Quality of Prison Operations in the U.S. Federal Sector:
A Comparison with a Private Prison

Scott D. Camp
Gerald G. Gaes
William G. Saylor

Office of Research and Evaluation
Federal Bureau of Prisons
320 First Street, NW
400 Building, Room 3025
Washington, DC 20534
scamp@bop.gov
202-307-3871
202-307-5888 (fax)

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Abstract

An examination of the quality of operations at private and public prisons is essential to making

informed decisions about the desirability of using private and public prisons. Previous studies have

used survey data collected from staff and inmates to compare prisons based on the proportions or

percentages of staff making favorable evaluations of different items. As argued here and

elsewhere, the previous studies have been flawed by methodological shortcomings. An approach

is demonstrated here that allows for an examination of the aggregate measurement properties of

survey items as well as for making comparisons of different prisons. The data are from surveys

administered to staff at 96 Federal prisons and two private prisons. The results demonstrate that

not all survey items can be used indiscriminately to compare prisons, and when comparisons are

made, it is essential to control for individual-level and institutional-level factors that are not

related to institution performance but still influence survey results.

key words: quality of prison operations, performance measurement, private prisons

One of the more contentious areas in criminal justice research is the privatization of criminal justice functions once performed exclusively by the public sector. Since the 1980s, there has been renewed interest in incarcerating sentenced adult inmates in prisons operated by private-sector entities. Unlike juvenile facilities in the U.S., the facilities holding adult inmates have tended to be for-profit corporations. The motivation for the increased use of private prisons differed in the U.S. from other countries that have significantly used private prisons. In the U.S., the motivation was more oriented toward dealing with a rapidly expanding prison populations, initially during a period of fiscal constraint. In the U.K. and Australia, other factors were also important, including the need for prison reform and the reassertion of managerial control (Harding, 1997; James, Bottomley, Liebling, & Clare, 1997).

There has been no shortage of material written on the merits or disadvantages of private prisons with the viewpoints often depending upon the politics of the authors. Much of the written material to date has been written to provide justification for or against the use of private prisons. While this material has its uses in the policy arena, we stay away from this debate and simply accept that private prisons exist in certain countries. This is neither an endorsement nor a refutation of the desirability of private prisons. Whatever the long-term fate of private prisons, there is a need to conduct specific studies of the relative merits and shortcomings of prison privatization to ensure the best uses of public resources and the protection of inmates.

A study of the type that looks at specific points of comparison between the public and private sectors is generally lacking. This is unfortunate as private prisons show no signs of going away, despite the financial difficulties of individual private-sector firms. While there has been a definite slowdown in the use of private prisons by most states in the U.S. as state prison

populations level off or decline, the U.S. Federal Bureau of Prisons has plans to double the number of inmates in private prisons from the current figure of about 8,000 inmates to around 20,000 inmates in the near future. While most research in the U.S. has focused on cost issues, we focus upon the quality issues that are often ignored despite their importance (Harding, 1997; 2000). In particular, we examine how survey data can be most effectively utilized to provide insights about prisons operations. While we focus upon survey data collected from staff in this study, the same methods can be used with data collected from inmates. Additionally, the methods used here to compare private prisons to public prisons extend to comparisons of any prisons.

Survey data have been used by other researchers in comparing quality of operations (Logan, 1991, 1992; Sechrest & Shichor, 1994; Urban Institute, 1989). Because our focus is upon staff data, we work in the rich tradition of organizational sociology and psychology where literally thousands of studies have examined staff data for the correlates of such outcomes as productivity, absenteeism, and turnover. Camp (1994), for example, demonstrated that organizational commitment of workers was related to worker turnover in the Bureau of Prisons (BOP) at the individual level. In later analyses, Camp and his colleagues (Camp, Saylor, & Harer, 1997; Camp, Saylor, & Wright, 1999) demonstrated that some individual-level measures were affected by organizational-level differences. In other words, differences between prisons lowered and raised average levels of staff evaluations of their work environment for some individual-level measures, though certainly not all.

There are some unique advantages to survey data that are not found in the operational data that are often used to compare public and private prisons (see for example Archambeault & Deis, 1996). The data can be used to assess the intervening links between management practices

and prison outcomes, such as worker productivity or safe operations. More importantly, survey data can provide the basis for developing common assessment tools to compare prisons that operate according to different policies. While operational data can be influenced by operational and policy differences, survey data may provide a more uniform method of data collection.

The first step in developing assessment tools from survey data is to demonstrate the organizational-level properties of measures derived from survey data. We demonstrate that other approaches have not addressed this issue and were thus methodologically, if not necessarily conceptually, naive (see also Camp, 1999; Camp & Gaes, 2000a; Gaes, Camp, & Saylor, 1998). Despite the seeming importance of developing measures from survey data that have good properties for comparing prisons as opposed to individuals, little work has been done to date with the exception of the work noted previously by Camp and his colleagues.

In the following sections we first set the stage for the current study. We then review and critique the existing literature in which survey data were used to compare public and private prisons. In particular, the work of Charles Logan (1991; 1992) received special attention as it set the initial standard for such comparisons. Following this discussion we provide some descriptive information about the prisons that are examined in this paper. The heart of the paper examines the data, methods, and empirical results that were used to construct comparisons between the different prisons. The paper concludes by recounting the deficiencies of previous studies that have used survey data to compare the quality of operations at different prisons, in this case, privately- and publicly-operated prisons, and the paper provides an assessment of quality at the four prisons as they compare to BOP low-security prisons in general.

Context of Present Study

The U.S. Congress directed the BOP in 1997 to initiate a demonstration of prison privatization by contacting for the private management of a prison owned by the government in Taft, California (see Conference Report to Accompany H.R. 3610, Making Omnibus Consolidated Appropriations for Fiscal Year 1997, Public Law 104-208). In one sense, there was nothing new in the directive from Congress. The BOP has contracted for years with private-sector operators to incarcerate federal inmates, both directly and indirectly. On the other hand, the Taft contract did break new ground because it involved the incarceration of general population, low-security inmates. Previously, the BOP had only used private contractors to hold special offender populations of inmates, such as illegal aliens and pre-release prisoners.

An almost inevitable consequence of the mandate from Congress was competition between the private prison, Taft Correctional Institute (TCI) which is operated by Wackenhut Corrections Corporation, and the government-operated low-security prisons. Director Kathleen Hawk Sawyer of the BOP explicitly recognized this competition, especially as it pertained to costs, in a letter she sent to BOP employees in June 1999. In part, it read:

> The reason I have been calling for cost reduction and the reason we are undergoing a reengineering effort in the Bureau is not because these are the latest management fads. We are undergoing cost reduction and reengineering efforts because we are seeing and will continue to see tighter budgets for operating prisons. We must be cost-competitive with the private prison companies in order to argue against further Congressional mandates for privatization. Our cost reduction and reengineering efforts will help us reach this goal.

The BOP has performed well to date in the cost competition. Nelson (1999), using the Office of Management Budget A-76 costing method for determining make-buy decisions, found that the BOP could have saved $1.9 million by operating the Taft prison in its first year of operations, fiscal year 1998. In unpublished tables provided to the BOP, Nelson (2001) reported that the BOP could have saved an additional $2.2 million in the following fiscal year.

Review of the Literature

Previous evaluations of the quality of operations at private adult correctional facilities have been criticized because they do not provide a basis for making generalizations about private prisons (General Accounting Office, 1996; McDonald, Fournier, Russell-Einhorn, & Crawford, 1998). This has stopped neither proponents nor opponents of private prisons from making sweeping generalizations, or what one coauthor called "glittering generalities" at a privatization conference some years ago. The results presented in this study also cannot be generalized to other situations, but the strength of this study is that we demonstrate the proper techniques by which any correctional agency or independent researcher can incorporate survey data into an ongoing evaluation of all correctional institutions, public and private, under the purview of an agency. As argued elsewhere, multiple sources of data must be used in evaluating the quality of operations at prisons (Gaes et al., 1998). Survey data are one of these sources of information that can be collected at a fairly minimal cost.

Several evaluations of private and public prisons have used survey data. One of the earliest studies that drew upon survey data was conducted by the Urban Institute, under the direction of Harry Hatry, and published in 1989 (Urban Institute, 1989). Logan (1991; 1992) also made extensive use of survey data in a comparison of a private prison for women in New Mexico and a

federal prison for women in Alderson, West Virginia. In the analyses by Hatry and Logan, institutions were compared on the percentage, or proportion, of staff providing favorable ratings of the different dimensions of quality measured by the survey.

In his study, Logan (1991) outlined the components of what he termed a "confinement model" of incarceration. In the confinement model, he noted the following.

The mission of a prison is to keep prisoners—to keep them in, keep them safe, keep them in line, keep them healthy, and keep them busy—and to do it with fairness, without undue suffering and as efficiently as possible.

In keeping with this mission statement, Logan identified eight dimensions of quality of confinement, and he listed data elements that could be used for measuring the dimensions (see Logan, 1992: Table A1: 603-613). The eight dimensions are security, safety, order, care, activity, justice, conditions, and management. In this analysis, we limit our attention to two of the dimensions, management and safety.

Logan outlined a defensible evaluation strategy, but Logan did not effectively utilize the survey data at his disposal. More specific criticisms of the methodological shortcomings of Logan's analysis are presented in a following section. In this section, we focus upon face validity issues regarding the selection of survey questions to compare institutions on two of the dimensions of quality of confinement previously identified, *management effectiveness* and *safety*. We use Logan's analysis as a sounding board for our own analysis both because Logan's study is the best study comparing private and public prisons with survey data and because we used the same survey instrument to collect data as did Logan.

Management Effectiveness

Logan separated out six sub-dimensions of management effectiveness that he examined with survey data. Apparently, Logan felt that these dimensions were under the control of management, and, therefore, it was appropriate to compare the institutions on the six sub-dimensions. The six sub-dimensions were job satisfaction, stress and burn-out, staff and management relations, staff experience, education, and training.

Logan compared institutions on the proportion of staff who provided favorable ratings of job satisfaction. This comparison, though, is not without controversy. Lincoln and Zeitz (1980) argued that not all measures that are adequate measures of the characteristics of individuals are also necessarily adequate indicators of organizational traits. Lincoln and Zeitz specifically used the example of job satisfaction and argued that job satisfaction is a sentiment for which there is no corresponding organizational trait. Whether or not Lincoln and Zeitz are correct in their assessment, we found in prior analysis that job satisfaction has poor measurement properties when treated as an aggregate measure of some latent organizational-level characteristic, whatever that would be conceptually (Camp et al., 1997). For these reasons, there is not sufficient face validity or empirical justification to justify a comparison of prisons on the numbers of staff providing favorable evaluations of job satisfaction, and we dropped job satisfaction from further consideration in this analysis..

There are different issues involved when comparing institutions on variables related to staff experience and education in the manner Logan did. Logan simply treated these measures as though they were outcomes, and there are times when this treatment is sufficient. It is generally accepted among correctional administrators that experienced and educated staff are more

effective. But these variables are also valid as control variables that should be used to adjust aggregate evaluations of other outcome measures, as discussed in the next section.

We propose measuring management effectiveness in the following manner. First, use survey questions that ask respondents for direct evaluations of management effectiveness to compare institutions. We believe that there were two such measures in the Logan study, the scales constructed to assess institutional operations and quality of supervision. Second, compare institutions on the effectiveness of management in creating a positive work environment. For example, compare institutions on the loyalty to the institution or to the larger organizational entity that is reported. At the individual level, measures such as organizational commitment have been shown to be related to other outcome measures of interest, such as turnover (Camp, 1994). Third, compare institutions on the reported efficacy of staff in working with inmates. Presumably, management plays some role in developing staff capabilities in dealing with inmates. Finally, compare institutions on the effectiveness of management in providing and supporting relevant training opportunities. We believe that this modification to Logan's original research plan gives a more reasonable overview of management effectiveness.

Safety

Logan used variables to assess (a) inmate safety, (b) staff safety, (c) inmate dangerousness and (d) safety of the environment. Inmate safety was assessed with an item asking about the likelihood of an inmate being assaulted: "How likely do you think it is that an inmate would be assaulted in this institution?" Staff safety was assessed with four questions. The first two questions asked about the safety, respectively, of male and female staff: "How safe or dangerous do you think it has been in this prison for *male/female* staff members who have a lot of contact

with inmates (dangerous in the sense of being killed or injured in an assault)?" The third item

asked about the use of force against staff members: "In the past 6 months, how often have

inmates used physical force on staff members?" The final question about staff safety dealt with the

probability of an assault against a staff member: "How likely do you think it is that a staff member

would be physically assaulted in this institution?"

Inmate dangerousness was assessed with one item asking about inmates possessing

weapons: "How often do you think the inmates have had weapons on them or in their quarters in

the past 6 months?" Safety of the environment was assessed with four separate items. The first

three asked about the likelihood of an accident in, respectively, housing units, the dining hall, and

the place of work: "How often have there been accidents *in the inmate housing units/in the*

inmate dining hall/where inmates work?" The fourth item pertaining to the safety of the

environment asked about fire hazards: "How often have the inmate housing units had too much

clutter or any material that could feed a fire?"

We have no inherent problem with the variables that Logan used to assess safety, and we

have adopted them for use in this study.

Summary

With the exceptions of not trusting the measure of job satisfaction for comparing prisons

and advocating different uses of the education and experience variables, we basically adopt an

orientation to assessing management effectiveness and safety that is very like that pursued by

Logan. Nonetheless, we do not agree with the empirical examination of the measures that Logan

presented, and we only single out Logan as we feel his approach has the most potential for

guiding future analyses. The reason for our reticence is that Logan never examined the

measurement properties of the variables. Sufficient groundwork simply did not exist for the uses of the data that Logan, Hatry, and others employed. We turn attention to these issues in the following section.

Critique of Methods in Previous Analyses

Three research studies report results comparing public and private prisons that were based, in large part, on measures developed from survey data collected from staff and inmates: the examination of prisons in Massachusetts and Kentucky (Urban Institute, 1989), the comparison of women's prisons in New Mexico and the Federal Bureau of Prisons (Logan, 1991, 1992), and the examination of Community Corrections Facilities (CCFs) in California (Sechrest & Shichor, 1994, 1996). In a fourth evaluation, the Tennessee evaluation (Tennessee Select Oversight Committee on Corrections, 1995), survey data were collected but not used in the formal analysis. In each of the three studies that reported results based on survey data, the survey instrument was derived from the Prison Social Climate Survey. The Prison Social Climate Survey has been administered annually to field staff at the Federal Bureau of Prisons since its initial administration in1988 by its developer, William G. Saylor (Saylor, 1984).

By far, the most extensive use of survey data was presented by Logan (1991; 1992). Logan compared the proportion of respondents providing favorable responses to survey questions by conducting a difference-of-proportions test. A favorable/unfavorable dichotomy was created by collapsing survey items that were typically measured on a seven point Likert scale from strongly disagree to strongly agree. A favorable response was dependent upon the context of the question, but it was defined as a choice of either strongly agree (disagree), agree (disagree), or somewhat agree (disagree). The respective responses were collapsed into one category, and a

corresponding proportion was calculated. With the difference-of-proportions test, Logan

controlled for the fact that the proportions, being derived from a sample of respondents and not a

census, were measured with error. The Urban Institute researchers, using a smaller subset of the

Prison Social Climate Survey questions measured on a four point Likert scale, apparently

controlled for sampling by calculating $?^2$ statistics for the contingency tables created by cross-

tabulating the dependent variables and the prisons under examination. In the examination of CCFs

in California, the treatment of the survey data was less formal given a limited and nonrandom

selection of survey participants.

Any statistically significant differences uncovered by the methods described above were

attributed to differences in the prisons on the theoretical construct believed to underlie the survey

question under examination. However, such an assumption is problematic as no attempt was made

in the studies to control for the socio-demographic or work history characteristics of the

respondents providing the answers to the survey questions, nor was there any effort to control for

any of the differences in architecture or prisoner composition that distinguished the prisons. In

other words, Logan and the Urban Institute researchers treated the respondents as though they

had been randomly assigned to institutions that differed only in whether they were managed by a

public or private entity. But such an assumption is clearly not defensible. There were three

obvious differences in the characteristics of the staff involved in the Logan study of New Mexico

and the Bureau of Prisons (Logan, 1991: Tables A.1 and A.2, pp.188-189). At the private New

Mexico facility operated by Corrections Corporation of America, 59 percent of the staff were

women. At the much older Federal prison, FCI Alderson, the percentage of female staff was

noticeably lower, only 46 percent. A large discrepancy also existed in the race of the respective

staff. Only 3 percent of the staff at the CCA facility were black, where 16 percent of the staff at FCI Alderson were black. On the other hand, only 1 percent of the staff at FCI Alderson were Hispanic where 40 percent of the staff at the CCA facility were. The staff at FCI Alderson were also much more experienced. On average FCI Alderson staff had worked for the BOP for 7.6 years. At the Corrections Corporation of America prison, correctional officers had been employed in corrections only slightly more than two years. Only top administrators at the CCA facility had significant experience, 14.33 years on average.

It is not unreasonable to suspect that all else being equal, male and female staff, staff of different racial groups, and staff with more and less experience rated prison and work conditions differently in New Mexico and the BOP. In fact, published studies that have analyzed Prison Social Climate Survey data have consistently reported the significant impact of socio-demographic and work history variables upon different measures taken from the Prison Social Climate Survey (Britton, 1997; Wright, Saylor, Gilman, & Camp, 1997). Clearly, proper research practice demands that some account be made of these types of differences between staff at the respective facilities before sense can be made of the proportions of staff providing favorable responses.

The methods used in the present study control for sources of variation that are not related to differences in performance or quality of operations. There are various statistical methods that can be used for this purpose, but we use multilevel random intercept models that permit estimating "adjusted averages" for different prisons while controlling for the individual-level characteristics of survey respondents as well as differences between prisons (Bryk & Raudenbush, 1992). A multilevel approach, also known as a hierarchical linear model (HLM) approach,

provides for direct assessment of the "ecological" properties of survey measures when they are aggregated to prison "averages" (Raudenbush, 1999). While much research has gone into developing methodologically and theoretically sound individual-level measures in areas such as psychometrics and educational testing, research is only now beginning on developing and assessing measures for higher level units such as schools (Rowan, Raudenbush, & Kang, 1991) and neighborhoods (Raudenbush, 1999). Camp, Saylor and Harer (1997) demonstrated that scales developed from survey questions may function quite well at the individual level but be quite lacking when aggregated to prison "averages." Details of the actual models are provided in a later section on data analyzed and methods used.

The multilevel method proposed here to provide multivariate controls may not have been appropriate in the studies by Logan, the Urban Institute, or Sechrest and Shichor. The prior studies probably had insufficient numbers of prisons under examination. Nonetheless, the analysts could have employed other statistical adjustments that are less demanding in terms of the number of prisons required yet still provide for multivariate controls when computing "average" scores. Logan, for example, could have used logistic regression techniques to perform a test of whether the estimated regression models needed to be adjusted for the prison at which the responses were collected. This would have provided a test of how the average score was influenced by the prison in question *after* other sources of variation represented in the regression model were controlled. Multilevel techniques not only allow for these types of adjustments, which are a bare minimum requirement, they also allow for an examination of whether the aggregated average scores are meaningful in a statistical sense. In particular, the methods allow us to directly examine what

proportion of the variance in the measures exists at the level of the prison as well as the reliability of any adjusted measures produced.

The Facilities

Some general socio-demographics of the inmate populations at the respective comparison facilities are presented in Table 1. As can be seen there, all of the facilities held about 1,800 inmates in the low-security portions of the prisons. While the typical characteristics of the inmates were very similar for some of the variables, for example, median age, median sentence, and median time left to serve, there are some notable differences across the institutions. For the BOP comparison institutions, about 50 percent of the inmates were US citizens. At TCI, the corresponding figure was only 41.3 percent. Also, TCI had a larger percentage of Hispanic inmates than the BOP comparisons, and TCI had a much lower percentage of Black inmates. TCI and FCI Forrest City had units dedicated to IHP release inmates, and the units hold about 350 inmates at these two institutions. IHP release inmates are illegal aliens who are turned over to the U.S. Immigration and Naturalization Service upon release. FCI Yazoo City had a smaller number of IHP release inmates, about the half the number at TCI and FCI Forrest City, and FCI Elkton did not have an IHP unit.

Review of Critical Incidents

There have been a number of documented instances at TCI that suggest that there may be differences in quality between the private prison and the Federal Bureau of Prisons, including an escape and a disturbance. The empirical question for this analysis is whether these instances have influenced staff evaluations provided in the Prison Social Climate Survey.

TCI Incident 1. A food and work strike was held on August 25, 1999. Only 12 inmates reported for the breakfast meal, and only 36 out of approximately 270 inmates reported to their UNICOR jobs that morning (Andrews, 1999).[1] The issues reported by the inmates in the interviews conducted by the contractor after the incident were the quality and quantity of food, sanitation in the kitchen, and medical concerns.

TCI Incident 2. TCI experienced an inside escape from the low-security prison on September 6, 1999, a Sunday, at approximately 4:40 p.m. The inmate was able to breach two security check points in leaving the secure perimeter of the facility with visitors at the end of inmate visiting.

TCI Incident 3. A work strike escalated into a general disturbance on November 15, 1999. In an attempt to control pilferage and bring discipline to the food service operations at TCI, a new food service manager implemented changes to work conditions. The inmates responded that unless these changes were withdrawn, that they would walk off of their jobs. When the food service manager refused to rescind the changes, the inmate workers left their jobs. At the 4:00 count, during which time inmates return to their housing units where they are locked down while the count is underway, TCI staff moved in to remove the striking workers to the segregation unit. When other inmates heckled the officers, several additional inmates were also placed in segregation. All told, 58 inmates were moved to segregation at this time.

When the institution resumed normal operations to feed the inmates the evening meal, only about 100 inmates out of approximately 1,800 actually went to the dining area. Later in the

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[1]UNICOR is the registered trade name for prison industries in the federal government. The BOP decided to keep the prison industry operations at TCI under UNICOR control.

evening, when TCI staff informed inmates that it was time to return to the housing units for the normal evening count, around 1,000 inmates milled around the outsides of the housing units and refused to enter their housing units for the 10:00 pm count. In the actions that followed, TCI staff fired several canisters of tear gas in their attempts to control the inmates. They also used sting-ball and flash bang grenades.

The BOP comparison institutions were not free of critical incidents during this time period. Most of the critical incidents occurred at one facility, FCI Forrest City, where there was an ongoing problem with Hispanic gangs. The BOP experienced problems with gangs, especially Hispanic gangs, at other BOP low-security prisons during 1999, especially in the south central region of the U.S..

FCI Forrest City Incident 1. On January 24, 1998, there was a fight at FCI Forrest City involving six Hispanic inmates. According to BOP definitions, any fight involving five or more inmates is considered to be an instance of group misconduct.

FCI Forrest City Incident 2. On January 28, 1998, there was a work and food strike. The work strike lasted for one day, but the food strike went on for two days.

FCI Forrest City Incident 3. On February 10, 1998 there was an assault of five Hispanic inmates on three Black inmates.

FCI Forrest City Incident 4. On March 21, 1998, there was a fight involving 19 inmates.

FCI Forrest City Incident 5. On March 1, 1999, there was a disturbance between thirty-four Hispanic inmates and fifteen Black inmates. The Unit Officer in one of the housing units noticed that inmates had grouped within the unit and were arguing. When responding staff arrived on the scene, they observed one of the Black inmates swinging a plastic chair at the Hispanic

inmates. When he refused an order to stop, the inmate was restrained by institution staff. Ten inmates received minor injuries, and forty-two inmates were moved to the Special Housing Unit.

FCI Forrest City Incident 6. On April 6, 1999, there was a fight between 40 to 50 Hispanic inmates in the recreation yard. Some of the inmates were armed. The inmates were all gang members belonging to rival gangs, the Border Brothers and Aztecas. Twenty-four inmates were moved to the Special Housing Unit.

FCI Forrest City Incident 7. On May 3, 1999, there was a work strike at FCI Forrest City. Only 8 inmates reported to work following the morning meal. By 1:00 that day when a general work call was announced, all inmates, with the exception of ten, reported back to work.

FCI Forrest City Incident 8. On August 1, 1999, there was a fight between seven Hispanic inmates and five Jamaican inmates in the patio area of the recreation yard. Four of the inmates were treated at an outside medical facility for the injuries sustained during the fight. A total of twelve inmates were admitted into the Special Housing Unit for their participation in this action.

FCI Elkton Incident 1. There was a food strike that lasted for two days that started on October 27, 1998. The precipitating issue was food portions.

FCI Elkton Incident 2. On July 7, 1998, nineteen inmates who were in line at the commissary refused to report to their assigned areas at the close of the open movement period. The action was classified as a demonstration.

In short, the critical incidents reviewed here suggest that there may be quality differences between the four prisons. In particular, it appears that institutional executive staff at TCI and FCI

Forrest City have faced more problematic issues related to quality of care, or at least to inmate management, than have the respective staff at FCI Elkton and FCI Yazoo City.

The Data and Method of Analysis

The Prison Social Climate Survey (PSCS) has been administered annually to a stratified proportional probability sample of BOP workers employed at prisons since 1988. In 1998, the PSCS was administered to 9,460 employees working in 94 separate prisons, including for the first time employees working at TCI. In 1999, the PSCS was administered to 10,710 workers at 98 different institutions. In addition to TCI, the PSCS was administered to employees at another private prison, referred to in this study as PP2. Since PP2 was not part of the study mandated by Congress, it is not identified by name in this study. The response rates in 1999 were 87 percent for the BOP overall, 100 percent at TCI, 100 percent at PP2, 100 percent at FCI Elkton, 100 percent at FCI Forrest City, and 84 percent at FCI Yazoo City.

The complete PSCS questionnaire is divided into sections based on the topic areas. There are sections on the socio-demographics of the respondent and their work history, the work environment, personal safety and security, personal well-being, and quality of life. The sections are mixed across four versions so that individual respondents answer only a subset of the entire instrument. Some questions are asked of all respondents but not the items used to construct the safety measures, as noted in more detail later.

Due to a snafu in the distribution of a cover letter to accompany the PSCS, the responses to certain questions asked of workers at TCI in 1998 did not meet normal criteria for face validity. The cover letter instructed TCI workers to mentally substitute the name of their company into any question containing a reference to the BOP. The cover letter, though, was not received in time, so

it was not distributed with the PSCS questionnaire. For example, one of the items asked the

respondents to assess, on a 7 point Likert scale, "I am usually satisfied with the BOP." Since the

TCI respondents did not receive any instructions to the contrary, it seems apparent that this

question had different connotations for TCI and BOP employees. Where the intention had been to

survey TCI and BOP employees about their satisfaction with the respective organization that

employed them, this goal was not accomplished with the TCI respondents. A customized version

of the PSCS, where all references to the overall organization were changed to reflect the name of

the private contractor, was administered in 1999. The results for analysis of the 1999 data are

presented in this report. The results for the analysis of the 1998 data are available from the

authors upon request.

The general formula used to model the dependent variables presented in Table 2 is

$$Y_{ij} = \gamma_{00} + \Sigma \beta X + \Sigma \gamma W + u_{0j} + r_{ij}.$$

The formula is typically referred to as the random intercepts model as only the intercept term is

allowed to vary randomly across the level-2 units, in this case prisons. $?_{00}$ represents the overall

intercept, or expected value, for all institutions considered in this analysis. u_{0j} is the deviation from

the overall intercept for institution j, and it is a random coefficient. The other regression

coefficients are fixed effects: $S\beta X$ represents the sum of the estimated effects of the individual-

level control variables, and $S?W$ represents the sum of the estimated effects of the institution-level

control variables on the intercept. r_{ij} is the individual-level error term.

The individual-level controls, the βX terms, entered into the model are sex, race (three

dummy variables indicating black, Hispanic, and other with white being the excluded group), age

in years (logarithmic transformation), tenure with the BOP in years (logarithmic transformation),

education (dummy variable for whether the respondent had at least a BS degree or not), supervisory status, and whether the respondent worked in a direct custody capacity. The institution-level controls, the ?W terms, are overall institution security level, BOP region the prison is located in, size of the workforce, and average values for the level-1 (individual-level) variables. In particular, the average age of the respondents at each institution, the average level of BOP tenure, the proportion of respondents who were female, the proportion who were black, the proportion who were Hispanic, the proportion who were of the other race category, the proportion who had a college education, and the proportion of respondents working in custody jobs were entered into the model at level-2 (the institutional level). The effects of the control variables, though interesting in their own right, are not the focus of the present study, and the results are not presented here.

The controls were entered into the models presented in Table 2 in such a way that the overall intercept, the $?_{00}$, represented the expected value for a "typical" BOP respondent, with typical being solely a function of the how the variables in the model were coded. Typical was defined here as a respondent who was male, white, without a college degree, a non-supervisor, and working in a non-custody position. The age and tenure variables were grand-mean centered, an important consideration in HLM models, so the typical respondent was of the average age and tenure for all respondents. Grand-mean centering insured that the intercepts estimated for each prison, with the deviation captured by u_{0j}, represented a meaningful combination of covariates.

The coefficients with the greatest relevance for the present analysis were the institution deviations from the overall intercept, the u_{0j}, and the two estimates of variance estimated by the multilevel techniuqe, the variance associated with the institution (t) and the variance attributable

to the individual (s^2). The estimates of variance were used to calculate the intra-class correlation coefficient (ICC) and the reliability of the institution effects upon the overall intercept. The ICC provided an estimate of how much variance in the dependent measure under examination resided at the institution level. ICC is measured as the ratio of institution-level variance (t) to total variance (s^2+t). ICC can also be thought of as the correlation between responses associated with the nesting of respondents within the respective institutions. Obviously, the most desirable measures for making institution comparisons are those with high values for ICC. Reliability estimates the consistency with which institution deviations from the overall intercept, the u_{0j} were measured. As with other reliability measures, a common rule of thumb is to look for a reliability of at least 0.7.

The analysis proceeded by first estimating the multilevel models without including the level-2 covariates. This provided a baseline model to estimate the unexplained variance at the institution level. The ICC values reported in Table 2 were calculated using these models. Following the estimation of the baseline models, the complete models, with all level-1 and level-2 covariates were estimated. The complete models allowed us to produce two additional pieces that were used to identify measures with adequate measurement properties at level-2. In particular, the results in Table 2 report the percentage of the level-2 variance that was attributable to the level-2 covariates, and the complete models allowed us to calculate the reliability estimates for the u_{0j}. After measures with suitable measurement properties were identified, the u_{0j} from the respective models were used to compare the institutions via graphic means as described below.

It is important to note that the present study differs from previous studies that have compared private and public prison in several important ways. One, instead of relying upon

inferential tests that would have been appropriate only if the workers/respondents had been randomly assigned to work at the different prisons, as did previous studies, the present study used methods that allowed for controlling multiple factors that influenced how respondents rated survey items. Second, the present study examined the measurement properties of the survey items at the aggregate level. In particular, the examination of ICC and reliability scores sets this study apart from all previous analyses that have used survey data.

Results

The measurement properties of the two dimensions of prison quality, management effectiveness and safety, are presented in Table 2. Following a discussion of the measurement properties of the respective measures, attention turns to examining how the comparison institutions differed from one another on the measures that were deemed to be appropriate for assessing institutional differences.

Measurement Properties

The results in Table 2 suggest that not all of the measures were suitable candidates for making comparisons between institutions. For example, the efficacy scale was clearly unsuitable for making institution comparisons. 2.3 percent of the variation in this measure existed at the level of the institution (ICC=0.02308). This by itself is not necessarily problematic, but when the level-2 variables were added to the model, 83.8 percent of the level-2 variation was explained, meaning that only 4 tenths of one percent of the unexplained variance (16.2 percent of the 2.3 percent) existed at the level of the institution, or level-2. In other words, practically all variation was due to individual-level influences where institution practices had no conceivable impact. Likewise, the reliability of this measure was much too low (?=.253) for efficacy to be considered as a measure

for comparing institutions. The only measure of management effectiveness that clearly had

desirable measurement properties was the scale measuring commitment to the institution. For this

scale, the reliability was well above the rule-of-thumb 0.7 level. Even so, the ICC for institutional

commitment was somewhat low, ICC=5.2 percent (49.4 percent of the ICC value of .10361 when

no level-2 covariates were included in the model), in comparison to studies of other organizational

contexts (Rowan et al., 1991) or where the context depends upon geographical areas (Sampson &

Raudenbush, 1999).[2]

Of the remaining measures of management effectiveness, institutional operations and

overall organizational commitment were the only measures that had potential for being used to

compare institutions. While the reliability of both of these measures fell below the cutoff of 0.7,

they were clearly in the ballpark. Both of these measures had relatively small amounts of variance

left at level-2 after the level-2 covariates were added to the model. For both, about 2 percent of

the remaining variance existed at the level of the institution, meaning that institutional differences

still accounted for a small but statistically significant proportion of the variance. The other

measures of management effectiveness—quality of supervision, support of training, and utility of

training—had little potential for being used as institutional measures given the low values for

reliability and remaining variance after level-2 covariates were entered into the models.

In viewing the results in Table 2 for the safety measures, it is obvious that only one of the

measures produced a reliability score near the usual 0.7 cutoff for reliability—the question about a

fire hazard in the housing unit. The lower reliability for this item (and the other safety items),

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[2]Unlike the studies where larger ICC values have been reported, this study has information
on only one organizational entity with common policy and procedures for all of the institutions
except TCI. This probably reduced the amount of variance to be analyzed.

however, was partly an artifact of how the survey was administered. As can be seen in Table 2, the number of respondents who answered questions about safety was much lower than the number of respondents who were asked the questions about management effectiveness. The management effectiveness questions come from a portion of the PSCS that was administered to all respondents. The questions about fire hazards in the housing units appeared in a section of the section of the survey that was administered to about half of the respondents, and 4,711 of the respondents completed the survey.

In addition to the true variability of a measure, the number of respondents at each level 2 unit (the different prisons), who answered the survey was important for producing reliable results. While there is no hard and fast rule, the number of respondents answering the safety questions was on the low side. While there is a point at which adding respondents at each institution brings only marginal returns to the reliability measure, the fact that the management effectiveness questions had at least twice as many respondents per institution provided greater potential for observing a larger reliability score for the respective measures. It should also be noted that the reliability values for the safety measures were all for individual questions where the management effectiveness measures were all multi-item scales. Typically, scales are more reliable than individual items.

Even given these caveats about the reliability values reported for the safety measures, the measure about potential fire hazards remained the only measure that had the potential to be used to compare prisons. While the inmate safety, staff safety and dangerousness of inmates items had larger amounts of the variance associated with the institution level than did the management effectiveness measures, almost all of that variance was explained by the covariates entered into the

models at level-2, that is the security level of the institution, the region of the BOP in which the prison was located, the size of the institution, and the mean levels for staff characteristics.

To sum up, there were three management effectiveness measures that were identified as being suitable for making institution comparisons, commitment to the institution, institutional operations, and overall organizational commitment. The only safety measure that was identified as having potential for comparing institutions was the question about fire hazards in the housing units. And of these four measures, only the use of the scale of institutional commitment was totally without ambiguity if one were to accept a rigorous adherence to the 0.7 reliability cutoff.

Institution Comparisons

Two types of graphs, both conveying similar information about institution differences, which we assumed in this analysis to be related to institution performance, were used to compare the four prisons that are part of the general evaluation. In addition, we included the other private prison operated for the Federal Government for which we have data, PP2. It should be noted that whereas FCI Elkton, FCI Forrest City, FCI Yazoo City, and TCI all house low-security, general population inmates, PP2 holds special population inmates. All of the inmates at PP2 are low-security, illegal aliens.

The first type of chart used to compare the prisons is presented in Figure 1 for the measure of institutional operations. In the chart, the bars for the "expected value" represent where the average score for each particular institution should have been after controlling for the individual-level characteristics of the staff at the institution as well as the level-2 covariates that characterized that institution. So, since the mix of staff and other aggregate characteristics differed slightly between these five institutions, we see that the institutions were expected to have

slightly different average scores for institutional operations. The "true value" scores in the chart

represent the value for the institution after the empirical Bayes estimate of the residual (Bryk &

Raudenbush, 1992: 39-40), or institution deviation, is added to the expected value for the

institution. By comparing the bars for the expected value and the true value for each institution,

we get a clear picture of whether the institutions had average scores for institutional operations

that were above or below what should have been observed. So, for example, FCI Elkton, FCI

Forrest City, FCI Yazoo City, and TCI all had average scores for the evaluations of institutional

operations that were lower than would have been expected. PP2, on the other hand, had a larger

value for institutional operations than would have been expected.

The empirical Bayes estimate, then, is the difference between what was observed for an

institution (after adjusting for the reliability of the measure) and what was expected given the

characteristics of the individuals and the institution. The empirical Bayes estimate is captured

indirectly in Figure 1 as the difference between the two bars presented for each institution.

However, in Figure 1, it is hard to get an accurate understanding of how much the respective

institutions deviated from their expected scores. A clearer representation of the size of the

deviation is presented for the measure of institutional operations in Figure 2. In Figure 2, we have

added the rest of the low-security prisons operated by the BOP for perspective. The "value

deviation" is simply the empirical Bayes residual of how the institution deviated in reality from its

predicted score.[3] For ease of presentation, the value deviations are presented in order from largest deviation below what was expected to largest deviation above what was expected.

For institution operations, it is easy to determine from Figure 2 that FCI Yazoo City, FCI Forrest City, TCI, and FCI Elkton were performing less well than would be expected. PP2, on the other hand, obviously stood out as performing much better than expected. However, it is important to keep in mind that the deviations are in terms of the unit of the institutional operations measure, which ranges in value between 0 and 6. One suggestion for determining how much weight to place on the observed differences in average scores for institutional operations between any two institutions is to present the difference in a standardized unit, e.g., in terms of the standard deviation. For example, in the metric of institutional operations, FCI Yazoo City and TCI differed by about .08 as TCI had an empirical Bayes residual of -0.11872 and FCI Yazoo City an empirical Bayes residual of -0.1987. We chose this comparison as it is the largest between any of the BOP comparison institutions and TCI on the measure of institutional operations. Since the institutional operations measure had a variance of 1.39 and a corresponding deviation of 1.1789, FCI Yazoo City and TCI differed by a standardized score of 0.068 (the difference between the two scores in the original metric divided by the standard deviation). In other words, even though TCI clearly measured more favorably on institutional operations, TCI and FCI Yazoo City differed by less than 1 tenth of a standard deviation, a fairly insignificant amount in substantive terms. So even though the chart gives a clear notion of the ranking of the institutions,

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[3]One potential problem with empirical Bayes residuals is that they are weighted by the reliability of the measure at each institution. This problem does not enter into this analysis as all of the institutions have sufficient sample sizes to produce reliable estimates. The problem of shrinkage is most problematic when an institution has few observations, hence a less reliable estimate, and thus gets "shrunk" toward the overall mean for the measure under question.

and we know from the reliability score that the rankings are fairly stable, it is still necessary to evaluate the magnitude of the difference between any two institutions, and a comparison between institutions in terms of the standard unit has some appeal.

Similar information for the measures of organizational commitment, institutional commitment, and the perceived fire hazard in housing units is presented in Figures 3 through 8. Some of the most pronounced differences between the prisons were observed for the measure of institutional commitment, which was the measure with the most adequate measurement properties. As can be seen in Figure 5, the expected values for TCI and PP2 were above the expected values for the BOP comparison prisons. Additionally, the true values for PP2 and TCI were above the expected scores, whereas the true scores for the BOP comparison institutions were clearly below the expected values.

Figure 6 amplifies the point that the BOP comparison institutions were all below the expected values for institutional commitment. As can be seen there, the institutions rank the lowest for BOP low-security prisons. PP2 is clearly above all other BOP prisons, with the exception of one BOP prison, and TCI falls in a general clump of BOP prisons that had higher levels of institutional commitment than expected. The differences between the BOP comparison institutions and TCI certainly appear dramatic in the Figures 5 and 6, and the results are meaningful substantively. If the math is done to convert the differences to standard unit differences, it can be shown that the BOP comparisons are anywhere from .4 standard deviations to half of a standard deviation below the average level of institutional commitment at TCI.

The finding that TCI has higher levels of institutional commitment is offset somewhat by the finding that the BOP comparison institutions rank more favorably on overall organizational

commitment. As can be seen in Figure 3, the BOP comparison institutions had average levels of overall organizational commitment that were only slightly less than what would have been expected. Overall organizational commitment at TCI, however, was clearly lower than expected. The differences between the BOP comparison institutions and TCI were in the order of .17 standard deviations, which is a noticeable if not large difference.

To place the current analysis in relation to the types of techniques used by previous analysts, the results of oneway analyses of variance are presented in Table 3. Where Logan used tests of proportions in his analysis because he collapsed the Likert items into dichotomies, had he retained a coding of 0 to 6 for the values of the seven categories, a oneway analysis of variance approach would have been appropriate. The results in Table 3 were simplified in a couple of ways. First, we have presented results only for the variables which are appropriate for comparing prisons, as demonstrated with the multilevel techniques previously discussed. Had we relied only upon the analysis of variance technique, however, there would have been no comparable method of determining which measures had desirable measurement properties at the prison level. Had we not limited our analysis thus, we would have reported differences between prisons for measures that were not suitable for comparing prisons. Second, the table is simplified by presenting only the results of the comparisons between means for each public prison and TCI as adjusted by Fisher's least-significant-difference method for making multiple comparisons.

The results in Table 3 are similar to the results presented in the graphs for the respective measures, with some notable exceptions. The results for institutional operations suggest that there were no differences between TCI and the public prisons. Likewise, in Figure 2, it was observed that all four of the comparison prisons fell in the less than expected end of the distribution of

-29-

performance on institutional operations. While it could be argued that FCI Yazoo City fell below TCI and FCI Elkton above, it is important to note that all of the values were close to one another in absolute terms.

For the measures of commitment to the overall organization and commitment to the specific institution, both the analysis of variance approach and the residual plots presented in Figures 4 and 6 present the same information. The public prisons rated higher on organizational commitment, and the private prison rated higher on institutional commitment. For the measure of safety, whether conditions in the housing unit created a fire hazard, the two approaches did not produce similar findings. For the analysis of variance approach, it was noted that only FCI Yazoo City differed from TCI, and the average indication given was that the danger of a fire hazard at FCI Yazoo City was lower than at TCI. For FCI Elkton and FCI Forrest City, in comparison to TCI, the suggestion was that there were no differences. However, when Figure 8 is examined, after controlling for the relevant factors, there appeared to be clear differences between all three BOP prisons and TCI. In all three BOP prisons the rating of a potential fire hazard was lower.

Discussion and Conclusion

In the debate about using private prisons, the waters have been muddied by speculation about the operations of private prisons. If the truth be told, there is often little information about the operations of either public or private prisons. This presentation has demonstrated that the waters do not become clear simply because a survey is administered to staff members. To effectively use survey data, it is necessary to follow the methods outlined here to insure that appropriate comparisons are made between prisons. But once those methods have been followed,

it is possible to develop measures that allow us to compare prisons, whether the prisons are operated by the public or private sectors.

So, did the staff at the respective institutions indicate that the quality of operations at TCI differed from quality of operations at comparable BOP prisons? The answer depended upon the rigor of the methods used to analyze survey data. The multilevel results suggested that most of the items taken from survey data were not appropriate for distinguishing quality of operations, at least not for the measures of management effectiveness and safety. For those measures that were appropriate, the story was mixed. The BOP institutions seemed to come out ahead on the measures of organizational commitment and fire safety in the housing units, but the private prison clearly came out ahead in terms of the average level of commitment to the institution. On the institutional operations measure, the results were more of a draw between the BOP prisons and TCI.

These findings are notable for both the public and private sector entities involved. For the BOP, there may be some indication that while workers remain committed to the BOP, there is less commitment to the low-security prisons most directly effected by the competition with the private sector. Perhaps things are being squeezed too hard at these prisons. For the WCC, the finding of high levels of institutional commitment are important because prior research has demonstrated that private-prison workers have much higher rates of turnover than BOP workers (Camp & Gaes, 2000b). Management at TCI may have faced lower rates of corresponding turnover than would have been expected. In part, the higher level of commitment may be related to the wage structure at TCI. In contrast to most private-prison jobs, the direct pay of most workers at TCI is comparable to BOP prison workers since the pay level is determined by the Services Contract Act

of 1969.[4] In fact, TCI management have stated in the past that they felt constrained by the pay at TCI, which was much higher than another Wackenhut prison in nearby Bakersfield, California.

We appreciate the pioneering efforts of Charles Logan and Harry Hatry at the Urban Institute, but we definitely want to see better uses of survey data when making comparisons of public and private prisons. We encourage researchers to take up the challenge of this paper to develop measures that allow for comparisons of prisons. Little research effort is being expended toward developing survey measures that capture institutional sources of variation. However, it is precisely this type of information that will allow us to move beyond rhetoric to examine how privatization effects the quality of confinement of inmates in public and private prisons.

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[4]Even though pay is fairly comparable, WCC provides lower amounts of benefits to its workers than the Federal Sector where benefits equal around 40 percent of direct pay.
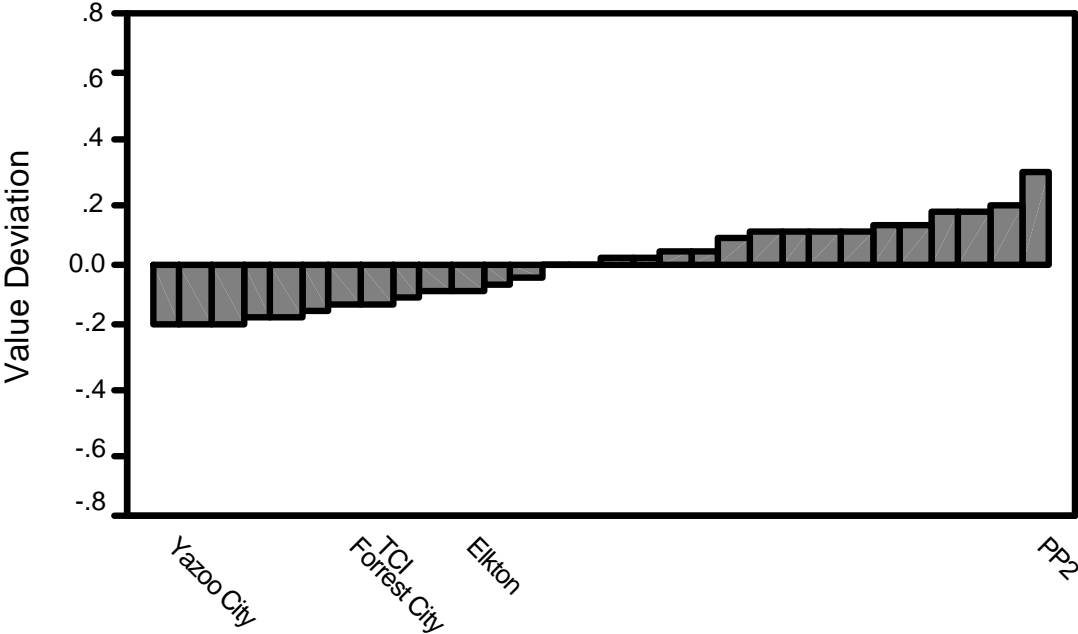
Figure 1. Institutional Operations

Comparison Institutions
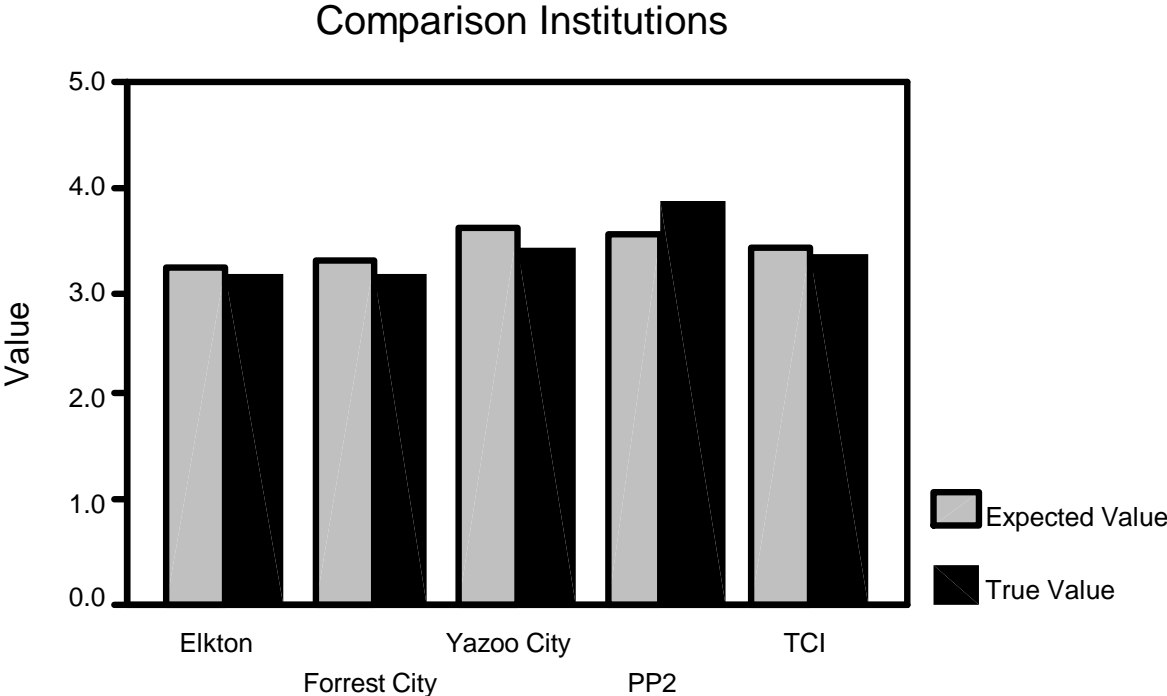
1999 Prison Social Climate Survey

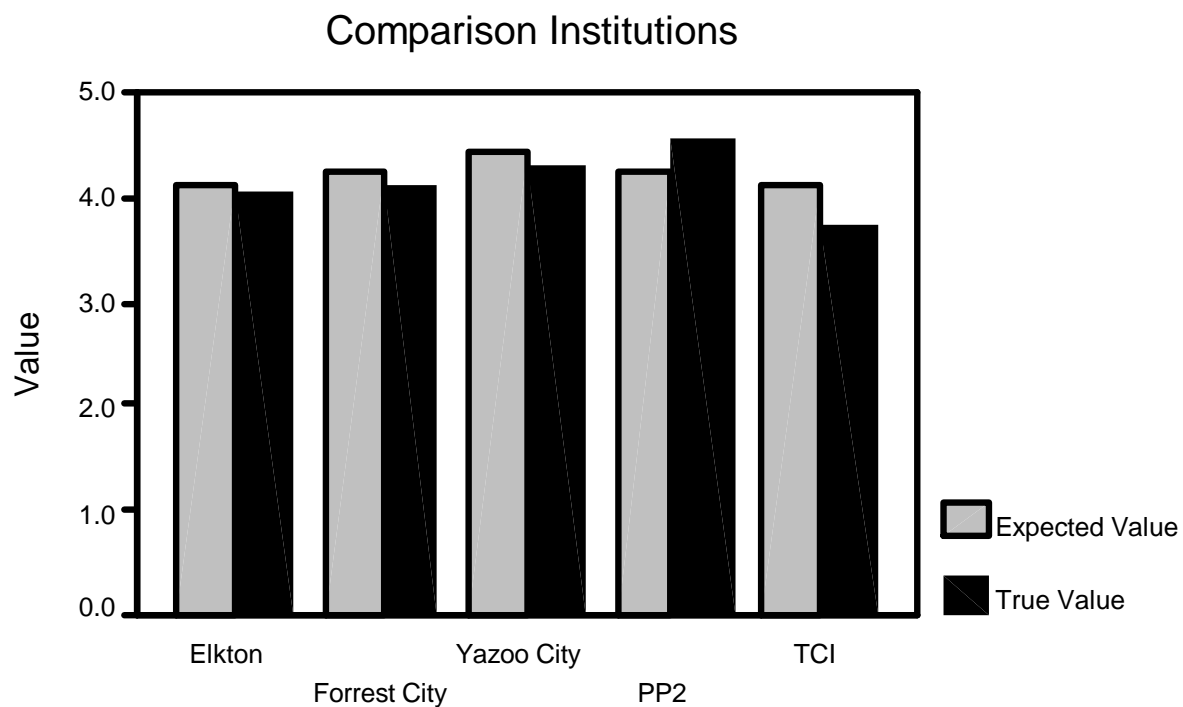HLM Models of Data

Figure 2. Institutional Operations Deviations

All Low Security Prisons
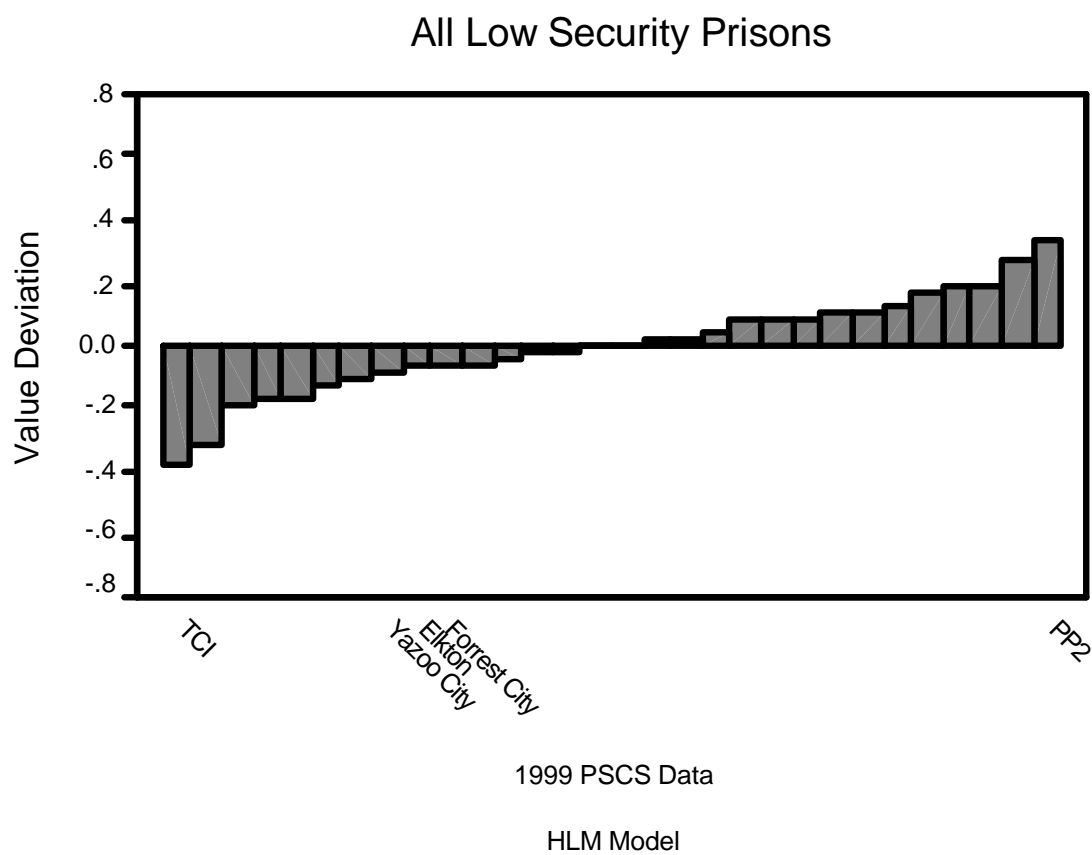

1999 PSCS Data

HLM Model
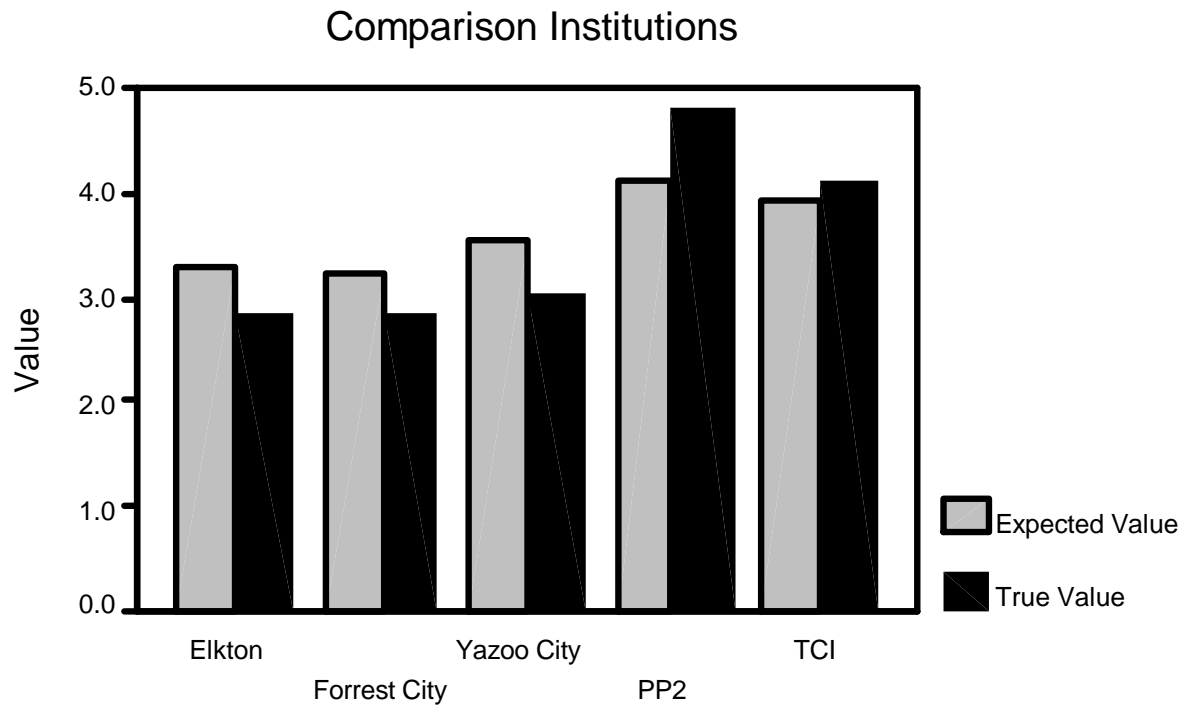
Figure 3. Organizational Commitment

Comparison Institutions

1999 Prison Social Climate Survey

HLM Models of Data

Figure 4. Organizational Commitment Deviations

All Low Security Prisons

1999 PSCS Data

HLM Model

Figure 5. Institutional Commitment

Comparison Institutions

1999 Prison Social Climate Survey

HLM Models of Data

Figure 6. Institutional Commitment Deviations

All Low Security Prisons

1999 PSCS Data
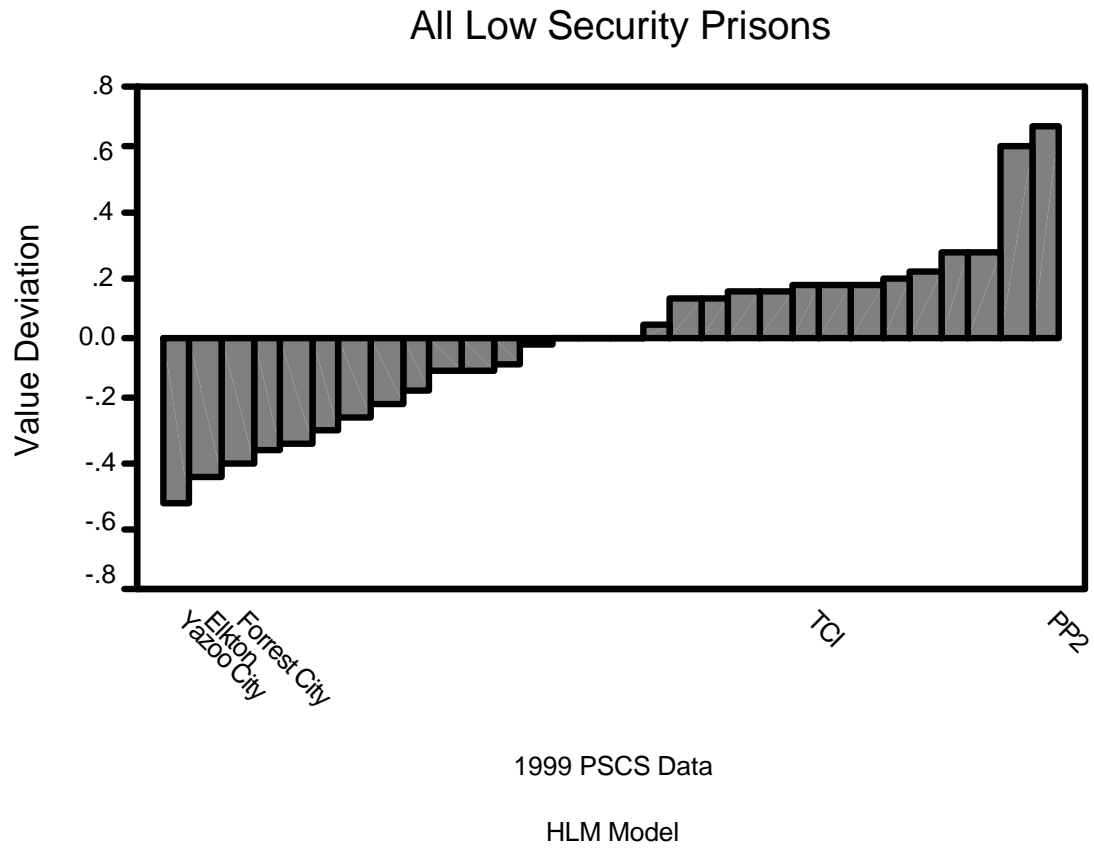
HLM Model

Figure 7. Perceived Fire Hazard in Living Units

Comparison Institutions

1999 Prison Social Climate Survey

HLM Models of Data
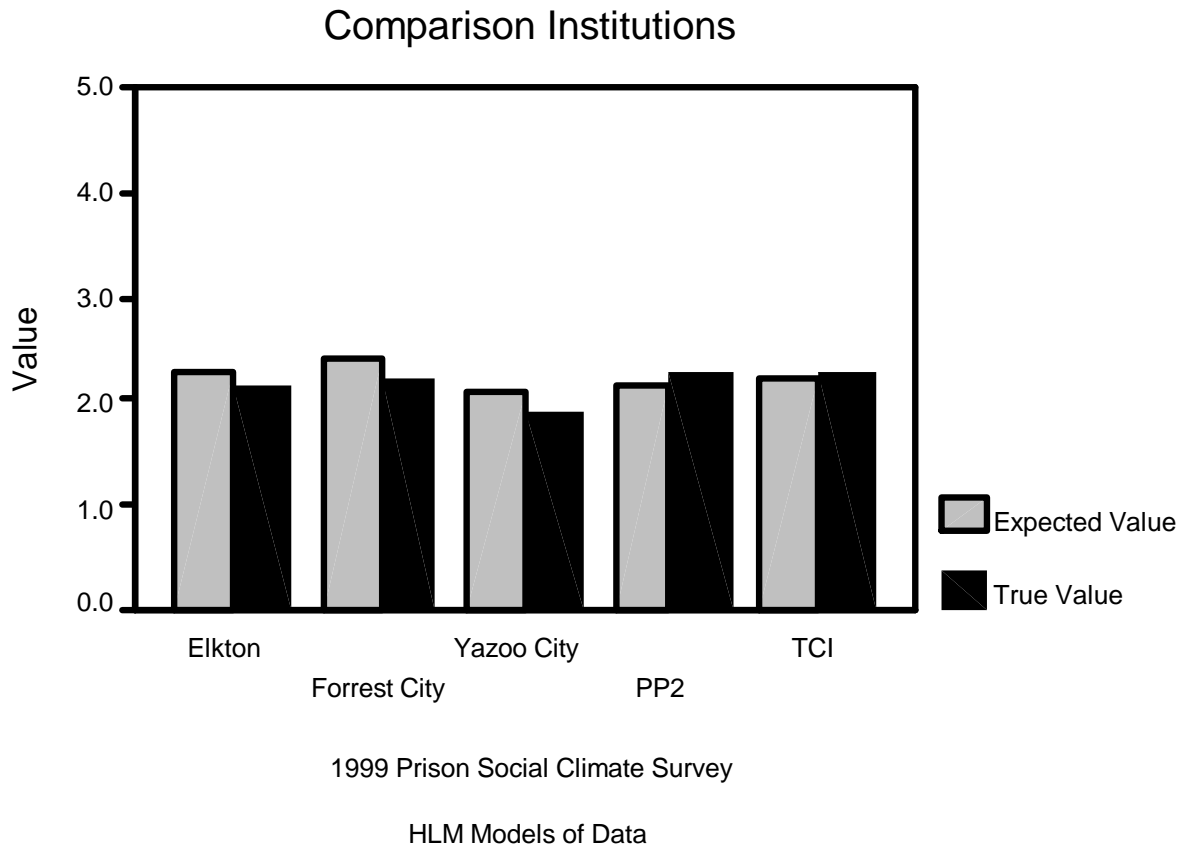
Figure 8. Fire Hazard Deviations

All Low Security Prisons
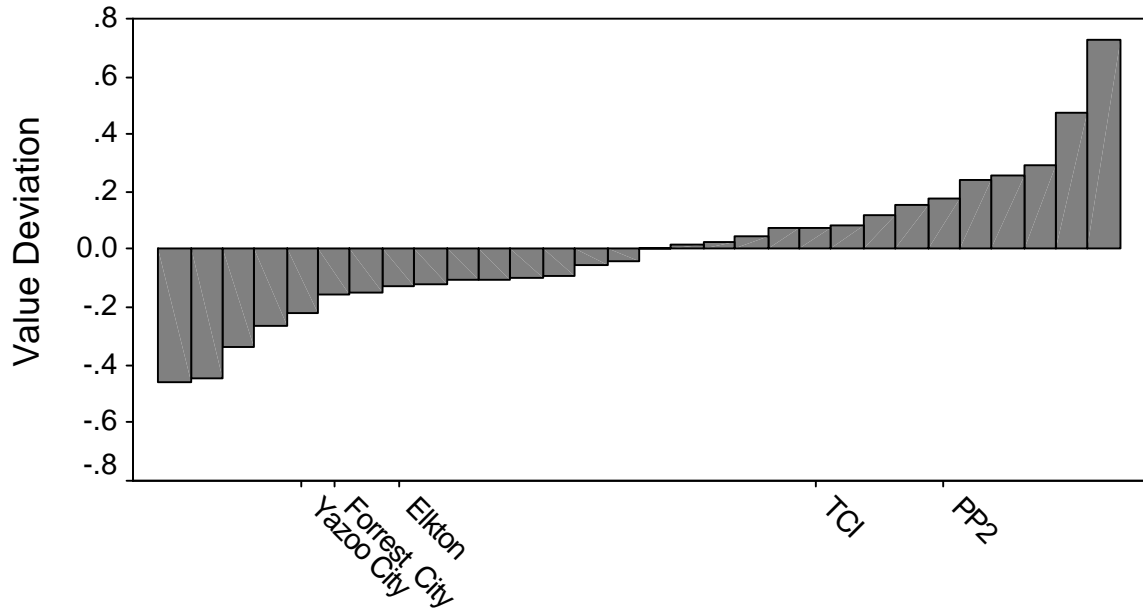
1999 PSCS Data

HLM Model

Table 1
Inmate Demographics, October 1999

	TCI	Elkton	Forrest City	Yazoo City
Main Facility				
Population	1,794	1,816	1,831	1,851
US Citizens	41.3%	50.7%	51.1%	49.9%
Non-US Citizens	58.7%	49.1%	48.6%	49.9%
Unknown	0	0.2%	0.4%	0.2%
White	79.8%	57.6%	67.2%	60.3%
Black	15.5%	41.0%	31.2%	38.6%
Other	4.7%	1.4%	1.6%	1.1%
Hispanic	55.0%	39.4%	46.0%	44.4%
Non-Hispanic	45.0%	60.6%	54.0%	55.6%
IHP Release Inmates	358	not applicable	347	179
Median Age	34.0 years	34.2 years	35.0 years	35.6 years
Median Sentence (mos.)	70 months	72 months	72 months	75 months
Median Time Left	28 months	30 months	34 months	30 months
Attached Camp Unit				
Population	515	303	192	not applicable
TOTAL	**2,309**	**2,119**	**2,023**	**1,851**

Table 2
Attitudinal Measures of Quality in Prisons (1999)

Item/Scale	Obs Used	ICC	t (Level-2) Explained	Reliability of u_{0j} (?)
MANAGEMENT EFFECTIVENESS				
Management Assessment				
Institutional Operations (scale)[1]	8,505	0.04093	48.6%	0.654
Quality of Supervision (scale)[1]	8,495	0.01464	64.5%	0.317
Work Environment				
Overall Org. Commitment (scale)[1]	8,475	0.03287	30.2%	0.670
Commitment to Institution (scale)[1]	8,484	0.10361	50.6%	0.829
Effectiveness of Staff				
Efficacy (scale)[1]	8,478	0.02308	83.8%	0.253
Training				
Training, Support of (scale)[1]	8,470	0.02839	46.5%	0.574
Training, Utility of (scale)[1]	8,475	0.02376	50.9%	0.508
SAFETY				
Inmate Safety				
Inmate Assault Likely (item)[2]	2,115	0.15902	79.9%	0.449
Staff Safety				
Safe for Male Staff (item)[2]	2,118	0.22469	81.4%	0.535
Safe for Female Staff (item)[2]	2,108	0.21974	80.3%	0.541
Force used against staff (item)[3]	1,308	0.32495	80.3%	0.546
Staff assault likely (item)[2]	1,962	0.18407	88.4%	0.344

Table 2 - Continued

Item/Scale	Obs Used	ICC	t (Level-2) Explained	Reliability of u_{0j} (?)
Dangerousness of Inmates				
Inmates had weapons (item)[3]	1,504	0.33553	83.0%	0.555
Safety of Environment				
Accident likely in housing (item)[4]	3,044	0.04889	69.2%	0.331
Accident in dining hall (item)[4]	2,825	0.06949	54.0%	0.497
Accident at work (item)[4]	3,218	0.04969	48.5%	0.468
Fire hazard in house unit (item)[4]	3,270	0.09834	50.1%	0.656

Notes:

[1]Questions used to construct the scale were asked of all 9,525 study participants who returned surveys.

[2]Survey asked only to the 2,328 study participants who returned surveys for Version 1.

[3]Question asked of the 2,328 study participants who returned copies of Version 1. One of the valid responses was "No knowledge." These responses were treated as missing.

[4]Question asked of the 4,589 study participants who returned copies of Versions 3 and 4. One of the valid responses was "No knowledge." These responses were treated as missing.

Table 3

Institution Comparisons of Quality in Prisons

Item/Scale	ANOVA Difference
MANAGEMENT EFFECTIVENESS	
Management Assessment	
Institutional Operations	
FCI Elkton	No Difference
FCI Forrest City	No Difference
FCI Yazoo City	No Difference
TCI	--
Work Environment	
Overall Org. Commitment	
FCI Elkton	Higher than TCI
FCI Forrest City	Higher than TCI
FCI Yazoo City	Higher than TCI
TCI	--
Commitment to Institution	
FCI Elkton	Lower than TCI
FCI Forrest City	Lower than TCI
FCI Yazoo City	Lower than TCI
TCI	--
Safety of Environment	
Fire hazard in housing unit	
FCI Elkton	No Difference
FCI Forrest City	No Difference
FCI Yazoo City	Lower than TCI
TCI	--

*The naive difference is based on a simple analysis of variance without any control variables.

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