers in our sample. It has been used to successfully identify framing effects in numerous populations that are far less likely to make this type of serious decision relative to our sample of experienced managers.<sup>5</sup> Because of its prominence, however, it is possible that some or even many of our respondents are familiar with the ADP as an experiment and the responses it characteristically elicits, which could reduce the effect of the manipulation. There is no reason to believe, however, that public and private sector managers should have systematically different levels of familiarity with the ADP.

#### *Public service motivation*

In order to measure Public Service Motivation, we use a standard battery of questions developed by Perry (1996) and refined by numerous others. Specifically, we use the 12-question scale developed by Kim (2011).<sup>6</sup> This allowed us to derive a measure of PSM using principal components factor analysis. Consistent with previous work, the analysis reveals

4 significant factors representing attraction to policy making, commitment to public interest, compassion, and self-sacrifice. We use the score which retains these four factors as our PSM measure in subsequent analysis.

## Results

rather than a gain. As noted above, this is consistent with decades of research on loss aversion. Because the response variable is dichotomous, tests of significance between individual proportions were conducted by predicting program choice with the 4 treatment indicators in a logistic regression, calculating the margins of those predictions, and then conducting pairwise comparisons of those margins with a Bonferroni correction.<sup>8</sup> Significant

**Table 1**  
**Framing Experiment (percent choosing alternative by group)**

Choice	Group			
	Private Negative	Public Negative	Private Positive	Public Positive
Deterministic	36.49	23.38	72.37	75.68
Probabilistic	63.51	76.62*	27.63	24.32

Chi2= 61.6409, Pr = 0.000, for the overall table. Significant differences between the negative and positive frame are designated with shading. Significant differences across sector within each frame are designated with asterisks.

### *Framing effects*

We first explore the response to framing effects among public and private managers by examining the results of the Asian Disease Problem experiment. The randomization check presented in the Appendix confirms that the public and private managers were assigned into the positive and negative frames in statistically equivalent proportions and that the same was true for other subject characteristics including education, time in the workforce, age, and gender.

Table 1 presents the proportion of subjects that chose the different alternatives across the treatments and groups. The Rows present the choice between programs, with the probabilistic (risky) alternative in the second row. The columns contain the treatments, broken down by manager sector; so columns 1 and 2 are the responses of private and public managers that received the negative frame respectively. Columns 3 and 4 present the responses of private and then public managers who received the positive frame. The Chi-Squared test is significant, suggesting that proportions are not equivalent across cells.<sup>7</sup>

Turning now to our findings of interest, if we compare responses in the second row across all 4 columns we see that, regardless of sector, subjects were significantly more likely to choose the risky alternative when outcomes were framed as a loss

differences between the negative and positive frame are designated with shading.

Examining the second row in columns 3 and 4 we see that there were no significant differences between the responses of public and private managers that were presented with the positive frame, where outcomes were described in terms of lives *saved* by the policy choice. However, when we look at that choice among subjects that were given the negative frame (Columns 1 and 2) a significantly larger percentage of public managers chose the risky alternative when compared to private managers (77% vs. 64%,  $p < .10$ ). Significant differences across sector within each frame are designated with asterisks. The results are consistent with our expectation that public managers will be more sensitive to framing effects than private sector managers.

### *Exploring the role of PSM*

We proposed that the differential response to framing effects across the sectors might be due to differing levels of public service motivation and the correlation between PSM and altruism, which has been shown to increase loss aversion for choices that affect others. To explore the accuracy of that proposed mechanism, we can first note that public managers in our sample scored significantly higher on the PSM battery than did their private sector



counter parts (.19 vs. -.20,  $p < .05$ ). Next we can note that there was no significant difference in the PSM score among those who chose the probabilistic vs. the certain outcome in the positive frame (.04 vs. -.03,  $p < .45$ ). However, the mean level of PSM was significantly higher in the group that chose the risky alternative when outcomes were framed negatively, or as a loss of life (.10 vs. -.18,  $p < .05$ ). Taken together, these relationships suggest that 1) public managers have higher levels of PSM than managers from the private sector and 2) there is an association between PSM and differential response to framing effects across

comparisons are between the boxed status quo proportions and other cells. Previous work on status quo bias suggests the need to compare status quo choice proportions to *both* the proportion of subjects that chose an outcome despite receiving a neutral treatment and to the proportion of subjects that chose the outcome despite receiving an alternative status quo treatment (Burmeister & Schade, 2007). We again calculate the significance of these comparisons by regressing treatment group indicators on subject choices, and then computing pairwise comparisons of the margins from this estimation with a Bonferroni correction.

**Table 2**  
**Status Quo Bias, Experiment A (percent choosing alternative by group)**

Choice	Group							
	Private Neutral	Public Neutral	Private 15%	Public 15%	Private 20%	Public 20%	Private 25%	Public 25%
15% Savings	76.32	92.31	90.63*	67.44	68.57	62.16	73.33	46.88
20% Savings	23.68	5.13	6.25	16.28	28.57*	35.14*	17.78	37.5
25% Savings	0	2.56	3.13	16.28	2.86	2.7	8.89*	15.63*

Note: Pearson  $\chi^2 = 40.7549$  Pr = 0.000, for the overall table. Boxed cells indicate status quo condition. Asterisk denotes if the status quo proportion is significantly higher than the neutral treatment; shading denotes if it is significantly different from alternative status quo proportions.

sectors.

*Status quo bias*

We now proceed to our discussion of the status quo bias experiments presented in Tables 2 and 3. Again, the Rows represent the choice made by subjects. In Table 2, this is the choice of the 15%, 20% or 25% savings option in the question about which contractor they would choose. The Columns represent the treatments by sector of respondent. The cells that are boxed in each row represent the status quo choices. In other words, the boxed cells in the first row show private and public respondents respectively who received the 15% status quo treatment *and* chose that option when selecting a contractor. Similarly, the boxed cells in Row 2 represent those subjects who chose 20% savings *and* had read a vignette that listed that savings as the status quo.

The chi-squared test is significant, suggesting that proportions are not equivalent across all respondents. But, the more interesting

In this case, we estimate a multinomial logistic regression because the dependent variable has 3 non-ranked categories.

Returning to the table, we use an asterisk to denote if the status quo proportion is significantly higher than the neutral treatment and shading to show if it is significantly different from alternative status quo proportions. Looking first at private managers in Columns 3, 5 and 7, we see that they were significantly *more* likely to choose the status quo option relative to both the neutral group and subjects that were presented with an alternative status quo. Interestingly, however, this appears to be less the case for public managers (Columns 4, 6 and 8). That group made the status quo choice in higher proportion than the neutral treatment group in only 2 of the 3 treatments and the proportion in that group was never significantly higher when compared with public managers that received an alternative savings amount as the status quo.

The results of the second status quo experiment, presented in Table 3, are even less supportive of the assertion that public managers are more wed to the status quo than their private sector counterparts. In this case, the rows represent the choice of software package A, B, or C.

The Columns represent the treatments by sector of respondent. So, Columns 1 and 2 are subjects from the private and public sectors respectively that received the neutral (control) treatment. Columns 3, 5 and 7 contain responses from private managers who received the Package A, B, or C status quo treatment respectively; and Columns 4, 6, and 8 contain public sector responses for the various treatments. The cells that are boxed in each row represent the status quo

These results are not consistent with findings from previous studies suggesting that PSM is associated with greater risk aversion (see Buurman et al., 2012; Tepe & Prokop, 2018). In order to see if that finding generalizes to this context, and if we are seeing lower status quo bias in public managers *in spite* of an association between PSM and the risk averse choice, we can once again examine PSM across groups. Limiting the subject pool to those who received some status quo prompt and then comparing subjects who stayed with the status quo they were presented versus those that made some other choice, we see no significant difference in public service motivation in either experiment (.02 vs. -.06,  $p < .73$  for the contract choice experiment; -.06 vs. -.01,  $p < .25$  for the software choice

**Table 3**  
**Status Quo Bias, Experiment B (percent choosing alternative by group)**

Choice	Group							
	Private Neutral	Public Neutral	Private A	Public A	Private B	Public B	Private C	Public C
Package A	78.05	57.58	68.29	50	60	67.44	63.16	54.05
Package B	19.51	36.36	31.71	50	33.33*	27.91	21.05	40.54
Package C	2.44	6.06	0	0	6.67	4.65	15.79*	5.41

Pearson  $\chi^2 = 40.7549$  Pr = 0.000, for the overall table. The cells that are boxed in each row represent the status quo choices. Asterisk denotes if the status quo proportion is significantly higher than the neutral treatment; shading denotes if it is significantly different from alternative status quo proportions.

choices.

The chi-square is significant, but again, the most interesting comparisons are between the individual cells. Looking at columns 3, 5, and 7 we see that private managers were more likely to choose the status quo relative to the control group in 2 of the three treatments.

They were more likely to choose the status quo option relative to respondents that received an alternative status quo in 1 of the 3 treatment groups. Alternatively, looking at Columns 2, 4, and 6, we see no significant differences in the likelihood of choosing the status quo in public managers compared with either those that received a neutral treatment or those that were given an alternative status quo.<sup>9</sup>

experiment). Thus, the results do not confirm the findings of previous studies that suggest a positive association between risk aversion and public service motivation. They do support our supposition that the prosocial foundations of public service motivation may mean that the relationship between PSM and risk tolerance differs when the outcomes of risky choice are framed as public rather than individual benefit. But, this is ultimately a question which requires further exploration.

### Discussion and Conclusions

We began with the observation that modern management reforms borrow heavily from the private sector in an attempt to incentivize public

managers to be more accepting of innovation and risk. The efficacy of, and even the need for, reforms that incentivize greater risk tolerance among public sector employees depends on an accurate understanding of risky choice in that sector.

In order to address this gap, this study fields a series of previously validated experiments designed to assess framing effects and status quo bias in a panel of professional public and private sector managers. First, and most importantly, the results do not suggest that public managers are consistently more risk averse than their private sector counterparts. Indeed, when outcomes are framed as losses, subjects from the public sector are considerably more *risk tolerant* in their selection of programs. Similarly, we do not find evidence that public managers are more anchored to the status quo than their private counterparts. In fact, the opposite may be true in this pool of subjects as private managers more regularly chose the status quo option relative to their public sector counterparts. Though as noted above, we encourage caution in the interpretation of the status quo bias results because of our relatively limited sample size and the challenges of interpreting null findings.

Our results also do not support recent findings that public service motivation is associated with risk aversion (see Buurman et al., 2012; Tepe & Prokop, 2018). Based on those findings, we would expect public managers to exhibit *greater* status quo bias, but as noted above, that is not what we find. A deeper investigation reveals that, while public managers do have higher levels of PSM than their private sector counterparts, those differences did not correlate with status quo bias. We found no significant differences in the levels of PSM between those that made the status quo, or risk averse, choice and those that chose a more uncertain alternative. The results of the framing experiment similarly fail to support the assertion that PSM is related to risk aversion. In that case, we actually hypothesized that due to its foundation of altruism, PSM would correlate positively with *risk seeking* behavior when subjects were faced with a loss of life as the outcome. Consistent with that expectation, we find that among those who received the negative frame, PSM was significantly higher among the group that selected the riskier program.

Our results suggest that the perceived need to incentivize risk taking in the public sector may grow

out of the inaccurate assumption that public managers and employees are inherently more risk averse than their private sector counterparts. Previous experimental work where the payoff of risky choices went to the individual subject has supported this common “wisdom” about risk and public service. Alternatively, our study, which frames the benefits of decisions in terms of public values such as efficiency or the protection of life, suggests that public managers are not consistently more risk averse than those in the private sector. Indeed, it indicates that under certain conditions, they may be more risk seeking. This accords well with work on public service motivation, which finds that PSM is most correlated with organizational performance and organizational citizenship behavior when organizations create incentives that align employee predispositions with organizational mission (Paarlberg, Perry & Hondeghem, 2008), and help employees to understand they are doing something useful for society as an intrinsic reward (Kim, 2006).

While we think these findings can contribute to our understanding of risk in the public sector, we also recognize that the study has a number of limitations. While we have attempted to make our experiments reflect actual decisions that public managers make, they obviously do not mimic those decisions perfectly or for every subject and, thus, legitimate questions of external validity remain. Future studies will work to tailor manipulations more closely to the choices faced by public employees by focusing on specific organizations (e.g. police, teachers, etc.) and/or particular functions (e.g. budgetary, case worker, etc.) and designing experiments specifically for those groups.

## Notes

1. Before fielding the instrument with actual managers from the two sectors, we tested the experimental manipulations and the predictive power of the PSM scale in a sample of respondents drawn from Prolific, a new service similar to Amazon’s Mechanical Turk.
2. Though see Chui (2003) for evidence that framing effect revealed by the Asian Disease Problem can be sensitive to the scale presented to subjects and Li and Xie’s (2006) “equate-to-differentiate” model for an alternative explanation of the result.

3. 443 people started the survey, and 100 of these were removed by Qualtrics in this final screen because they did not meet our criteria.
4. We are essentially replicating previously published experiments in a different set of subjects. As such, we accepted the experimental design of these experiments, including perceived utility equivalence of status quo options and other factors.
5. It is true that all managers in our sample have likely not faced decisions exactly like that presented in the Asian disease problem. But, because of their experience level, they likely have made decisions about the course of their organizations that are consequential for those inside and outside of that organization. Therefore, borrowing from work on political psychology, we can consider professional managers from both the public and private sector as “sophisticates” when it comes to these types of decisions. As such, the ADP may be a more valid measure of their susceptibility to framing effects than it is for other less sophisticated decision makers that have made up samples in numerous other studies even if our managers have not faced this exact scenario in their careers.
6. All questions are listed in the Appendix
7. In order to make the table easier to read, we present only percentage of responses in each cell, rather than the frequencies.
8. The code in STATA to replicate this post-hoc test is: `logit choice treatmentn...k; margins treatment, pwcompare(effects) mcompare(bonferroni)`
9. We follow the arguments of Goodman and Berlin (1994), Levine & Ensom (2012), and O’Keefe (2007) who suggest avoiding the use of post-hoc power analysis and instead use common statistical techniques. For this reason, we believe our use of chi-square tests and logistic regression to calculate confidence intervals around response proportions are appropriate means to assess the relationships of interest. We acknowledge, however, that statistical tests do not completely address the concern in this case because we are, in fact, expecting a *null* result. In other words, the smaller N dictated by our desire to use actual public managers may be large enough to detect status quo bias but not large enough to confidently say that a *lack* of observed difference between public and private managers is not a type 2 error. It is important to note, however, that the direction of the findings offer no suggestion of a pattern of greater status quo bias among public managers. In fact, even in cases where the differences between the sectors are not statistically significant, a consistently lower proportion of public subjects chose the status quo option relative to their private sector counterparts. In other words, we are not simply relying on limited power to misleadingly suggest a lack of statistical difference between these groups.

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Appendix

**Randomization Check Experiment 1**

Variable	Frame		Diff.
	Negative	Positive	
Public Sector	50.9	49.3	chi2(1) = 0.08 Pr = 0.773
Years in Workforce	26.7	24	chi2(1) = 0.78 Pr = 0.375
Age	47.5	45.3	chi2(1) = 0.01 Pr = 0.924
Education	5.3	5	chi2(1) = 2.63 Pr = 0.110
Female	47.3	50.2	chi2(1) = 0.33 Pr = 0.564

**Randomization Check Experiment 2**

Variable	Control	15%	20%	25%	Diff.
Public Sector	50.6	57.3	51.4	42.5	chi2(3)= 3.87 Pr = 0.275
Years in Workforce	25.2	24.5	25.2	25.7	chi2(3) = 5.61 Pr = 0.132
Age	45.2	45	46.6	46.9	chi2(3) = 2.10 Pr = 0.551
Education	5	5.1	5.4	5.1	chi2(3) = 3.37 Pr = 0.337
Female	43.4	49.3	52.7	50.6	chi2(3) = 1.44 Pr = 0.695

**Public Service Motivations Questions**

- PSM1: I am interested in making public programs that are beneficial for my country or the community I belong to.
- PSM2: Sharing my views on public policies with others is attractive to me.
- PSM3: Seeing people get benefits from the public program I have been deeply involved in brings me a great deal of satisfaction.
- PSM4: I consider public service my civic duty.
- PSM5: Meaningful public service is very important to me.
- PSM6: I would prefer seeing public officials do what is best for the whole community even if it harmed my interests.
- PSM7: It is difficult for me to contain my feelings when I see people in distress.
- PSM8: I am often reminded by daily events how dependent we are on one another.
- PSM9: I feel sympathetic to the plight of the underprivileged.
- PSM10: Making a difference in society means more to me than personal achievements.
- PSM11: I am prepared to make enormous sacrifices for the good of society.
- PSM12: I believe in putting duty before self.