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Public Service Motivation and Attrition: Studying Individual-Level Turnover Behavior in the Public Sector Using Panel Data

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One of the foundational claims of public service motivation (PSM) is that it should influence an individual's willingness to join and remain in public organizations. However, the evidence in support of the “attrition hypothesis” is nuanced, and there is a lack of research examining actual turnover behavior. This study addresses this gap by using longitudinal data from the Youth-Parent Socialization Study to examine the relationship between pre-employment PSM-related values and long-term turnover behavior in the public sector. A multinomial logit model finds that those with higher PSM-related values in childhood are more likely to remain employed in the public sector over time. These results have practical implications for public sector retention strategies, as fostering the development of PSM-related values could lead to reduced employee churn and their related costs.

Keywords: public service motivation; turnover; attrition

Introduction

In their initial postulate concerning public service motivation (PSM), Perry and Wise (1990) noted that PSM may also have an effect on “an individual’s willingness to join *and to stay* with a public organization” (p. 370, italics added). This is known in the PSM literature as the “attrition hypothesis,” which posits that higher PSM should be associated with increased tenure in the public sector.

This hypothesis has been tested but merits further investigation for several reasons. First, the relationship between these factors may be nuanced; although several studies have found that those with higher PSM do have a lower turnover intention (Campbell et al., 2014; Naff & Crum, 1999; Shim, Park, & Eom, 2017), others have found that this effect may be mediated by other factors (Bright, 2008; Campbell and Im, 2016; Gan et al., 2020; Kim, 2015) while still others have found the opposite relationship (Caillier, 2011). Second, many of the studies are cross-sectional in nature, thereby relying on a measure of PSM that may be contaminated by turnover intention. Since PSM can change over time, it is possible that turnover intention may be impacting levels of PSM, thus reversing the actual direction of causality (Choi & Chung, 2017; Kjeldsen, 2014; Vogel & Kroll, 2016). Third, there is a lack of analysis concerning actual turnover. Prior work has found that turnover intent in the public sector may not be highly correlated with actual turnover (Cohen

et al., 2016); therefore, an analysis measuring turnover behavior could better support or refute earlier studies. What is needed is a study that measures actual turnover that also uses a value of PSM obtained prior to employment.

Aside from theoretical considerations, determining the relationship between PSM and public sector employment also has practical applications. As was noted by Perry et al. (2010), improving the understanding of PSM and employment could lead to advances in recruitment strategies for public organizations. If PSM is related to turnover, then recruiting or socializing employees to encourage the development of PSM could lead to reduced costs via lower employee churn.

This study focuses on attrition in the public sector. Furthermore, it does not use cross-sectional data and studies behaviors (turnover) over attitudes (turnover intent.) Additionally, it follows respondents over a lengthy time horizon while also tracking their movement between employment sectors to more closely examine the potential long-term effects of turnover.

Data for this article comes from the Youth-Parent Socialization Study. This study contacted over 1600 high school seniors in the 1960s and followed up with the same students in the mid-1970s and mid-1980s. These data allow for a collection of PSM-related values prior to employment, while its panel structure also allows for an examination of the actual turnover behavior of those individuals once they enter the workforce.

A multinomial logit model finds that having higher PSM-related values in childhood had a positive effect on remaining employed in the public sector when compared to those who always worked in the private sector. That is, those with higher PSM-related values in childhood were less likely to leave public employment. This study provides additional support for welding theoretical considerations to measures of behavior in addition to attitudes.

The rest of the article is laid out as follows. The literature review and hypothesis are discussed. Next, the data and measures are reviewed. The model results are then described, followed by a discussion of those results and the conclusion.

Literature Review

PSM was initially articulated by Perry and Wise (1990) as the term used to capture “an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations” (p. 368). That is, there is a desire to serve the public, and this desire therefore motivates people to want to work for the public.

Since that time, PSM has become one of the most studied topics in public administration, and for good reason. It has been associated with a host of positive workplace behaviors, ranging from job performance (Naff & Crum, 1999), to whistleblowing intention (Brewer & Selden, 1998), to not believing that red tape was a problem (Scott & Pandey, 2005), to exhibiting more innovative behavior (Miao et al., 2018). Different policies and structures also impact employees in various ways, contingent upon their levels of PSM. For example, training and policy enforcement reduced turnout times among firefighters that were high in PSM (Scheller & Reglen, 2021). In another study, those high in PSM with many opportunities to contribute to society in people-changing organizations or those high in PSM with few opportunities to contribute in people-processing institutions were both more prone to burnout (van Loon et al., 2015).

One of the strengths of the PSM literature is the multitude of ways that scholars have measured

it. Some have used various question batteries to tap into the different affective, norm-based, or rational motivations surrounding it (Kim et al., 2013; Perry, 1996; Vandenabeele 2008b.). Others have attributed behavioral differences across groups of people, such as donating blood or volunteering, to varying levels of PSM (Houston, 2006; Lee, 2012). Most relevant to this work, several longitudinal studies have relied on answers to individual questions, such as “satisfaction with the nature of the work itself” (Georgellis & Tabvuma, 2010), or interest in “social service/helping others” (Wright & Christensen, 2010).

While much is known about the consequences of PSM, comparatively little is understood about what causes it and how it changes. In a literature review, Ritz et al. (2016) noted that demographics and work environment were the most commonly-used variables in analysis of the antecedents of PSM, but that the results across these studies have been largely inconsistent. Recently, it has been found that socialization is an important factor; parental PSM largely explains childhood PSM (Bednarczyk, 2021). Studies of how it changes over time have also come to conflicting conclusions, finding evidence that it may increase (Kjeldsen, 2014), decrease (Kjeldsen & Jacobsen, 2013), increase and then decrease (Ward, 2014b), or increase and decrease simultaneously (Vogel & Kroll, 2016).

While starting in the public administration realm, the study of PSM has slowly crossed over into the nonprofit sector. Many have focused on the link between PSM and employment sector choice. For example, scholars have found that those high in PSM are drawn to careers in both the public and nonprofit sectors (Holt, 2018), while more recent work suggests that the findings are more nuanced: those with high PSM are drawn to organizations with high public value in both the nonprofit and public administration spaces (Ritz et al., 2023). Additional studies have analyzed PSM within those in the nonprofit sector. For example, Lapworth et al. (2018) found in qualitative work that voluntary sector employees largely support the dimensions of PSM, while Word and Carpenter (2013) found that PSM of those in nonprofits is impacted by factors such as their attraction to the mission. That said, a recent literature review found that less than 3% of PSM research focused solely on nonprofits (Ritz et al. 2016). As was noted by Mann (2006, p. 40), “suggestions for research on PSM in the nonprofit sector appear to have generally been unheeded thus far.”

An oft-examined link is between PSM and turnover intention. There have been various studies that have generally supported the proposition that PSM and turnover are correlated, but the results carry a number of caveats. For example, many have found a positive relationship between PSM and decreased turnover intention (Bao & Zhong, 2023; Campbell et al., 2014; Naff & Crum, 1999; Shim et al., 2017). That said, several studies argue that this relationship may be moderated by organizational or interpersonal characteristics, such as person-organization fit (Bright, 2008; Gould-Williams et al., 2015), “Change-Oriented Organizational Citizenship Behavior” (Campbell & Im, 2016), intrinsic motivation (Kim, 2015), mission valence (Caillier, 2011), job and organizational commitment (Gan et al., 2020), perceptions of organizational prestige (Bright, 2020), or job satisfaction and career growth opportunity (Wang et al., 2024). Furthermore, there has also been a study that found that PSM increased turnover intention (Caillier, 2011). In short, while previous studies have typically suggested that those with higher PSM will have a lower turnover intention, these results are not without qualification.

Furthermore, the studies of this relationship have focused on attitudes, not behaviors. The evidence of a relationship between turnover intention and actual turnover among those in the public sector is mixed (Cohen et al., 2016; Ki & Choi-Kwon, 2022). While there have been several recent studies of actual turnover in the public sector (Fukui et al., 2019; Hur & Hawley, 2020; Ki & Choi-Kwon, 2022; Moon & Park, 2019; Sun & Wang, 2017), none have examined the role of

PSM. Therefore, including a measure of actual turnover in a study of PSM would serve as an additional robustness check of earlier findings.

Finally, studies of the attrition hypothesis usually do not include a measurement of PSM that existed prior to employment or to self-selection into a vocation. PSM can be a dynamic variable that changes during a person's career (Choi & Chung, 2017; Jensen et al., 2019; Kjeldsen, 2014; Kjeldsen & Jacobsen, 2013; Schott et al., 2018; Vogel & Kroll, 2016); therefore, measures of PSM taken at the same time as measures of turnover intention or actual turnover may be interrelated or reverse correlated. For example, if turnover intent were to decrease PSM, then cross-sectional studies may be mistaken in their theorized temporal ordering.

The attrition hypothesis suggests that those higher in PSM will be more likely to stay in the public sector, but studies have come to rather conditional conclusions and have yet to include actual turnover behavior. Potential reasons for these muddled results could come from various sources. The studies differ in ways ranging from when PSM is measured, to the length of time of the study, to how turnover is measured. What is largely missing in the attrition literature is a design that records PSM early in a person's career and then tracks their actual workplace turnover over time. Both areas will be addressed in this article.

Hypothesis

The theoretical foundation for this hypothesis comes from the literature on person-organization (P-O) fit and the attraction-selection-attrition (ASA) model. Though these frameworks were not explicitly employed by Perry and Wise (1990) when they arrived at their initial deductions concerning PSM, both P-O fit and ASA provide a template for better understanding the implications of this hypothesis.

Those with lower values of PSM may not be compatible with the values of the organization; this lack of fit may increase the likelihood of turnover. This could be expected from those who either did not initially match the values of the organization or those who failed to be socialized into those values while working. However, studies have suggested that the actual mechanism promoting turnover is based on attraction; the lower the perceived match between an individual and the organization's values at entry, the more likely it is that the individual will leave the organization (De Cooman et al., 2009). This suggests the following hypothesis:

Attrition Hypothesis: A public sector employee is more likely to stay in the public sector the higher her or his initial level of PSM.

Data and Measures

Data Source

The Youth-Parent Socialization Panel Study was the source of the data for this study. This study surveyed high school seniors in 1965 that were drawn from a national probability sample. Led by M. Kent Jennings and Richard Niemi at the Survey Research Center of the University of Michigan, the surveys were distributed among 97 public and private high schools, reaching a total of 1,669 students. The surveys included questions about the respondents as well as their views on their families, their education, and their country. Follow-up surveys were sent to the respondents in

1973 and 1982. The initial response rate was 99%, while the follow-up surveys had response rates of 81% and 84%. See the appendix for the descriptive statistics.

The design of this dataset makes it uniquely appropriate to address many of the concerns from other studies of the attrition hypothesis. This study obtained measures of PSM prior to employment, thus eliminating the potential problem of socialization that may come from cross-sectional designs. Furthermore, the multiple measures allow for a more detailed examination of the effects of joining and leaving the public sector. Also, the length of the panel allows for the manifestation of any potential long-term effects.

This data source is not without limitations, however. Since it was commissioned prior to the introduction of PSM as a topic of study, it does not include any of the conventional question batteries that are commonplace in the literature to measure it. Related, while it includes a detailed look of the 1960s through 1980s, there may be cohort or period effects present in any analysis. That is, this data does not capture any of the cultural changes since that time that may have impacted their responses. However, it has been used in recent studies to provide analysis into various areas, ranging from religion (Margolis, 2018) to the federal highway system (Nall, 2018).

Variable Definitions

The key variables of interest in the study are turnover and PSM. For the former, the sector of employment in 1973 is compared to the sector of employment in 1982. While the survey included a wave in 1997, this wave was omitted from the study. This omission was due to the limited number of observations in many of the categories of the “sector of employment” variable relative to the number of independent variables in the model. There needs to be a minimum of 10 cases per variable to minimize the risk of biased coefficients and improper measures of the variance (Peduzzi et al., 1996).

This creates a four-category variable: private sector in 1973 and 1982, public sector in 1973 but private sector in 1982, private sector in 1973 but public sector in 1982, and public sector in 1973 and 1982. These four categories are labeled in reference to the public sector and are called “private,” “leavers,” “joiners,” and “public,” respectively. This is a measure that is less about leaving a job per se and more about leaving the public sector, since Perry and Wise (1990) were concerned about the latter. Those that are higher in PSM should be more likely to “remain with a public organization” (Naff & Crum, 1999, p. 9).

This study builds on a previous analysis that employed a newly validated PSM-related value (Bednarczuk, 2021). In line with other scholars who have used measures of PSM that are not directly derived from more commonly-used scales and question batteries (Holt, 2019; Park & Rainey, 2008; Vogel & Kroll, 2016), the measure used in this study is referred to as a “PSM-related” value or measure.

The questions used to measure PSM asked about interest in public affairs, political knowledge, participation in political and campaign activities, and organizational membership. See the appendix for a description of the questions used to construct the measure. Confirmatory factor analysis was used to construct the measure. In accordance with other recent studies employing confirmatory factor analysis when verifying a measure of PSM, the comparative fit index (CFI), root mean square error (RMSE), and standardized root mean square residual (SRMR) were checked to measure the goodness-of-fit (Holt, 2019; Kim et al., 2013). Across all of the measures, the results suggested a high degree of fit (Kline, 2005).

Methods and Results

Data Analysis Plan and Model Specification

The dependent variable is the measure of turnover out of or into the public sector. Given the unordered, categorical nature of a variable with labels of “private,” “leavers,” “joiners,” and “public,” a multinomial logit model is used. Additional comments about potential improvements that could be made to this measure are noted in the “Discussion” section.

The key independent variable is the PSM-related measure from 1965. This measure is recorded prior to employment. The other independent variables are drawn from the literature on turnover intention. It has been argued, for example, that females are more likely to stay in the public sector. Reasons for this include a potential attraction to the stability and benefits of public employment, as well as the smaller wage gap between sexes (Bernhardt & Dresser, 2002; Gornick & Jacobs, 1998; Kolberg, 1991). However, the findings for such an effect remain inconsistent (Campbell & Im, 2016; Ertas, 2015; Ko & Hur, 2013). Education is a similar factor. Theoretically, possessing a college education should increase the perceived employability of an individual, thus making them more likely to leave a job, but this has also displayed an inconsistent effect in the public sector (Kim, 2012; Lewis, 1991; Liss-Levinson et al., 2015).

Results

First, the distribution of the various turnover categories, along with the initial levels of the PSM-related value for those in those categories, are visualized in table 1 below. There is a slight trend with respect to the PSM-related value. Those who did not work for the public sector had the lowest average for the PSM-related value, while those who always worked for the public sector had the highest average. Those who left the public sector on average had lower PSM-related values than those who joined the public sector. This does suggest that PSM may play a role in turnover, but this claim merits additional analysis.

Table 1. Employment Categories by Childhood PSM and Percent Total

Category	Average Childhood PSM	Percent
Private	59.1	78.3
Leave	62.9	6.3
Join	64.2	9.5
Public	65	5.8

Table 2 displays the results of the multinomial logit model for turnover. The reference category is those who were never employed by the public sector. Compared to those who never worked for the public sector, those with college degrees were more likely to have worked for the public sector and then left, more likely to join the public sector, and more likely to have remained in the public sector. Also, being a woman made you more likely to have joined the public sector relative to those who always worked in the private sector.

Table 2. Multinomial Logit Model for Attrition (Base Category: Private)

	Leavers		Joiners		Public	
	Odds Ratio	Std. Err	Odds Ratio	Std. Err	Odds Ratio	Std. Err
PSM	1.004	0.011	1.015	0.008	1.017	0.010
Male	1.624	0.315	0.299	0.229	1.160	0.277
College	3.666	0.312	2.880	0.235	2.190	0.280
Constant	0.025	0.676	0.066	0.519	0.022	0.645
N	897					
Log-likelihood	-697.73639					
Pseudo R2	0.0631					

Note: Those variables significant at the 0.10-level are in **bold**

Most importantly, there is support for the hypothesis. The PSM-related value increased the likelihood of belonging to the category of those who always worked for the public sector as opposed to those who never worked for it, while it was not significant among those who left the public sector. Additionally, the PSM-related measure was positive and significant when comparing those who never worked for the public sector to those who joined the public sector. This supports the findings of Wright and Christensen (2010) and Wright et al. (2017), who note that those high in PSM are more likely to eventually work for the public sector than those who are not high in PSM. These results are robust to various model specifications, such as removing covariates.

The results of the model suggest that the PSM-related value is positively associated with staying employed in the public sector; thus, those with higher PSM would be less likely to leave their jobs. Those with the minimum value of PSM have a predicted probability of always working for the public sector of less than 3%, while those at the maximum value see this probability increase to more than 12%.

Discussion

This study does have several potential limitations. For example, the measure of PSM that is used is not derived from one of the more commonly-used scales (Kim et al., 2013; Perry, 1996; Vandenabeele, 2008b). This casts a degree of uncertainty over the findings. That said, this measure does hew closely to conceptions of PSM elsewhere in the literature (Ward 2014a; 2014b). Given that this panel was commissioned decades prior to the introduction of PSM, such allowances may be needed in studies of similar archival data. That said, replicating this panel using other ways of measuring PSM would certainly be a useful robustness check.

Another limitation is with respect to the number of years between measurements. Though this is one of the longer panel studies of PSM to date, there are gaps of 8 and 9 years between observations. The respondents could have changed during the gaps between surveys in ways that would not be apparent when surveyed again. For example, respondents could have moved in and out of the public sector multiple times between 1973 and 1982 and this would not be measured.

While additional surveys between these periods would have better captured the dynamics of attrition, the data suggests that the respondents did not tend to frequently leave their employers, as the average job length was eight years.

It is also important to note that this measure of attrition captures turnover between sectors and not necessarily from the respondent's specific job. For example, someone leaving a position in state government for a job in local government would not be recorded by this measure. However, not being able to completely capture the movement between sectors makes this a more conservative test of the hypothesis, as additional unobserved sector switching would make it more difficult to find the hypothesized effect.

There may also be period and country effects present in this study. This cohort came of age in the 1960s, and there have been several potentially important changes since then. For example, the United States has made it a larger priority to have a more representative bureaucracy. Such changes in hiring practices may help to explain some of the differences in this analysis and others that use more contemporary or international data. However, while some variables may be impacted by the era from which this data is collected, there is little reason to suspect that the relation between PSM and government employment would be similarly affected. However, this hypothesis should continue to be examined in different countries and different eras.

In a related vein, the level or type of government employment is unknown in this analysis. It may be possible that the effects vary by the specific job in the public sector. For example, Vandenabeele (2008a) found that the effect of PSM on sector preference was stronger among public organizations with a larger degree of publicness, while Kjeldsen (2014) found that those in service-regulation jobs saw different changes in their PSM from those in service-production jobs. Additionally, those employed in the public school system were included in this measure. It is possible that those in education may be different from other conceptualizations of bureaucrats. For example, Choi and Chung (2017) found that PSM had no effect on the sector choice for teachers. Finer-grained analysis could add more certainty to this issue.

Another potential shortcoming is the lack of covariates in the model. Additional variables that capture previously studied work-related variables, such as burnout or job satisfaction, could add further context to the model. Other factors may also be likely to play a role in turnover. For example, Michael Babula's hyperbolic model of human motivation might suggest that those who have reached self-actualization may be more inclined to negate their self-interest and instead pursue exocentric altruistic motivations, such as working in roles that serve the public good (Babula, 2013; Babula et al., 2020; Babula et al., 2022). Later work could try to incorporate these factors.

That said, there are multiple strengths that come with using this panel. To date, this is the first panel that is able to use a PSM-related measure that is obtained prior to employment to study turnover. Relatedly, this is one of the longer panels in a study of PSM, with measures covering a span of 17 years. Additionally, this dataset allows for measures of actual behavior and not intended behavior. Also, it does not rely on a single variable to measure PSM, as is common in studies using panel data (Georgellis & Tabvuma, 2010; Wright & Christensen, 2010). While this dataset is well-suited to examine this particular research question, the aforementioned limitations provide numerous suggestions for subsequent analysis.

Since this study finds that PSM can reduce turnover, what are the implications of these results for both theory and practice? First, it puts the conclusions from the turnover intent literature on firmer ground. Given the lack of analysis in this field on actual turnover, this finding strengthens

support for the link between high PSM and low turnover. These results should also encourage scholars to look for ways to analyze both attitudes and behavior in studies of public and nonprofit affairs. Bridging these two realms allows for more robust conclusions. These results also speak to the power of panel data. Following the same individuals over time increases both the number and the types of questions that we can ask.

For practitioners, this particular finding has great importance in their day-to-day work. Since scholars have also noted that PSM can be dynamic, it becomes more incumbent upon those in managerial positions to discover ways to cultivate PSM in the workplace. For example, a recent piece by Remington et al. (2024) highlights several factors that may reduce threats to retention of first responders and concludes by noting that PSM was a recurring theme in interviews. Related, Belle (2013) found that PSM can be increased through contact with beneficiaries. By increasing PSM, managers in both public and nonprofit institutions can hopefully decrease turnover, among the many other related benefits that come from employees with higher PSM.

Conclusion

There have been several tests of the attrition hypothesis that have focused on turnover intention, but none have used a measure of actual turnover. This study was able to leverage panel data to capture movement across employment sectors to test this hypothesis. Using a multinomial logit model, it was found that those with higher PSM-related values in childhood were more likely to stay employed in the public sector than to always work for the private sector.

This article contributes to the literature in additional ways as well. The length of the panel sets it apart; while others have used panel designs to study turnover, their timelines are usually around a year (see Hur & Hawley, 2020), this study captured movement across almost a decade. This study also included a measure of PSM recorded in childhood; given that PSM can display a degree of dynamism (Choi & Chung, 2017; Jensen et al., 2019; Kjeldsen, 2014; Kjeldsen & Jacobsen, 2013; Schott et al., 2018; Vogel & Kroll, 2016), it is important to try and record it prior to any waxing or waning due to one's career.

What are some of the potential implications of this finding? If PSM does increase the duration of employment in the public sector, then managers may wish to find additional ways to cultivate it. Studies have shown that specific practices in the workplace may increase PSM (Belle, 2013; Jensen & Bro, 2018; Schott & Pronk, 2014); perhaps more emphasis should be placed on such management strategies in the hopes of decreasing turnover. Related, academics could build off of this work by focusing on different countries, using different measures of PSM, or varying the length of time between observations.

As the public sector faces increasing challenges, minimizing turnover takes on greater importance. Studies using real world behaviors not only compliment those studies using attitudes, but they enable scholars to better aid practitioners as they focus on the problems before them.

Disclosure Statement

The author(s) declare that there are no conflicts of interest that relate to the research, authorship, or publication of this article.

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Author Biographies

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Appendix A: Question Wording for PSM Scale - Childhood PSM from Youth-Parent Socialization Panel Study

Interest in Public Affairs

Some people seem to think about what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government most of the time, some of the time, only now and then, or hardly at all?

Political Knowledge

Next, I'd like to ask you a few questions that you may or may not be able to answer. We don't expect people to know all the answers. [Note: Responses were open-ended]

- About how many years does a U.S. Senator serve?
- Marshall Tito is a leader in what country?
- Do you happen to know about how many members there are on the United States Supreme Court?
- Who is the governor of (this state) now?
- During World War II, which nation had a great many concentration camps for Jews?
- Do you happen to recall whether President Franklin Roosevelt was a Republican or a Democrat? Which?

Campaign Activities

We're also interested in finding out whether students ordinarily pay much attention to current events, public affairs, and politics.

- Do you read about public affairs and politics in any newspaper?
- Do you listen to any programs about public affairs, politics, and the news on the radio?
- Do you watch any programs about public affairs, politics, and the news on television?
- Do you read about public affairs and politics in any magazines?

Organizational Membership

We find that students differ quite a bit in how much they participate in organizations and activities. I would like you to look at this card as I list some kinds of organizations. For each kind I read, would you tell me the number of the statement which best describes your activity for the past two years.

- School newspaper, magazine, or annual.
- Hobby clubs such as photography, car clubs, and crafts.
- School subject matter clubs such as science or language clubs.
- Occupation clubs such as Future Mechanics, Future Businessmen, Future Homemakers, and so forth.
- Neighborhood groups or clubs.
- Church or religious youth groups.
- Groups like the YMCA, YWCA, Hi-Y, Boys' Club, Boy Scouts.
- Are there any other groups you belong to that I haven't mentioned? [Open-ended]

These four variables were then standardized using the "percent of maximum possible" (POMP) method (Cohen et al. 1999). This method was used because traditional z-score standardization changes the multivariate distribution and the covariance matrix of the variable (Moeller 2015). Furthermore, standardizing by z-score in longitudinal data can lead to problems related to differences in reference frames and distributions among different years of data (Moeller 2015). In contrast, the POMP method is a monotonic transformation which does not alter the multivariate distribution nor the covariance matrix.

To use the POMP method, each value per observation is subtracted from the minimum value of the variable and then divided by the maximum value of the variable. This creates a score that ranges from 0 to 1. Since there are four measures in this index, each measure is then multiplied by 25 and summed to create an index ranging from 0 to 100. For example, if someone joined six of eight groups, their score would be $((6-0)/8)*25$, or 18.75. This score would then be combined with the rescaled measures of the three remaining measures of PSM to create the index.

Appendix B: Descriptive Statistics

Variable	Mean	SD	Range
Category of Employment	0.5106	0.9567	0-3
Childhood PSM	60.8942	14.7612	metric
College	0.4047	0.4911	0-1
Male	0.5875	0.4926	0-1