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Is there a need for employee protection processes in U.S. organizations today? A comparative study to assess the progress of procedural and distributive justice systems today versus unionization

Steven Cates*, Jason Jackson, Carrie O'Hare

School of Business and IT, Purdue University Global, West Lafayette, IN 47906, USA

* Corresponding author: Steven Cates, bluecao@aol.com

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Abstract: This research study was undertaken to complete a comparative study of the seminal work conducted by Anderson and Ruderman on procedural and distributive justice systems versus unionization. This research was conducted in 2023. The main focus of this research effort was to determine if current U.S. organizations were utilizing any form of justice system in protecting employees' rights and providing processes that would prevent employees from having a desire to join a union for its protections. Parts of the original survey used by Anderson and Ruderman were used in this study to address the research questions and hypotheses posed for this study. A statistical analysis of the data was conducted, and the results indicated employees have a need for protection in their employment relationship. It is suggested that procedural and distributive justice systems be implemented as an alternative to unionization of employees to meet these employee protections.

Keywords: procedural justice; distributive justice; unions; employee relations; human resources management

1. Introduction

A major disruption in the U.S. workforce, associated with the COVID-19 pandemic, was the "Great Resignation" phenomenon, which has received significant attention. This phenomenon, whose moniker was coined by Anthony Klotz, involves record rates of job quitting during the pandemic (Klotz et al., 2020). As noted by Klotz, return-to-office mandates, attractive job offers from competing employers, and revelations about better work-life balance have motivated a "record-breaking departure from jobs in a shockingly small window of time. According to a global survey of 4000 companies and more than 9 million employee records, a recent study found that resignations increased the fastest among Millennial employees (i.e., those between 30 and 45 years of age). These resignations have also been attributed to people making changes to their work-life balance (Miller and Jhamb, 2022). There could also be critical factors that create reasons for employees to leave in the form of a lack of human resource management (HRM) systems that provide employee protections or having a "voice" in what they accomplish or how they perform their work, how employees are evaluated and rewarded for that work, and what protections they might have from unjustified discipline up to and including terminations of their jobs (Miller and Jhamb, 2022).

Given that U.S. employees see the need for employee protections as stated here, and the lack of those protections presently creates the need for research into what is being provided by their employers in the form of employee fairness systems, This

research is being conducted to examine if procedural and distributive justice systems in U.S. organizations exist or, in their absence, determine if they could be a major reason to provide employee protections that might deter unionization as well as reduce the causes for the Great Resignation that continues in the U.S. in the form of employee actions such as turnover, employee performance, and perceived fairness within their organizations.

2. Literature review

One of the earliest research studies on employee protectionism was conducted by Barnard (1938), who identified employee fairness as one of the fundamental bases of cooperative action in organizations in his research. Most of the original research on fairness, whether conducted in controlled laboratories or in actual industrial settings, has given some disproportionate emphasis to questions on distributive justice, which created, underestimated, and ignored the role of procedural justice in social behavior in private organizations in the U.S. (Alexander and Ruderman, 1987).

One study on the future of work explored the potential effect of the COVID-19 pandemic on “American ‘workism’”, observing that, compared with men, women are leaving the workforce more rapidly and in larger numbers for a variety of reasons, including gaining access to childcare and providing care for family. However, research conducted prior to the pandemic shows that hires, job openings, and quits all reached new highs in 2018. This finding certainly challenges the notion the notion that the Great Recession could be attributed to all of this turnover up to and during the pandemic. This phenomenon of historical employee turnover demands empirical investigation that would determine the major causes of this attrition. One could surmise there were other forces working to cause employees to leave their jobs in record numbers (Miller, A., Jhamb, S., 2022).

The construct of fairness in the employee work environment has been a constant thread in the research as it relates to why people resigned their employment and sought better working conditions, as noted in the literature (Klotz et al., 2020). Coupled with the Great Resignation, some of the most dramatic recent union wins have occurred, such as the first Starbucks stores where unionization votes succeeded in 2021 and where the warehouse employees who created the Independent Amazon Labor Union famously won an election in April 2022. Research into the analysis of the reasons provided for the need for such unionization determined the lack of fairness and the need for a “voice” in the work environment and the working conditions, including wages, benefits, and work hours, among similar factors (Milkman and van der Naald, 2022).

The Great Resignation along with increased unionization actions indicate there are reasons for both that have almost identical desired outcomes for employees, and that is the protection of procedural and distributive justice in the workplace (Klotz et al., 2020).

Work environment fairness is a concern for most employees in their personal lives (Miller, 2001), as well as during their careers at work. Organizational justice (also known as organizational fairness) is composed of three types of justice, which include procedural justice, distributive justice, and interactional justice (Cohen-

Charash and Spector, 2001). This study is focused on procedural and distributive justice, which focuses on the perceptions an employee has concerning the policies and procedures administered by an organization that impact them (Konovsky, 2000; He et al., 2014). Research has shown that procedural justice is a factor that motivates employee cooperative behavior and enhances job-related performance (Aryee et al., 2004; Cohen-Charash and Spector, 2001; He et al., 2014). Distributive justice, however, refers to the fairness of outcomes employees receive (Adams, 1965; Cropanzano et al., 2002), and this is critical to how employees react if there are no protective systems in place.

This is a brief summary of the problem that we are studying and why this is an important topic to study and conduct research on. The purpose is to determine what, if anything, is being done to provide employees with the protections that unions historically have provided. The approach to this study, to create a baseline toward further extensive work with a future full replication study in this area, is this pilot program replication study, to determine if we could replicate results, in the form of a comparison today, of an original Table 1, focused on exogenous variables from a study on procedural justice and distributive justice, published in 1987 (Alexander and Ruderman, 1987), or 36 years prior to this study.

2.1. What is procedural and distributive justice?

Two dimensions of workplace justice are distributive and procedural. Distributive justice describes the distribution of resources and the criteria used to determine the outcomes of resource allocation decisions. In contrast, procedural justice is concerned with the extent to which perceptions about the fairness of outcomes in organizations are based on the processes and procedures used to determine these outcomes (Folger and Greenberg, 1985).

The study of distributive justice focuses on the fairness of rewards (or punishments) issued to an employee by their employer. The study of procedural justice focuses on the fairness of the rules and procedures by which rewards are distributed. In work environments, this could be described as the allocation of tasks as part of the overall job itself, as well as the rewards or punishments that come with the successful completion and attainment of meeting the job goals, which must be considered in examining procedural and distributive justice and fairness. The distinction made between procedural and distributive justice can be defined as those processes (means) and outcomes (ends). In order for one to understand the role of perceived fairness or judgments of justice in human interaction, there must be an examination of means as well as outcomes. This would be required of these perceptions in the study of organizations of all sizes (Alexander and Ruderman, 1987).

Procedural justice is directly associated with the concept of workplace fairness. This relationship is particularly relevant to the perceived fairness and transparency of the procedures used in decision-making (Karkoulian et al., 2016). Studies have shown a direct relationship between fairness and favorable employee outcomes, such as innovative work behaviors (Khaola and Coldwell, 2019), job satisfaction (Quratulain et al., 2019; Choi, 2011; Rubin, 2009), intrinsic motivation (Oh and Lewis, 2009), and organizational commitment (Cohen-Charash and Spector, 2001; Rubin, 2009;

Quratulain et al., 2019). Therefore, an absence of procedural justice or fairness could lead to unethical or harmful behaviors, such as employee retaliation (Skarlicki et al., 2008), employee revenge (Jones, 2009), and counterproductive work behaviors (Afghan et al., 2018). Gharbi et al. (2022) found that procedural justice is necessary for any organization, and when it is lacking, it is one of the major causes of turnover.

Studies have shown that leaders with characteristics that reflect or enhance other-serving motives such as agreeableness, conscientiousness (Mayer et al., 2007), moral identity (Brebels et al., 2011), status (Blader and Chen, 2012), and empathy (Cornelis et al., 2013) are relatively likely to serve the needs of their followers by enacting procedural justice. Other studies suggest that leaders enact procedural justice if they perceive their followers to have needs for control and belongingness (Cornelis et al., 2012; Cornelis et al., 2013; Hoogervorst et al., 2013). Finally, research shows that leaders enact procedural justice to facilitate organizational effectiveness because it stimulates employee compliance (Scott et al., 2014; Zhao et al., 2015).

In public sector and civil service positions, management since the 1970s has sought to provide new flexibilities for their managers, particularly in relation to the performance management of employees. General statutes passed by many U.S. states have been consistent with this trend. County and state employees report that these managerial flexibilities are designed to decrease perceptions of fairness. At the federal level, personnel reforms in the U.S. Department of Defense have also sought to increase managerial discretion. The leadership of the Department of Defense identified employee perceptions of fairness as key to the successful implementation of the evaluation and performance systems. The U.S. Office of Personnel Management surveys covering a 10-year period were analyzed, with results indicating that managers' and employees' perceptions of procedural justice were different over that time period, and these perceptions changed in different ways in response to the reforms (Rubin and Weinberg, 2016).

Research also indicates that a high measure of procedural justice provides two vital indicators about group memberships. Individual members are valued and respected, and they feel pride in the group as a whole (Lind and Tyler, 1988). Therefore, when employees feel they are treated fairly as a group, those individuals are more willing to accept any decisions and outcomes that affect the group and the procedures they must follow. They will comply with group rules and laws, identify more closely their status as an employee and group member, and help the group and other group members perform at high levels (Restubog et al., 2008; Tyler et al., 1996; He et al., 2014).

As early as 2005, inequality was reaching its peak before the Great Recession, and that highly unequal balance between worker and employer continues to grow at an even faster pace today. So, the question of what would create support from the public and from workers in times of sharp inequality is timely and worth considering (Fiorito and Padavic, 2022). Consistent with other procedural justice theoretical studies, researchers have suggested that greater autonomy leads to greater commitment and improved performance (Mumford and Henshall, 1979; Mumford et al., 1983; Ives and Olson, 1984; etc.).

Hunton and Price's (1997) experiments supported procedural justice theory for autonomy and employee commitment. Mirchandani and Lederer's (2014) research

also supported a direct correlation between procedural justice and autonomy as a direct mediator of employee commitment and loyalty, which directly leads to reduced employee turnover for organizations.

2.2. How does distributive and procedural justice systems exist in unionized organizations

In a union work environment, workplace justice is established through contractual grievance and arbitration procedures. The importance of the grievance system in union member relations was highlighted by Gordon and Fryxell (1993). They claimed that a union's relationship with its members is tied much more closely to the procedural and distributive justice systems afforded by its representation in the grievance system than by any other type of benefit provided in the collective bargaining agreement. The outcomes of workplace justice, therefore supported and protected by a contractual grievance and arbitration system, have been examined based on union employees and their attitudes toward employee protections (Gordon and Fryxell, 1993). Procedural justice has been shown to be more strongly related to union attitudes by employees than distributive justice (Clark et al., 1990; Eaton et al., 1992; Fryxell and Gordon, 1989).

Why has private sector union participation fallen away so much in the U.S. since the late 1950's? Schaller (2022) examined National Labor Relations Board (NLRB) representation elections, and his research provides evidence that import penetration accounts for approximately 40 percent of the decline in union formation for U.S. manufacturing. This estimate translates to 4.6 percent of the decline in private sector union density. This is driven by trade with low-income countries and, to some extent, other high-income countries. China, with its strong import growth since 2000, accounts for about 12 percentage points of the total decline.

So, the decline in unionization has not come from a lack of desire for employees to receive fairness and justice from employers. This is evident with the unionization of retail giants such as Starbucks and Amazon. The National Labor Relations Board reported a 57% increase in union election petitions filed during the first six months of fiscal year 2021 (Gallup, 2022).

Those union campaigns indicated the reasons for the need for unions and why they were important to employees were better pay and benefits (65%) and employee rights and representation (57%). More than a third of union members cite job security (42%) and better pension and retirement benefits (34%) as reasons for joining a labor union. Meanwhile, about one in four people list improving the work environment (25%) and fairness and equality at work (23%) (Gallup, 2022).

A recent study by Gallup (August 30, 2022) shows that seventy-one percent of Americans now approve of labor unions. Although statistically similar to last year's 68%, it is up from 64% before the pandemic and is the highest Gallup has recorded on this measure since 1965. The National Labor Relations Board reported a 57% increase in union election petitions filed during the first six months of fiscal year 2021 (see **Figure 1**).

As stated in the literature, unionization attempts are on the rise more than at any time in the past sixty years due to the lack of procedural and distributive justice systems provided by organizations.

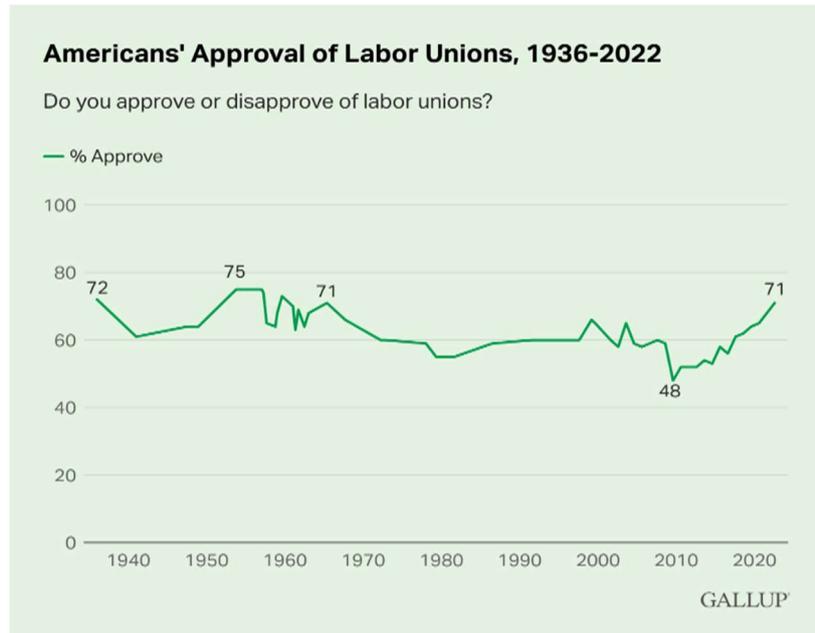


Figure 1. Gallup annual work and education survey, 1–23 August 2022.

One of the areas of this research ties the nonexistence of procedural and distributive justice systems to potentially why there has been a marked increase in successful union organizing drives that recently occurred at both Starbucks and Amazon, as well as in other organizations. Why is there a need for unions there? What caused employees to join unions, especially at Starbucks, since they have always touted having a “family” work environment?

Current research on procedural and distributive justice systems in U.S. organizations is sparse. Therefore, a complete picture of procedural and distributive justice systems or their equivalent in employee fairness requires studying how the enactment of procedural justice can serve the self-interests of organizations in lieu of unionization attempts. Leaders of modern organizations would find this of business interest in sustaining their workforce in a positive manner. To address this research gap, we will further the research conducted by Alexander and Ruderman (1987) with our pilot program replication study.

This research contributes to the existing literature in the following ways: it will provide an examination of how procedural and distributive justice systems can neutralize employees’ desires to unionize; it will provide evidence of how procedural and distributive justice systems can reduce employee turnover and improve employee performance; it can provide HRM with processes to address employee complaints; and it may help resolve issues over employee discipline and terminations.

The following conceptual model of the research, based on the literature review, is provided.

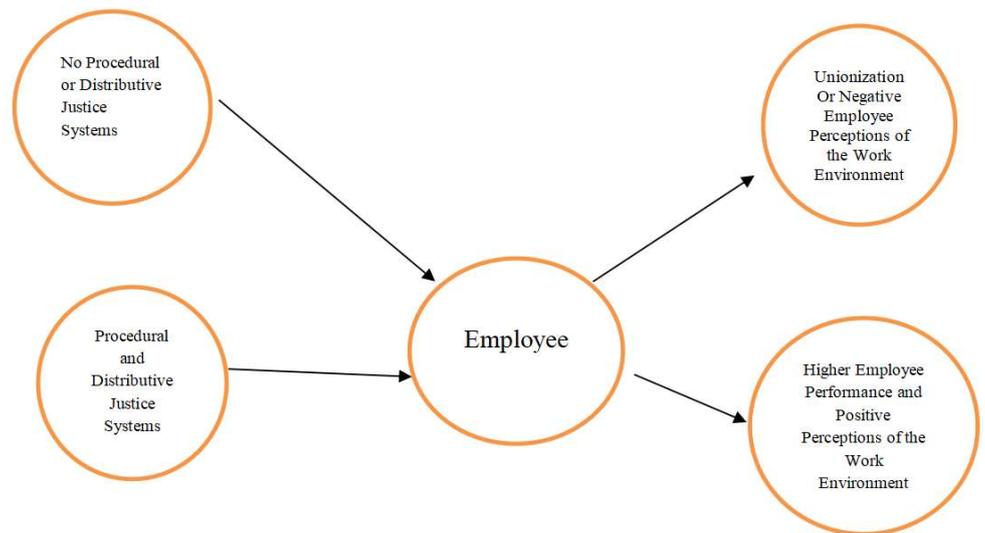


Figure 2. Initial conceptual model of this research study.

3. Methodology

3.1. Procedure

In 2023, a questionnaire was administered to collect baseline data for this pilot program replication study assessing employee perceptions of personnel and work environment procedures. Respondents were informed about the survey and the purposes of the study prior to the survey administration. Questionnaires were administered to respondents both in person and online using email from the researchers. Survey respondents were assured that their responses would be kept confidential. Participation in the survey was voluntary.

3.2. Survey instrument

The survey is taken from the work done by Alexander and Ruderman (1987) as well as from the original study conducted by the Michigan Organizational Assessment Questionnaire (MOAQ), developed by Cammann et al. (1983).

The validity and reliability of this survey questionnaire have been confirmed in multiple studies. Included in the survey questionnaire were questions about both specific processes and general attitudes about work. The items on the survey were measured on 7-point scales with Likert-type response options. Sixteen questions from the items in the overall questionnaire were analyzed in this investigation.

There were questions about certain features of how employees perceived fairness in treatment (procedural justice) in this study and their general attitudes about their treatment at work. Only a small portion of the items included in the original questionnaire were analyzed in this investigation.

One type of scale was used: measures of procedural and distributive fairness. This was the main area of replication for the study, and a comparison of the 1987 results will be provided with our 2023 results within **Table 1** in this report.

Table 1. Demographic data of survey respondents.

Age	Ethnic background	Gender	Marital status
18–25 = 2			
26–30 = 19			
31–35 = 8			
36–40 = 10	White = 97	Male = 45	Married = 61
41–45 = 11	Black = 6	Female = 72	Single = 32
46–55 = 17	Hispanic = 10	Nonbinary = 2	Other = 26
51–60 = 12	Asian = 4		
56–60 = 19	American Indian = 2		
61–65 = 12			
66–above = 9			

Fairness measures (predictor or independent variables) used questions about the distributive and procedural aspects of various work activities and policies to constitute the measures of fairness. These are the x-variables, or exogenous variables, at the core of this study.

Some items were taken from the Michigan Organizational Assessment Questionnaire (MOAQ, Cammann et al., 1983). Other items came specifically from the study conducted by Alexander and Ruderman (1987).

3.3. Demographics

The real-world sample for this 2023 study included $n = 119$ participants. **Table 1** shows the demographic groupings.

3.4. Sample

The demographics of this group differ from the original sample in many ways. Unlike the original study, which focused on “approximately 2800 federal government employees” (Alexander and Ruderman, 1987), our participants were from multiple private and non-private organizations, locations, and backgrounds. For the purpose of comparison (see **Table 1**), the original study narrowed the group down, via random down-sampling, to 930 participants. This was possibly due to the lack of computational power required for the calculations for the study when the original study was conducted. This present study, while having the benefit of much more powerful computational power constraints on the number of available sample respondents, as such, to match the 930 participants, random upsampling with replacement was utilized. Two box plots were created and compared to ensure our 930 simulated sample had similar characteristics as our 119 participants.

3.5. Computational software

The integrated development environment (IDE) of RStudio 2023.03.1 Build 446 was utilized with the R Programming Language Version 4.3.0 (2023-04-21)—“Already tomorrow”.

Packages utilized include Psych version 2.3.3 as well as Lavaan 0.6–15. Also, in a supportive role, the packages tidyverse, performance, datawizard, corrplot, and factoextra were used in the study for either computation or visualization. These are the only packages used other than those included with Base R, as an intentional effort was

made to minimize the packages used; they were only selected if essential to the study and the associated methodology workflow.

3.6. Methodology workflow

The methodology workflow was planned out to focus on the minimally accurate steps required to replicate the comparative results in **Table 1** of the original 1987 study, given the collection of data and modernization of computational power available in 2023. As an overview, using R code, this includes the main workflow steps of factorability, determining the correlation matrix, parallel analysis (PA), primary component analysis (PCA), exploratory factor analysis (EFA), and testing Cronbach’s alpha. Aspects of data science and visualization were utilized as appropriate within the code.

3.7. Factorability

The data was tested for factorability. This initial assessment of the factor structure of the dataset included three main tests: the Kaiser-Meyer-Olkin (KMO) test, the Bartlett’s test of sphericity, and a test to ensure positivity for the determinant. The KMO test for the overall measure of sampling adequacy indicated that the dataset was appropriate in structure for factor analysis, with a $KMO = 0.77$. Bartlett’s test of sphericity was conducted and suggested that there was sufficient correlation in the data for factor analysis, with Chi square = 847.79 with 120 degrees of freedom and $p < 0.001$ as results. The determinant did test positive, with 0.00051 as the result.

3.8. Correlation matrix

In an effort to examine the data from as many varied aspects as possible, it was determined to complete a correlation matrix as an artifact of the full dataset, which was not published in the original research. In the spirit of reproducibility, we provide our 2023 correlation matrix (see **Figure 3**), related to our simulated dataset with $n = 930$. Please see **Figure 3** below for the correlation of the replication study. The correlation matrix follows below.



Figure 3. Correlation matrix (symmetrical) for 2023 replication study ($n = 930$).

3.9. Parallel analysis (PA)

More robust than a simple scree plot alone, the use of parallel analysis combines the concept of a scree plot with a parallel comparison of eigenvalues from principal components and also eigenvalues from factor analysis. This allows the results of the two plots to be compared, aiding in the determination of the number of factors that should be considered toward building a model from the data. One interesting computational aspect of running PA is that we had to set our options for only one core processor on our multi-core computer system for the function `fa.parallel()` to successfully run; `options(mc.cores = 1)`. The argument of 120 iterations was selected for the `fa.parallel()` function. The code was run to generate the plot and then commented out, and all cores were used for other coding steps, as prior, other than this one function and step of the workflow. Please see the Parallel Analysis Scree Plot in **Figure 4**. The parallel analysis scree plot is included below and indicates five factors as appropriate.

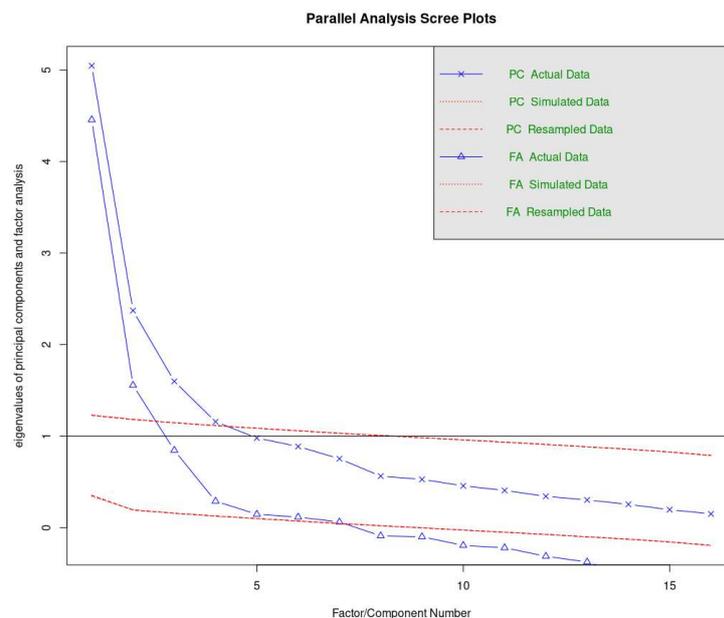


Figure 4. Parallel analysis scree plots.

3.10. Primary component analysis (PCA)

There were no missing values in our dataset. This is important to note, as PCA can be biased due to missing values in the data. PCA was conducted, as well as calculations using cosine squared, Cos^2 , to measure the contributions of each variable. A BiPlot was constructed to review, as vectors, each survey question in relation to its contribution. The BiPlot considered the first two primary components, as they had the most explainability of the dataset variation. Primary components (PCs) are listed in descending order of explainability, with PC1 being the most powerful in comparison, then PC2, and so forth. With the BiPlot, the Y-axis was PC1 (42.9% of the variance explained), and the X-axis was PC2 (24.7% of the variance explained). In this context, the question vectors are plotted in an X-Y graph that explains a total of 67.6 of the dataset variances. Color was then utilized as a scale for the plot, measuring the Cos^2 measurements of contribution for each of the variables.

The BiPlot, in **Figure 5**, is included for consideration. It is interesting to note that a line of 142 degrees, as measured from the positive X-axis, would perfectly split the vectors between positively voiced questions and negatively voiced questions from the survey instrument. Likewise, a line of 167 degrees, as measured from the positive X-axis, would perfectly split the vectors between those connected in the original study to participative justice and those of distributive justice, with the exception of the weak and unusual vector for question 8 (Q08). Also, there are groupings of interest, as related to the original study, that include vectors related to subset question sets.

Looking at the traditional quadrants, the upper right, or Quadrant 1, is primarily representative of the questions focused on participation (Q01–Q07). Quadrant 2, likewise, is primarily representative of questions focused on performance appraisal fairness (Q11, Q12). Quadrant 3, other than Q08 already mentioned, is nearly perfectly defined by Q16 on the negative X-axis and Q15 very close to the negative Y-axis, focused on the question set from the original study known as sanctions for poor performance. Quadrant 4 is representative of the question set on promotion-performance contingency (Q13, Q14). The positive Y-axis splits Q09 and Q10 between Quadrant 1 and Quadrant 2, on either side of the positive Y-axis, which has a grouping representative of the question set focused on appeals procedure fairness.

While it is difficult to parse out precise meaning for components, or PCs, from primary component analysis (PCA), it is interesting to note that the Y-axis measuring PC2 ranges from termination to remediation. There seems to be a pattern to that spectrum, related to the intensity of punishment, as an example. Likewise, PC1, measured along the X-axis, ranges from policy on the right to demotion on the left. While unfortunately that spectrum is less clear, going to the original full questions hints it might have aspects of control within the business work environment. Overall, the BiPlot groups the questions as vectors nearly exactly as the original 1987 study groupings, yet this plot is based on the 2023 data. Also, Q08 seems to be, in essence, an outlier in some way.

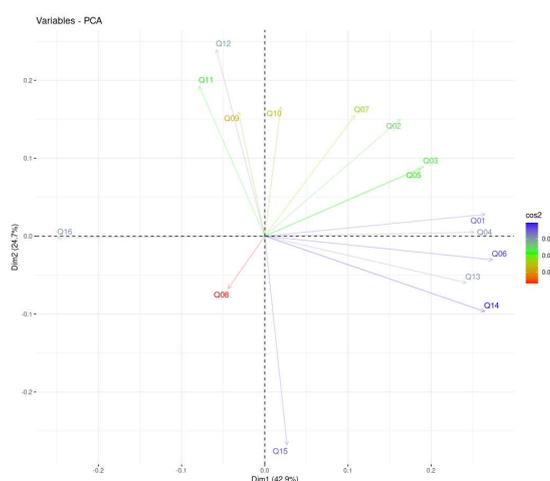


Figure 5. PCA BiPlot (PC1 and PC2) with Cos2 via color scale.

3.11. Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) was conducted using varimax rotation. The communality estimates were calculated with squared multiple correlations. No row

weights were used, as Kaiser normalization should only be utilized when communalities are high across all items, and in our data, this was not the case. Communalities range from 0.09 to 1.00 for items Q01 to Q16. The results of the EFA were the factor loadings and represent the 2023 data on the left side of **Table 1**. It should be noted that the EFA results represented Q08 with only an asterisk, meaning it in essence should be dropped from the model. The exact value for Q08 was 0.16, which was below the cutoff set for our study of 0.4 for factor loading. The original study had a cutoff of 0.3, which we determined was unusual after our literature review, as all items with a cutoff in our literature review used 0.4 as a cutoff. As can be observed in **Table 1**, both studies obtained factor loadings with no overlap, with each item loading on only one factor. For the replication study, the 5 factors explained 59 percent of the total dataset cumulative variation.

3.12. Cronbach's alpha

Cronbach's alpha was determined by each factor separately. This means each factor was correctly assigned its associated subset of question items. Q08 was retained for a proper comparison to the original study. The alpha for pay fairness was unable to be obtained due to an error in data collection for those three questions. The reliabilities for each fairness measure, as determined by Cronbach's alpha, are presented in **Table 1** above each set of factor loadings.

4. Results

In comparing the results found in the present versus the original study looking at the factor of employee participation, questions one through seven indicate very similar scores on how much involvement the employee has in controlling the work environment and those policies and processes that affect them at work. It should also be noted that the overall factor analysis indicates almost no significant difference in scores in overall employee participation. Therefore, little change in employee participation in the work environment has occurred between these two research study periods.

When looking at appeals procedures and the fairness of employee treatment, which was assessed using questions eight, nine, and ten, Question eight asked if personnel (discipline) actions were a waste of time. In our original study, that was considered a negative value since federal employees are covered by a union and collective bargaining agreement, appealing any corrective or disciplinary actions. This is one of the bases for having a union for employee protection against management abuses and disciplinary actions. This question was not assessed in the recent study,, so it is not forecasted as to what the respondents might perceive about discipline and its relevance today. Question nine asked about stated policies relating to discipline and both factors are very similar in value. In question ten, the issue was about poor job performance and the ability to improve on that performance versus negative results placed on the employee. In the two sets of responses, we see employees today respond much more favorably to having the opportunity to improve performance than in 1987. This is also interesting given that the sample in 1987 consisted of federal employees in a heavily unionized environment. The overall impact of the factor analysis of

appeals procedures is skewed due to the lack of factor analysis of question eight in the 2023 study and the large negative impact of question eight in the 1987 study.

Questions eleven and twelve were used to assess the factor analysis of performance appraisal fairness. Question eleven asked about how “fair” the performance evaluations were. And question twelve asked if the most recent performance evaluation was what was expected by the respondent. There were large statistically significant differences in the scores from the original study on question eleven (0.41 to 0.73). These results indicate the respondents in the original study did not believe the evaluations they received were “fair.” The explanation for this could be that evaluations in unionized environments are rare, and usually there is animosity between management and union employees, so the concept of “fairness” may not exist in these types of work environments. In defense of modern management, research shows evaluations are a strategic tool to coach for better performance today, given the global competition. Question twelve also showed a statistically significant difference (0.33 to 0.80) from the original study to the present study. This question centered around the respondent’s perceived evaluation and its ability to meet that expectation. This could be explained by the fact by the fact that evaluations in unionized environments usually center around meeting expectations, and little time is spent on determining whether expectations exceed or fail. This could be defined more as a “paper exercise” versus a real evaluation process and could explain the huge differences in factor scores for this question in the two studies.

Questions thirteen and fourteen were used to assess the factor impact of the promotion-performance contingency. Question thirteen addresses favorable job performance and the potential for promotion within an organization. It was expected that the scores would be lower in the original study than in the present study due to union rules of promotion based on seniority versus qualifications. The scores held consistent with this belief (0.82 to 0.92) based on this union rule. Question fourteen is the same question in an effort to determine the reliability of this response. The respondents provided identical answers to both surveys. What should be noted are the high scores provided. This would be expected in the recent survey, but not in the original survey. It is possible respondents did not really note the similarity of questions thirteen and fourteen.

Factor analysis for sanctions for poor performance was analyzed using questions fifteen and sixteen. Question fifteen asked: If one performs poorly, this will lead to termination. The response from the original study reflected heavy union protections for poor job performance, as expected. In the present study, just the opposite was revealed. In fact, the responses actually have a 1.0 opposite response rate! This indicates that unions will and do spend extensive time and resources to protect their members from being terminated due to poor job performance. This has been held and supported in the research in numerous studies. The protections for poor job performance are lacking in the recent study. Employees have a high sense of fear that poor job performance will lead to their termination of employment. Question sixteen: We see a significant difference in how unionized employees perceive protections to be much greater than those of employees who may not be represented by unions in 2023. It should also be noted that unions in 1987 were much more powerful than in 2023.

The primary goal of creating a comparative study in 2023 by using a similar process presented in **Figure 6** from a study conducted 36 years ago was accomplished. The results of this study are presented in **Figure 6**, with the 2023 replication study on the left and the 1987 original study on the right. This is a visual comparison from item to item and factor to factor, as well as the overall pattern of the loadings. The replication was, in general, very similar, with a few exceptions. Pay fairness loadings and alpha were not possible to recreate and compare.

2023 Replication Study						1987 Original Study					
	f1	f2	f3	f4	f5		f1	f2	f3	f4	f5
Participation (α = .87)						Participation (α = .88)					
Q01	0.73					Q01	0.80				
Q02	0.65					Q02	0.76				
Q03	0.67					Q03	0.75				
Q04	0.68					Q04	0.74				
Q05	0.70					Q05	0.73				
Q06	0.73					Q06	0.67				
Q07	0.49					Q07	0.46				
Appeals Procedure Fairness (α = .40)						Appeals Procedure Fairness (α = .67)					
Q08		*				Q08		-0.57			
Q09		0.51				Q09		0.52			
Q10		0.58				Q10		0.47			
Performance Appraisal Fairness (α = .77)						Performance Appraisal Fairness (α = .68)					
Q11		0.73				Q11		0.41			
Q12		0.80				Q12		0.33			
Promotion-Performance Contingency (α = .88)						Promotion-Performance Contingency (α = .80)					
Q13			0.92			Q13			0.82		
Q14			0.75			Q14			0.75		
Sanctions for Poor Performance (α = .16)						Sanctions for Poor Performance (α = .72)					
Q15				0.72		Q15				-0.77	
Q16					0.96	Q16				-0.72	
Pay Fairness (α = NA)						Pay Fairness (α = .83)					
Q17					NA	Q17					0.86
Q18					NA	Q18					0.78
Q19					NA	Q19					0.67

Figure 6. Factor analysis of fairness items (2023 study vs. 1987 original study).

5. Implications for management

History has shown that employees who are not provided protection by their employers turn to outside sources of help and support. Unions have historically indicated they provide those protections companies don't, such as greater bargaining power to improve working conditions, wages, benefits, and pensions. They claim to reduce and minimize discrimination. Unions claim to provide a greater sense of job security. They indicate a higher sense of participation in and about one's job environment and workplace safety. They provide an increase in one's sense of belongingness. They offer a platform for self-expression. And they improve the betterment of relationships (AFL-CIO, 2023).

This research indicates employees seek a need for justice as a form of protection in their work environment. They want to be treated fairly. They want to have a "voice" in the jobs they perform and the work environment they exist in. They want to be heard and contribute to the success of the job and the organization. They desire to have positive working relationships with their management.

Managers and human resource professionals, especially, should take note of the findings of the most recent study. It provides clear evidence that, in the absence of strong union representation and the lack of either procedural or distributive justice systems in place in organizations today, employees will seek unionization to protect them from employers who are perceived to not be concerned about their welfare.

6. Limitations of the study

Similar to the original study, the statistical concept of “sampling” was used with replacement. There is a full field of study in statistics that focuses on robust methods under conditions of sparse datasets (Hastie et al., 2015).

One interesting item in this study was question Q08, which stated, “Appealing personnel actions is a waste of time.” While this study showed it was ineffective toward our model, it was determined to be effective toward the original model. This might have been due to the homogenized sample of civil service members working for government agencies having a strong, consistent answer to rating this statement on a 7-point scale. The current sample group was diverse, coming from many backgrounds of life as well as professions, and as such, they may have interpreted this statement in more diverse ways. The less consistent rating of this statement would have diffused the power of effectiveness toward modeling for this question. Further, it might be motivated by some confounding factor beyond the scope of this study that differentiated the time period of 1987 from the present of 2023. One possibility could be the birth of the modern internet in 1995. A pre-internet world might also tend toward homogeneity, while the current internet world, having more access online to divergent points of view, might also have a much more diverse perspective on a simple statement of judgment. Being human, meaning is continually open to interpretation.

7. Opportunities for future research

The next phase in the research plan will include collecting a completely new dataset from participants that has the goal of collecting a real-world participant based on no less than an actual sample of 930 participants. This will be the minimum goal. Additionally, this real-world data could then be considered a “holdout” group, to be tested against a training group for EFA and a test group for CFA, and then the holdout group could be a further final test of our developed model.

8. Conclusion

The collected data from the present study was compared to the original data collected by Anderson and Ruderman in 1987. The table displayed in **Figure 6** was successfully created, and a comparison between the 2023 study and the original 1987 study was possible.

Many of the elements of the results were consistent, to include the number of factors and the pattern of their groupings, with some slight deviation. This should be of particular interest as it was conducted without any access to the original dataset or their correlation matrix from over 36 years ago. This adds to the credibility of the 1987 study; their results have gained further support from a new independent dataset and modern computational methods, with similar results earned via this replication effort using a much more diverse sample of participants.

Further, this research has provided many new insights and possible methods that will be used in further research on the topics of procedural and distributive justice systems in the near future.

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Appendix

Major survey questionnaire for procedural justice

Adapted from “The role of procedural and distributive justice in organizational behavior Sheldon Alexander and Marian Ruderman (1987)”.

Survey questionnaire for procedural justice

We are conducting a study on human resources programs that might be in effect at your organization or possibly those you would like to see implemented that provided equal treatment for all employees and allow employees to have some influence on the treatment they receive.

We would like to know your experiences with how much input you might have on any new policies or procedures effecting employees. This would include decisions on promotions, corrective or disciplinary actions taken, input on how your job is designed and the tasks and work you do, how you are evaluated and how fair and equitable this system is. In general, we are interested in how effective your treatment is an employee.

Each question has a potential response of strongly agree to strongly disagree. Please circle that number that best corresponds with your responds with your level of agreement or disagreement with each of the following questions.

1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither disagree or agree, 5 = somewhat agree, 6 = agree, 7 = strongly agree.

We are asking you to please complete this survey. Your responses are anonymous, and we would ask that you do not skip any questions. Thank you for your participation.

Survey questionnaire

(1) How much say do you have in developing new work rules and procedures?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(2) How much say do you have in setting priorities among tasks to be done?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(3) How much say do you have in deciding how work will be divided among people?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(4) How much say do you have in developing organization policies?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(5) How much say do you have in deciding what you will do day to day?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(6) How much say do you have in buying new equipment?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(7) How much freedom do you have on your job?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(8) Appealing personnel actions is a waste of time.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(9) The employee handbook provides for negotiated grievance or complaint procedures to protect employees if they have a formal personnel action against them for poor performance.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(10) When people perform poorly here, they're given a chance to improve their work?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(11) Generally speaking annual performance appraisals are done fairly here.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(12) My last annual performance appraisal rating was about what it ought to have been.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(13) If you performed your job especially well, how likely is it that you will be promoted or get a better job?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(14) If you performed your job satisfactorily, how likely is it that you will be promoted or get a better job?

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(15) If I performs poorly, I will lose my job.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

(16) I will be demoted or transferred from my position, if I perform my job poorly.

1	2	3	4	5	6	7
SD	D	SWD	N	SWA	A	SA

Now, please tell us something about yourself.

Which of the following best describes your gender?

- Male
- Female
- I don't identify as either

Question title

Which race or ethnicity best describes you? (Please choose only one.)

- American Indian or Alaskan Native
- Asian/Pacific Islander
- Black or African American
- Hispanic
- White/Caucasian
- Multiple ethnicity/other (please specify)

Question title

What is your marital status?

- Single
- Married
- Other

Question title

In which of the following age ranges do you currently fall?

- Under 18
- 18–25
- 26–30
- 31–35
- 36–40
- 41–45
- 46–55
- 56–60
- 61–65
- 66 or older

Question title

Which of the following best describes the highest level of education you have received?

- Less than high school
- High school graduate
- Some college or technical school
- Associate degree in college (2 years)
- Bachelor's degree in college (4 years)
- Master's degree
- Doctorate

—Professional degree (MD, JD, CPA)

Question title

Below are some income categories. Please choose the category that best describes the total annual income of the household. Please include your personal income, as well as the income of others living in the household.

—Less than \$14,999

—Between \$15,000 and \$34,999

—Between \$35,000 and \$59,999

—Between \$60,000 and \$99,999

—Between \$100,000 and \$199,999

—Above \$200,000

Thank you again for your time in completing this survey.