

- Maguire, K., and A.L. Pastore. 1995. *Sourcebook of Criminal Justice Statistics* — 1994. Washington, DC: U.S. Department of Justice.
- Perkins, C. 1994. *National Corrections Reporting Program — 1991*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.
- Research and Statistics Section. 1990. *Annual Report of Statistics on Correction for 1989*, Vol. 1. Tokyo: Secretariat, Ministry of Justice.
- \_\_\_\_\_. 1994. *Annual Report of Statistics on Correction for 1993*, Vol. 1. Tokyo, Secretariat, Ministry of Justice.
- \_\_\_\_\_. 1996. *Annual Report of Statistics on Correction for 1995*, Vol. 1. Tokyo, Secretariat, Ministry of Justice.
- Research and Training Institute. 1985. *Summary of the White Paper on Crime*. Tokyo: Ministry of Justice.
- \_\_\_\_\_. 1989. *Summary of the White Paper on Crime*. Tokyo: Ministry of Justice.
- \_\_\_\_\_. 1992. *Summary of the White Paper on Crime*. Tokyo: Ministry of Justice.
- Tischler, C.A., and J.W. Marquart. (YEAR???) "Analysis of Disciplinary Rates Among Female and Male Inmates." *Journal of Criminal Justice* 17: 507-13.
- Wolfgang, M. 1961. "Quantitative Analysis of Adjustment to the Prison Community." *Journal of Criminal Law, Criminology and Police Science* 51: 608-18.
- Yanagimoto, M. 1970. "Some Features of the Japanese Prison System." *British Journal of Criminology* 10: 209-24.

## Measuring the Performance of National Criminal Justice Systems

EDWARD R. MAGUIRE  
University of Nebraska at Omaha

GREGORY J. HOWARD  
GRAEME NEWMAN  
University at Albany, SUNY

We argue that the emergence of the nation-state has produced a common structure of criminal justice systems across all nations, thus making it feasible to validly compare criminal justice system performance cross-nationally. Based upon a theoretical framework derived from the literature on criminal justice performance measures, we introduce an index of national criminal justice system performance. The index measures the performance of national criminal justice systems in three areas: equity, effectiveness, and efficiency. A variety of indices has been used to rank nations in other areas, such as corruption, human rights, human development, political freedom, and informatization. Ours represents the first effort to compare quantitatively the performance of national criminal justice systems. Data for the index are derived from the Fourth and Fifth United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems and from Charles Humana's *World Human Rights Guide* (3rd edition, 1992). Although the creation of a valid and reliable index is threatened by the potential for ethnocentricism and other forms of bias, we believe it is possible to minimize, though not eliminate, this risk. An unbiased assessment of criminal justice performance could be a useful tool for holding nations accountable for the decisions they make concerning their criminal justice systems and therefore may have valuable implications for international domestic and foreign policy.

### INTRODUCTION

The purpose of this paper is to develop the rationale and method for constructing an index of national criminal justice system performance. We contend that a common structure of criminal justice systems exists throughout the world and that this makes it possible to develop a performance index with universal applicability. An unbiased assessment of the performance of national criminal justice systems could be a useful tool for comparative research and may also have valuable implications for domestic and foreign policy. Drawing on a developing body of literature concerned with the measurement of criminal justice agency performance, we employ official data on crime and criminal justice collected by the United Nations and data on the respect for human rights provided by Charles Humana (1992) to construct a multi-dimensional measure of national criminal justice system performance.

The idea of charting the performance of national criminal justice systems in a quantitative manner is new. Although indices have been created that com-

pare nations on a number of other measures including corruption (Transparency International, 1997), informatization (Dordick and Wang, 1993), human rights (Humana, 1992), political freedom (United Nations Development Programme, 1991; Freedom House, 1997), and human development (United Nations Development Programme, 1996), no prior attempt has been made to develop an index of national criminal justice system performance. Because there is an absence of suitable models in the criminal justice literature to assist in the development of a performance index at the national level, we use the indices mentioned above as a general guide in our efforts to create such a measure.

Part of the reason why the performance of national criminal justice systems has never been assessed, despite the increasing attention paid by criminal justice scholars to cross-national research in the last two decades, may be the methodological and theoretical pitfalls associated with research of a cross-national variety. Piers Beirne (1983), for example, argues that cross-cultural research in criminology is often vulnerable to "national chauvinism," "theoretical dogmatism," or "cultural imperialism." He argues that scholars must avoid ethnocentric theories and generalizations which ignore cultural differences. Similarly, Groves and Newman (1989:28) campaign against the use of general theory in comparative research because, among other problems, such a tack "presupposes commonalities while ignoring differences." Moreover, critics maintain that data from different nations cannot be used for comparative purposes because they represent phenomena which take place in vastly different social, economic, and political contexts (Siemaszko, 1993). Perhaps the strongest and most common criticism of this body of research is that crime definitions vary so widely from nation to nation that they are utterly incomparable (Vetere and Newman, 1977). Due in large part to these criticisms, comparative researchers have been reluctant to employ the quantitative techniques often used today in domestic criminal justice and criminological research, preferring instead to engage in studies which are primarily ethnographic or descriptive in design (e.g., Clinard and Abbott, 1973; Terrill, 1984; David and Brierley, 1985; Levinson, 1989; Bayley, 1991; Fairchild 1993; Reichel, 1994). These qualitative studies are enlightening and reveal through their rich detail the importance of respecting the cultural differences which exist between nations. But respecting these differences does not mean that we must discount the possibility of certain commonalities across nations, nor does it force us to conclude that there is no room in our comparative studies for work of a quantitative nature, provided it is pursued with due recognition of the limitations to cross-national data sources.

We would like to make clear that our concern in this paper is to compare nation-states and to assess the performance of their criminal justice systems. While nations certainly differ in their social, economic, and political characteristics, we simply observe that the components of the criminal justice system are central to the constitution of every nation-state. Consequently, a full understanding of nation-states in the world cannot be achieved without some

appreciation for the nature of their criminal justice systems and their operation. We offer our index of national criminal justice system performance as an initial step toward forging such a fuller understanding.

Before we come to the method for constructing our national criminal justice system performance index, we first discuss the origin and meaning of the concept of the criminal justice system. Next, we attend to the relationship between the criminal justice system and nation-states, arguing that both arose at roughly the same historical juncture and that all nation-states maintain the standard components — police, courts, and corrections — that together comprise the criminal justice system. We then draw on the criminal justice performance literature for guidance on the necessary elements of a measure of national criminal justice system performance. Having fully articulated our rationale for creating the performance index and noting its essential characteristics, we turn to a discussion of the data and methods with which the index is constructed and an examination of the national rankings yielded by different forms of the measure. We close by noting some of the limitations with our data, methods, and final index and restate the importance of developing a valid and reliable measure of national criminal justice system performance.

### THE CRIMINAL JUSTICE SYSTEM

The concept of the criminal justice system is of relatively recent vintage. It was forcefully promoted in the 1967 report of the President's Commission on Law Enforcement and the Administration of Justice titled **The Challenge of Crime in a Free Society**, a report which issued directly from the Johnson administration's well-publicized *War Against Crime* and push toward the *Great Society*, as a means for better coordinating efforts to prevent and contain crime. "The concept of a system," writes Moore (1976:5), "carries with it the idea of a unity of purpose, and organized inter-relationships among the component parts." The concept of the criminal justice system, then, envisions police, courts, and corrections working together in a coordinated fashion to control crime in a fair and legal manner (Hancock and Sharp, 1996). According to Inciardi (1984:20), the President's Crime Commission "awakened a consciousness of 'criminal justice' as an integrated procedure, as a 'system' — an orderly flow of managerial decision making that begins with the investigation of a criminal offense and ends with the reintegration of the offender into the free community." In short, the 1967 President's Commission sought to reorientate the way in which officials and the public thought of the administration of justice through the employ of the systems concept.

Strictly speaking, the criminal justice system is not a "system," at least not in the same way that one might consider, say, an automobile engine. With the automobile engine, every part depends on every other part for its smooth functioning, and all parts work together to achieve the clear, singular purpose of powering the automobile. The criminal justice system, however, does not have a clearly defined and incontestable overall goal and, to complicate mat-

ters further, its various parts may actually have conflicting goals. For example, the goal of the corrections department may be to treat its prisoners according to the United Nations Standard Minimum Rules for the Treatment of Prisoners (1957), but the court system may deliver to it too many offenders with long sentences, resulting in the overcrowding of prisons which violates these United Nations standards. Nor do all agree what the actual goal of a prison ought to be (e.g., rehabilitation, penance, or custody). As a further example, a common refrain among police is that the courts are counterproductive to their work because they let too many offenders go free or treat them too leniently. Inciardi (1984:21) has put the matter this way:

The unity of purpose and organized interrelationships among police, the courts, and corrections are beset with inefficiency, fallout, and failure. In most jurisdictions, the courts are a dumping ground for arrested offenders; correctional systems serve as holding pens for convicted offenders; and the free community — under the protection and patrol of law enforcement — is the reentry point for those released from corrections. Rarely does each segment of the criminal justice “system” operate with a full awareness of the long-term cyclical implications of its activities. For this lack of coordination and failure of purpose, the American Bar Association has referred to criminal justice in America as a “nonsystem.”

Therefore, to characterize the United States criminal justice system as a “system” is true only at a high degree of abstraction. Of course, the United States’s criminal justice system represents, arguably, the most difficult case from the point of view of comparative criminal justice because it has an incredibly complex, multi-layered system. The independence of each state means that each has its own criminal justice system so there are at least 51 different criminal justice systems in the United States, although there are actually many more since there are also criminal justice agencies (including police, courts, and jails) that operate entirely, and independently, at the local (town, city, and county) level. Naturally, those countries with more highly centralized systems of government are better situated to operate their criminal justice agencies in an integrated fashion. In the end, however, the notion of the criminal justice system is something of an ideal — a standard of excellence that is quite difficult to achieve in practice.

Of course, the President’s Crime Commission realized that the concept of the criminal justice system was not necessarily in accord with the day-to-day activities of the administration of justice. Nevertheless, the members of the Commission believed that this gap between ideal and practice could be bridged through the creation of a cadre of criminal justice practitioners who understood the concept of a system and their role in it (Moore, 1976). And so it was that criminal justice education got its start. The first school of criminal justice was established at the State University of New York at Albany in 1967, and the curriculum of that school has been used as a blueprint for schools and departments in universities and training organizations in many parts of the world.

The curriculum of these schools is usually divided into several main subject areas: *Administration of (Criminal) Justice*; *The Nature of Crime and/or Criminology*; *Corrections and/or Penology*; *Criminal Law and Procedure*, and *Research Methods and Statistics*. While there are many variations on these themes and there continues to be much controversy as to the proper scope of such curricula, it can be seen that these five parts of the typical criminal justice curriculum generally reflect the late 20th century approach to the understanding of crime and justice. Whereas earlier in this century the approach to criminal justice was more oriented toward an assessment of the legal aspects of crime, with the scientific aspects of criminal justice being mostly confined to the study of the causes of crime, today the actual operations of the criminal justice system are placed under scrutiny, often with a systems perspective as a guiding framework (Moore, 1976; Wright and Fox, 1978; Inciardi, 1984; Pursley, 1994).

We believe that the creation of an index of national criminal justice system performance is yet another useful way to overcome the fragmented operations of the administration of justice that have been so widely disparaged in both the academic literature and popular media alike. If the various parts of criminal justice (i.e., police, courts, and corrections) are to work as a system, then there must be some way to assess their performance as an operational unit. Our measure of national criminal justice system performance is an initial effort to establish exactly this type of benchmark.<sup>1</sup>

#### THE CRIMINAL JUSTICE SYSTEM AND THE NATION-STATE

The concept of the modern nation-state emerged in Europe roughly in the 16th century, and it was this powerful concept that drove these nations (e.g., England, Spain, France, Portugal, Holland) to expand and impose their national identities on other countries. The colonized countries, while often more advanced in other respects (e.g. China, technologically), did not conceive of themselves as “one nation,” and so became vulnerable to attack by a Western power with a unified and highly charged political concept of its own “sovereignty.”

As we have already noted, the dominance of both the concept and legal entity of the nation-state has demanded that the formal structures of the criminal justice system be created. All the countries mentioned above developed the various parts of what we call the criminal justice system today — police, courts, and corrections — at roughly the same time that they emerged as nation-states (Foucault, 1977; Inciardi, 1984). Social historians and critics alike are clear on their identification of this period as contiguous with the rise in complex organizations and bureaucracies (Weber, 1978; Foucault, 1977) with respect to many aspects of social and economic life. Crime and its control were clearly a part of this massive change in the way in which nation-states were organized and structured. Thus, while the actual legal systems may form the basis for the particular modes of decision making in the various

countries (e.g. the civil law tradition in contrast to the common law tradition), all modern nation-states have formal systems of criminal justice that feature police, courts, and corrections, regardless of the ethnic, cultural, or religious background of the country.

All nation-states, as part of the definition of the nation-state, seem to require a formal criminal justice system. This observation is supported by the fact that, at least with the criminal justice descriptions available in such publications as *The International Fact Book of Criminal Justice Systems* (Newman, et al., 1993) and the extensive data and publications issuing from the United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems (1994, 1997), all nation-states, regardless of their political or cultural history, have police forces; all have courts of law; and all have prisons. This is quite remarkable, especially since the emergence of new nation-states during the last decade or more has been largely based on the affirmation of separate cultural and ethnic identities. Despite hostilities toward "cultural imperialism," the formal attributes of criminal justice (police, courts, and corrections) have appeared with every new nation-state. Given this universal structure of the criminal justice system, the challenge we accept is to devise a way to utilize the information that nation-states collect and disseminate about their criminal justice practices so that better planning can be introduced to national criminal justice systems and valid cross-national comparisons can be entertained.

### MEASURING CRIMINAL JUSTICE PERFORMANCE

The idea of measuring the performance of individual criminal justice actors and institutions is not new. Over the past three decades, a modest empirical and theoretical literature has developed on how to measure the performance of criminal justice employees and criminal justice agencies. Although the two subjects are often examined together, we are not concerned in this study with the performance of individual criminal justice employees, but only with criminal justice agencies, institutions, and systems. Scholars have examined the performance of criminal justice agencies in a number of areas, including prisons (Logan, 1993), community corrections (Petersilia, 1993), courts (Cole, 1993), and the police (Alpert and Moore, 1993; Bayley, 1994; Hough, 1987; Ostrom, 1973). In addition, a handful of scholars have addressed the issue of *system-wide* criminal justice performance (DiIulio, 1993b; Greenfeld, 1993).

Performance measurement in criminal justice is just beginning to mature into a thoughtful and intellectually sound enterprise. In 1993, the United States Bureau of Justice Statistics and Princeton University formed a study group on criminal justice performance measurement which resulted in a widely distributed monograph (Bureau of Justice Statistics, 1993). The various essays in this monograph argue convincingly that prior performance measures for criminal justice agencies suffered from a number of shortcomings.

First, prior performance measures tended to focus on *processes over products*, or on *outputs over outcomes*. Police departments were often (and still are in many jurisdictions) judged on response time until research showed that, in the vast majority of calls, response time has little to do with any measurable police outcome — including likelihood of apprehending an offender or citizen satisfaction with the police (Bayley, 1994). Similarly, courts often relied on a number of measures such as the percentage of guilty pleas, the number of dismissals, and the length of time it takes to process cases. Cole (1993:89) describes these process measures as "yardsticks that say little about the quality of justice." In public agencies, outputs — such as the time it takes to process a case or the percentage of cases cleared — are tangible and can be measured easily. On the other hand, outcomes — such as justice, public safety, or consumer satisfaction — are very difficult to define in public agencies where there is no real "bottom line" (such as profit) to define agency success (DiIulio, 1993a; Ostrom, 1973; Wilson, 1993). Because outcomes are so difficult to measure in criminal justice and other public agencies, outputs are frequently substituted as measures of performance. They are usually poor substitutes.

Second, prior performance measures often held agencies responsible for phenomena not entirely under their control. For decades, police have been blamed for high crime rates and praised for low crime rates. Yet research has shown that, within reasonable thresholds, the police have very little effect on overall rates of crime (Bayley, 1994). Similarly, prisons have often been judged on recidivism rates. Yet, as Logan (1993) argues:

We ask an awful lot of our prisons. We ask them to correct the incorrigible, rehabilitate the wretched, deter the determined, restrain the dangerous, and punish the wicked. We ask them to take over where other institutions have failed and to reinforce norms that have been violated and rejected. We ask them to pursue so many different and often incompatible goals that they seem virtually doomed to fail . . . By focusing on external measures, we set prisons up to be judged on matters well beyond their direct sphere of influence.

Scholars now understand that criminal justice performance measures must be restricted to elements that are within the realistic control of an agency or institution.

Lastly, prior performance measures tended to ignore the central notion that performance is a multidimensional concept. We want our police to ensure public safety, yet we want them to be fair and equitable, and we want them to accomplish both of these tasks within reasonable resource constraints. Most thoughtful discussions of criminal justice performance recognize that performance is a multidimensional concept, and there is a fair level of agreement on the nature of the salient dimensions. When we ask an agency to accomplish its core goals — public safety, incapacitation, deterrence — we are asking the agency to be **effective**. When we ask an agency to accomplish those goals without mistreating citizens civil rights (or human rights) or violating the rule

of law, we are asking the agency to be **fair or equitable**.<sup>2</sup> And when we ask an agency to accomplish both of these tasks within reasonable resource constraints, we are asking the agency to be **efficient**. A number of scholars have suggested that effectiveness, equity, and efficiency are the three core dimensions of criminal justice performance (Bayley, 1994; Eck and Rosenbaum, 1994; Greenfeld, 1993). Although we demand that our criminal justice institutions be effective, fair, and efficient, they often fall short on one or more of these dimensions.

The idea that criminal justice performance is a multidimensional concept can be applied as easily to an assessment of aggregate national criminal justice systems as it can to individual criminal justice agencies. Effectiveness, fairness, and efficiency are recurrent themes in criminal justice systems throughout the world. All criminal justice systems strive to control crime effectively, and all do so at some cost of fairness and/or efficiency. Given these concerns, we can say that the most developed criminal justice systems are those that are effective, fair, and efficient.

There is one intellectual bridge that must be crossed in order to apply the criminal justice performance measurement literature to national criminal justice systems. Traditional performance measures are designed for use in criminal justice agencies or institutions and not for entire systems. The performance of a subsystem or a system component is far different than the performance of a whole system. We might judge a carburetor on its efficacy at mixing gasoline and air and feeding the mixture to the engine, yet we judge the engine on far different criteria: how well it runs, the quantity of pollutants it releases into the air, and how fast it makes the car go. The point is that the performance measures we use for system components tend to be more specific, depending on the contribution of the component to overall system performance. The performance measures we use to evaluate an entire system, however, should be (1) more general than those used to evaluate system components and (2) based on the overall goals of the system, not its components. We now apply these abstract concepts to the measurement of national criminal justice systems.

### MEASURING THE PERFORMANCE OF NATIONAL CRIMINAL JUSTICE SYSTEMS

All criminal justice systems must balance the three fundamental principles of effectiveness, fairness, and efficiency. All nations want to be free of crime (effectiveness), but how far are they willing to go to achieve this goal? Are they willing to devote a substantial proportion of their workforce and/or their gross national product to criminal justice? If so, they may achieve a high level of effectiveness but at the cost of efficiency. Are they willing to compromise human rights and disregard the rule of law? Again, these tactics may produce a higher level of effectiveness but at the cost of equity or fairness. In short, all nations can be located somewhere in a three dimensional space defined by the

effectiveness, fairness, and efficiency with which their criminal justice systems operate.

Given this argument, the ideal criminal justice system is one that achieves maximum effectiveness (zero crime) at maximum efficiency (zero cost) with maximum equity (zero human rights violations). Conversely, the least ideal criminal justice system is one that achieves minimal effectiveness (high crime) at minimum efficiency (high cost) with minimum equity (frequent and severe human rights violations). What about in between these extremes? Consider two nations that have equal crime rates and expend the same resources on criminal justice. The first nation tortures and kills its prisoners frequently, whereas the second does not use corporal or capital punishment at all. Under our scheme, the second nation has the more ideal criminal justice system since it achieves the same results as the first with the same resources while maintaining a higher level of fairness or equity.

This idea that all nations must balance these three dimensions is the fundamental principle behind our proposed measure of the performance of national criminal justice systems. To eliminate cultural bias from our measure, however, we treat each of the dimensions equally. For example, consider two nations that have the same crime rate, where one devotes twice the resources to criminal justice compared to the other but is half as fair or equitable. These two nations would have the same level of performance according to the scheme that we will suggest. Both nations presumably made choices about how to deal with their crime problems: one chose to invest more resources, and one chose to play more loosely with human rights standards. From a bias-free perspective, however, the two have achieved equal levels of criminal justice performance.<sup>3</sup>

Although these three aspects of national criminal justice systems are abstract concepts, their actual levels can be estimated through the use of measurable indicators available in secondary data sources. We now introduce the methodology used to develop an index of national criminal justice system performance.

### DATA AND METHODS

We rely on two main data sources to construct the criminal justice performance index. First, the data used to measure equity in 104 nations are drawn from Charles Humana's **World Human Rights Guide** (1992, 3<sup>rd</sup> edition). Second, the data used to measure efficiency (65 nations) and effectiveness (81 nations) are drawn from the Fourth and Fifth waves of the United Nations Survey of Crime Trends and Operations of Criminal Justice Systems. The equity data are current as of 1991, whereas the efficiency and effectiveness data are from 1990.<sup>4</sup> This time period was politically and socially turbulent in several nation-states, with massive changes taking place in the Soviet Union, Yugoslavia, Czechoslovakia, and Germany. Nevertheless, data were available for many of these nations (and their separate republics).

## Equity

Our measure of equity is a composite index which is extracted from a larger index compiled by Humana (1992). Humana assessed the human rights records of 104 countries (with populations over one million) according to 40 different indicators. He assigned scores of 0 to 3 for each of the 40 indicators<sup>5</sup> and then summed these scores to create a human rights index. Thirteen of Humana's indicators are directly relevant to criminal justice:

- Freedom from extrajudicial killings or "disappearances."
- Freedom from torture or coercion by the state.
- Freedom from censorship of mail or telephone tapping.
- Freedom from indefinite detention without charge.
- Legal right from police searches of home without a warrant.
- Legal right from arbitrary seizure of personal property.
- Freedom for or rights to all courts to total independence.
- Legal right to be considered innocent until proved guilty.
- Legal right to free legal aid when necessary and counsel of own choice.
- Legal right from civilian trials in secret.
- Legal right to be brought promptly before a judge or court.
- Freedom from capital punishment by the state.
- Freedom from court sentences of corporal punishment.

These 13 indicators are used here in the same way they were used by Humana. The scores for each indicator were summed to create an additive "equity" index ranging from the lowest possible score of 0 to the highest possible score of 39. Table One lists all 104 countries in the sample together with their equity scores. The items are internally consistent, with an alpha coefficient of approximately .95.

## Effectiveness

As described in our discussion of criminal justice performance measures, the effectiveness of the component institutions of a criminal justice system (i.e., police, courts, and corrections) is often difficult to assess due to the conflicting and unclear goals of each institution. However, the effectiveness of the whole criminal justice system is much easier to conceptualize. Criminal justice systems were created and are maintained for the sole purpose of controlling crime. Although many scholars express doubt about the effect of criminal justice on crime, it is not unreasonable to hold criminal justice systems accountable for their effectiveness in achieving their prime mandate. Thus, the best measure of the effectiveness of criminal justice systems is, quite simply, crime rates.

In using crime rates as a measure of criminal justice effectiveness in cross national research, we are faced with the well-known problem mentioned earlier that different countries define crimes differently and recording practices

**Table One:**  
**Equity Scores For 104 Nations**

Country	Score	Country	Score
1) Netherlands	39	53) Honduras	22
2) New Zealand	39	54) Thailand	22
3) Norway	39	55) Brazil	21
4) Czechoslovakia	38	56) Morocco	21
5) Finland	38	57) Tunisia	21
6) Germany	38	58) Venezuela	21
7) Hungary	38	59) Malaysia	20
8) Irish Republic	38	60) USSR	20
9) Sweden	38	61) Cameroon	19
10) Denmark	37	62) Republic of Korea	19
11) Switzerland	37	63) Mexico	19
12) Belgium	36	64) Oman	19
13) Canada	36	65) Singapore	19
14) Costa Rica	36	66) Zambia	19
15) France	36	67) Bangladesh	18
16) Greece	36	68) Yugoslavia	18
17) Portugal	36	69) Colombia	16
18) Australia	35	70) Mozambique	16
19) Austria	35	71) South Africa	16
20) Benin	35	72) Yemen	16
21) Italy	35	73) India	15
22) United Kingdom	35	74) Rwanda	15
23) Spain	34	75) Saudi Arabia	15
24) USA	34	76) Tanzania	15
25) Uruguay	34	77) Egypt	14
26) Hong Kong	33	78) Indonesia	14
27) Ecuador	32	79) Kuwait	14
28) Poland	32	80) Nigeria	14
29) Botswana	31	81) Togo	14
30) Nepal	31	82) Ghana	13
31) Trinidad	31	83) Pakistan	13
32) Argentina	30	84) Turkey	13
33) Dominican Republic	30	85) Cambodia	12
34) Israel	30	86) Kenya	12
35) Bulgaria	29	87) Peru	11
36) Ivory Coast	29	88) Sri Lanka	10
37) Panama	29	89) Uganda	10
38) Paraguay	29	90) Cuba	8
39) Romania	29	91) El Salvador	8
40) Bolivia	28	92) Malawi	8
41) Chile	28	93) Vietnam	8
42) Japan	28	94) Angola	7
43) Senegal	28	95) Syria	7
44) Jordan	27	96) Zaire	7
45) Algeria	26	97) China	5
46) Zimbabwe	26	98) Iraq	5
47) Papua New Guinea	25	99) Afghanistan	4
48) Sierra Leone	24	100) Libya	4
49) Jamaica	23	101) North Korea	3
50) Nicaragua	23	102) Burma (Myanmar)	2
51) Philippines	23	103) Sudan	2
52) Guatemala	22	104) Iran	0



vary widely (Vetere and Newman, 1977; Skogan, 1984). However, the collection strategy of the United Nations Survey of Crime Trends and Operations of Criminal Justice Systems provides a standardized system for recording crimes by each country. Standard definitions have been developed over the life of the surveys (starting in 1972) so that basic categories have been agreed upon and are used by each participating country to record their respective crime statistics. This approach is modeled after that of the World Health Organization classification of diseases. While this approach does not altogether solve the variations in definitions and recording practices, it does go a long way toward it. Furthermore, countries are given the option of providing explanations for categories of crime that are difficult to fit into the established United Nations definitions. We may note that the United Nations has also adopted this standard approach for other definitions in regard to the criminal justice system, such as the definition of "police."

Furthermore, there is the difficulty of accepting crime rates as a measure of criminal justice system effectiveness in each country. We are aware, of course, that there are many reasons why a country may have a high or low crime rate, but we are also aware that there is absolutely no agreement of what these reasons may be. We prefer, however, to take the publicly acclaimed mission of criminal justice systems in all nation-states to fight crime at face value. Until it is demonstrated that this is not their public mission, we deem it reasonable to hold the criminal justice systems (not individuals and not agencies, but systems) of nation-states to this measure of effectiveness.

We would also add one vitally important point to this discussion. It is a serious error when utilizing official crime statistics at the international level (indeed, possibly of any level) to look on crimes recorded by the police (which is the measure to be used in our index) as measures of "true crime." These data are first and foremost measures of (1) the recording activity of police agencies and (2) the bureaucratic application of these records into categories and statistical compendia, which are finally translated into the responses provided to the United Nations survey. They are therefore official national statements of the level of crime (Newman and Howard, 1998). They may or may not conform to the "true" level of crime (if indeed, such a "true" figure even exists). Since the police are the prime recorders of official crime, it is reasonable to presume, however, that such crime levels are those to which the police are prepared to admit in regard to their operations.<sup>6</sup> In sum, we think there is no compelling reason to conclude that official records of crime either (1) do not reflect the system's effectiveness or (2) are not valid measures of officially recorded crime for use cross-nationally. In fact, we think that because the officially recorded crime statistics in the United Nations surveys are so official, they are most useful (Newman and Howard, 1998). To use other alternate measures of crime, such as victimization survey data, would be less relevant for our purposes because they are not official statements of crime rates by nation-states. It is important to remember that nation-states are our unit of analysis and that data produced by each nation-state are therefore of reasonable face validity.

As an indicator of criminal justice system effectiveness, we have elected to use the total number of homicides recorded by the police in each nation. We have chosen to use homicide for the following reasons. First, the primary mission of criminal justice systems in all nation-states is to protect citizens from criminals by identifying, arresting, processing, and punishing offenders. Protecting property is most certainly a secondary mission to protecting lives and ensuring personal safety. Second, other types of crime which might reasonably be used as indicators of criminal justice system effectiveness, such as theft or robbery, are likely to vary more in definition and recording practice from one nation to another than homicide, despite the best efforts of the United Nations survey methodology, making cross-national comparisons more suspect. On the other hand, even in international research, homicide is widely accepted as the most reliably reported and recorded crime (e.g. Archer and Gartner, 1984; Huang and Wellford, 1989; Bennett and Lynch, 1990; Howard, Freilich, and Newman, 1998).

The United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems collect data on the total number of homicides recorded by the police. The effectiveness measure was formed by dividing the total number of homicides in each country by the size of the population and multiplying by 100,000. This results in a homicide rate per 100,000 citizens for each nation.<sup>7</sup> The homicide rates for 81 nations are listed in Table Two. Prior to entering these data into the final index, it will be necessary to transform the values. Because high crime rates indicate a low level of effectiveness, it is necessary to reverse-code this variable. We do this by subtracting the highest effectiveness score from every value and then taking the absolute value. This technique transforms the highest value in the distribution into the lowest value, and vice versa. Therefore, the nation with the highest homicide rate in the world will have the lowest score on the criminal justice system effectiveness measure, and vice versa.

### Efficiency

Recall that the efficiency of a criminal justice system is the relative amount of resources that a nation devotes to criminal justice tasks. Resources take a number of forms, but the most obvious types of resources are financial and human (Newman and Howard, 1998). Although we have access to limited information on the amount of money that countries spend on criminal justice, there are a number of problems that make it difficult to compare international currencies. Criminal justice, however, is a human resource intensive industry, and it is much easier to compare the number of people that a nation devotes to the operation of its criminal justice system than the amount of money it spends. Therefore, a reasonable measure of efficiency is the proportion of the population that works within the criminal justice system.

As noted earlier, the United Nations survey has developed standard definitions and classifications of criminal justice personnel categories. Our initial

Table Two:

## Homicides Per 100,000 Population For 81 Nations, 1990

Country	Score	Country	Score
1) Vanuatu	0.68	42) Peru	5.98
2) Bahrain	0.99	43) Ukraine	6.18
3) Morocco	1.24	44) Maldives	6.51
4) England and Wales	1.32	45) Lithuania	6.77
5) Madagascar	1.37	46) Ethiopia	6.97
6) Republic of Korea	1.48	47) Moldova	7.03
7) Japan	1.52	48) Armenia	7.16
8) Spain	1.63	49) Italy	7.25
9) Turkey	1.64	50) Portugal	7.35
10) Scotland	1.71	51) Seychelles	7.42
11) Cyprus	1.71	52) Luxembourg	7.61
12) Malaysia	1.76	53) Trinidad and Tobago	7.66
13) Slovakia	1.76	54) Sweden	7.90
14) Singapore	1.77	55) India	8.03
15) Australia	1.93	56) Georgia	8.20
16) China	2.04	57) Finland	8.60
17) Poland	2.05	58) United States	9.38
18) Syria	2.25	59) Sao Tome	9.57
19) Mauritius	2.42	60) Latvia	9.84
20) Qatar	2.47	61) Thailand	9.96
21) Israel	2.53	62) Kazakhstan	10.55
22) Jordan	2.54	63) Romania	10.73
23) Hong Kong	2.55	64) Russia	11.30
24) Nepal	2.56	65) Botswana	11.69
25) Greece	2.59	66) Barbados	11.76
26) Malta	2.83	67) Venezuela	12.80
27) Norway	3.02	68) Rwanda	12.90
28) Chile	3.04	69) Kyrgyzstan	13.72
29) Austria	3.06	70) Sri Lanka	13.85
30) Bermuda	3.30	71) Egypt	13.92
31) Tajikistan	3.34	72) Philippines	14.62
32) Hungary	3.35	73) Netherlands	14.75
33) Bulgaria	4.09	74) Costa Rica	14.93
34) Myanmar	4.29	75) Guyana	16.58
35) Saint Kitts and Nevis	4.55	76) Jamaica	23.93
36) Slovenia	4.70	77) Tonga	25.26
37) Denmark	4.71	78) Lesotho	45.66
38) Germany	4.74	79) Iraq	75.08
39) Yugoslavia (former)	4.98	80) Swaziland	113.86
40) Paraguay	5.29	81) Nigeria	126.16
41) Canada	5.87		

measure included the total number of police personnel, prosecutorial employees, professional judges, and prison employees. However, because nation-states appear to have some difficulty in compiling national statistics on the full spectrum of criminal justice employees, we decided to use a more restrained indicator: the number of police personnel per unit population.<sup>8</sup> While at first glance this might appear to be a poor substitute, the two variables have a very high correlation ( $r = .997, p < .01$ ). In all nations with avail-

Table Three:

## Citizens Per Police Employee For 65 Nations, 1990

Country	Score	Country	Score
1) Ethiopia	63,189.9	34) Singapore	338.73
2) Nigeria	53,300.4	35) Spain	326.52
3) Maldives	3,981.48	36) Germany	320.60
4) Venezuela	3,523.29	37) United States	302.88
5) Madagascar	3,256.86	38) Israel	302.16
6) China	1,381.82	39) Kuwait	297.38
7) Morocco	1,038.45	40) Sri Lanka	295.31
8) Myanmar	813.57	41) England and Wales	294.03
9) India	734.03	42) Italy	287.37
10) Norway	708.57	43) Scotland	286.90
11) Turkey	673.33	44) Slovenia	282.96
12) Sao Tome	657.14	45) Austria	278.59
13) Romania	642.70	46) Guyana	277.16
14) Nepal	609.65	47) Tonga	265.36
15) Philippines	542.47	48) Portugal	261.52
16) Moldova	540.90	49) Trinidad and Tobago	259.94
17) Iraq	533.49	50) Jamaica	259.46
18) Slovakia	497.46	51) Greece	255.42
19) Republic of Korea	492.72	52) Vanuatu	242.00
20) Syria	485.79	53) Malaysia	228.65
21) Japan	479.98	54) Hungary	228.31
22) Finland	417.55	55) Malta	218.32
23) Swaziland	409.39	56) Hong Kong	183.40
24) Luxembourg	399.37	57) Cyprus	173.49
25) Chile	398.44	58) Latvia	165.41
26) Netherlands	393.59	59) Mauritius	157.21
27) Denmark	386.69	60) Seychelles	124.31
28) Switzerland	381.12	61) Bermuda	119.16
29) Sweden	379.41	62) Lithuania	117.79
30) Botswana	369.44	63) Ukraine	109.16
31) Australia	364.22	64) Armenia	103.75
32) Canada	352.99	65) Russian Federation	98.78
33) Poland	341.16		



able data, the majority of criminal justice personnel are employed in the policing sector. The percentage of criminal justice personnel working within the policing sector ranges from 67% to 95%, with a mean of approximately 83% and a standard deviation of about 7.9%. Although not ideal by any means, the number of police personnel appears to be a reasonable proxy for the amount of resources that nations mobilize to deal with the crime problem.<sup>9</sup>

Nations that have a higher proportion of the population working as police officers have a lower level of criminal justice system efficiency. Thus, as with the effectiveness measure, it is necessary to reverse-code this variable so that higher scores reflect higher levels of efficiency. The method for reverse-coding the efficiency variable is more straightforward. Rather than measuring the number of officers per unit population, we computed the average number of citizens per police employee. In the resulting measure, a greater number of citizens per police employee indicates a higher efficiency score. The number of citizens per police employee for 65 nations is listed in Table Three.

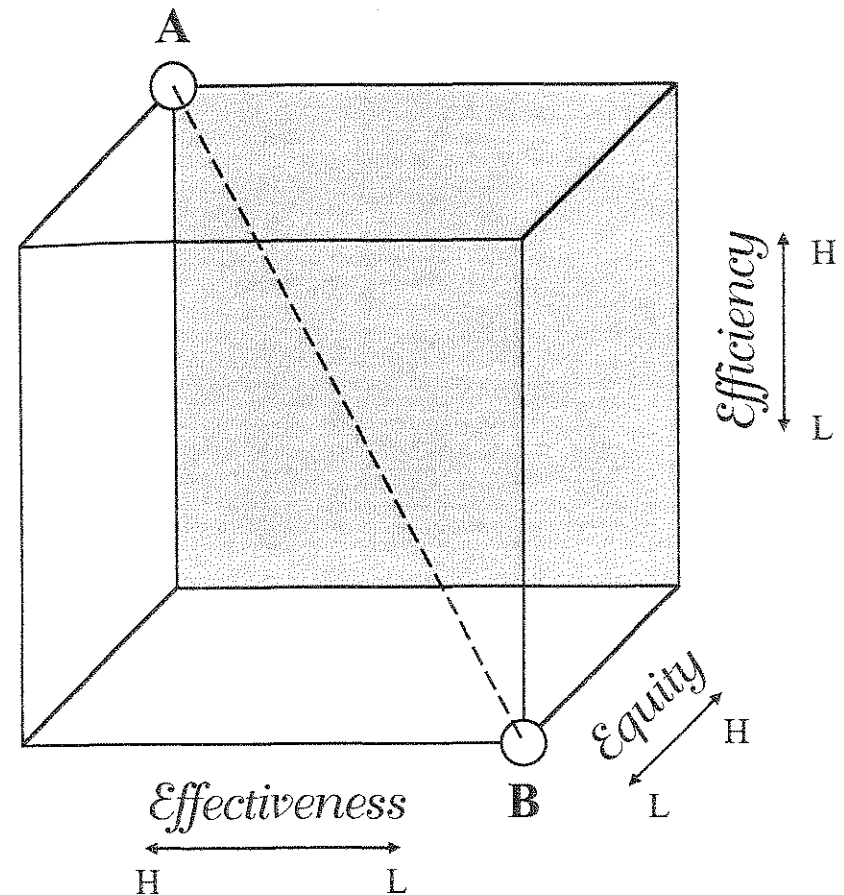
### Combining the Measures Into a Single Performance Index

Figure One graphically illustrates the multidimensional nature of criminal justice system performance. There are three dimensions, so the concept is illustrated in three-dimensional space. Point A on the diagram represents the highest possible criminal justice system performance score while Point B represents the lowest possible score. Although the scores are not calculated using geometric methods, all scores between Points A and B can be thought of as lying some distance (in the given three dimensional space) from these two points. As a score moves away from Point A, the level of criminal justice system performance declines.

We used three methods to combine the measures for each dimension into a single index of criminal justice system performance. In the first, we transformed the scores for each dimension from their original units into standardized (z-score) units. This standardization procedure allows us to add the scores into a single index of criminal justice system performance; high scores on each measure will produce high overall scores, and low scores on each measure will produce low overall scores. The standardized scores for each dimension are presented for 47 nations in Table Four.<sup>10</sup> The three z-scores are then summed to create an overall score and ranked in descending order. These summed z-scores are also listed in Table Four. The nation with the highest overall z-score has the highest level of criminal justice system performance. The ranking based on the overall z-score is found in Table Four (and Table Five) in the column entitled **Z-Score Rank**. One easy way to understand the z-scores presented in Table Four is to simply look at the signs of the coefficients. Positive coefficients indicate scores that are greater than the mean; therefore, nations with high levels of criminal justice performance will generally have positive z-scores. Negative coefficients indicate scores that are below the mean. As Table Four shows, most nations have a mix of positive and negative

Figure 1:

### The Three Dimensions of Criminal Justice Performance



*NOTE: When viewing this picture properly, the shaded square should be located at the rear of the cube.*

z-scores, suggesting that they perform well in some dimensions but not in others.

Using this standardization method, however, allows extreme outliers on any single dimension to affect the final score inordinately. In other words, dimensions with more severe outliers will be weighed more heavily in computing the final score. For example, although Venezuela has below average scores on effectiveness and equity, its extreme efficiency score helps it achieve the highest standardized score on the overall index. Therefore, in addition to

Table Four:

## Standardized Criminal Justice Performance Index Scores for 47 Nations

Country	Equity Score (z)	Effect. Score (z)	Efficiency Score (z)	Sum of Z-Scores	Z-Score Rank
Venezuela	-0.59	-1.44	5.92	3.89	1
Norway	1.21	0.60	0.46	2.28	2
Slovakia <sup>a</sup>	1.11	0.87	0.05	2.03	3
Morocco	-0.51	0.97	1.10	1.48	4
Australia	0.81	0.83	-0.21	1.43	5
England and Wales	0.81	0.96	-0.34	1.42	6
Nepal	0.41	0.70	0.27	1.38	7
Scotland	0.81	0.88	-0.36	1.33	8
Spain	0.71	0.89	-0.28	1.32	9
Greece	0.91	0.69	-0.42	1.19	10
Hungary	1.11	0.53	-0.47	1.17	11
Denmark	1.01	0.25	-0.16	1.10	12
Germany <sup>b</sup>	1.11	0.24	-0.29	1.06	13
Poland	0.51	0.81	-0.25	1.06	14
Japan	0.11	0.91	0.02	1.04	15
Austria	0.81	0.60	-0.37	1.03	16
Hong Kong	0.61	0.70	-0.56	0.75	17
Israel	0.31	0.70	-0.23	0.69	18
Canada	0.91	0.01	-0.33	0.57	19
Chile	0.11	0.60	-0.14	0.52	20
Sweden	1.11	-0.41	-0.18	0.45	21
Finland	1.11	-0.56	-0.10	0.38	22
China	-2.20	0.81	1.77	0.21	23
Portugal	0.91	-0.30	-0.41	0.18	24
Italy	0.81	-0.27	-0.36	0.18	25
South Korea	-0.79	0.92	0.04	0.17	26
Turkey	-1.39	0.89	0.39	-0.11	27
Singapore	-0.79	0.86	-0.26	-0.19	28
Malaysia	-0.69	0.86	-0.47	-0.30	29
United States	0.71	-0.72	-0.33	-0.34	30
Trinidad and Tobago	0.41	-0.36	-0.41	-0.36	31

Country	Equity Score (z)	Effect. Score (z)	Efficiency Score (z)	Sum of Z-Scores	Z-Score Rank
Romania	0.21	-1.00	0.33	-0.46	32
Moldova	-0.69	-0.23	0.13	-0.78	33
Netherlands	1.21	-1.84	-0.15	-0.79	34
Slovenia <sup>c</sup>	-0.89	0.25	-0.37	-0.99	35
Botswana	0.41	-1.21	-0.20	-1.01	36
India	-1.19	-0.44	0.51	-1.13	37
Syria	-2.00	0.76	0.03	-1.21	38
Ukraine <sup>d</sup>	-0.69	-0.06	-0.70	-1.45	39
Myanmar	-2.50	0.34	0.66	-1.50	40
Lithuania <sup>d</sup>	-0.69	-0.17	-0.69	-1.56	41
Armenia <sup>d</sup>	-0.69	-0.26	-0.71	-1.67	42
Phillippines	-0.39	-1.81	0.14	-2.07	43
Latvia <sup>d</sup>	-0.69	-0.82	-0.59	-2.11	44
Russian Federation <sup>d</sup>	-0.69	-1.12	-0.72	-2.54	45
Sri Lanka	-1.70	-1.65	-0.34	-3.69	46
Jamaica	-0.39	-3.76	-0.41	-4.56	47

## Notes

- a) In 1990, the Communist regime in Czechoslovakia fell, and free multiparty elections were held. In 1993, Czechoslovakia's two states split into separate Republics: the Czech Republic, and the Republic of Slovakia. The equity scores for Slovakia were estimated after the fall of the Communist regime, but before the nation of Czechoslovakia split into two Republics.
- b) East Germany and the Federal Republic of Germany unified as one nation in 1990.
- c) Throughout the early 1990s, Yugoslavia was embattled by civil war. In 1991, Slovenia became the first Republic to break away and establish independence. The equity score for Slovenia was based on data from Yugoslavia in the period immediately before Slovenia established its independence.
- d) The Union of Soviet Socialist Republics (U.S.S.R.) disbanded into a number of independent Republics in 1991. We used the U.S.S.R. equity score for each of these nations, since separate scores are not available for each.

Table Five:

## Alternative Criminal Justice Performance Index Scores for 47 Nations

Country	Z-Score Rank	Constrained Rank	Ordinal Rank	Sum of 3 Ranks	Overall Rank
Norway	2	1	1	4	1
Slovakia	3	2	2	7	2
England and Wales	6	4	6	16	3
Australia	5	5	7	17	4
Scotland	8	6	9	23	5
Nepal	7	12	5	24	6
Morocco	4	18	3	25	7
Spain	9	8	8	25	7
Venezuela	1	3	28	32	8
Denmark	12	11	10	33	9
Japan	15	16	4	35	10
Germany	13	10	15	38	11
Greece	10	9	20	39	12
Hungary	11	7	22	40	13
Poland	14	14	14	42	14
Austria	16	13	24	53	15
Canada	18	17	18	53	15
Sweden	21	19	16	56	16
Finland	22	21	13	56	16
Chile	20	22	19	61	17
Hong Kong	17	15	30	62	18
Israel	18	20	18	62	18
South Korea	26	26	11	63	19
Turkey	27	32	12	71	20
China	23	33	17	73	21
Portugal	24	23	33	80	22
Italy	25	24	31	80	22
Singapore	28	28	27	83	23
Netherlands	34	30	32	84	24
Romania	32	31	26	89	25
United States	30	25	35	90	26
Malaysia	29	29	37	95	27

Country	Z-Score Rank	Constrained Rank	Ordinal Rank	Sum of 3 Ranks	Overall Rank
Trinidad and Tobago	31	27	39	97	28
Moldova	33	35	21	101	29
Syria	38	41	25	104	30
Botswana	36	34	40	107	31
India	37	39	34	110	32
Slovenia	35	36	38	112	33
Myanmar	40	44	29	113	34
Ukraine	39	37	42	118	35
Lithuania	41	38	41	120	36
Phillipines	43	43	36	122	37
Armenia	42	40	44	126	38
Latvia	44	42	45	131	39
Jamaica	47	47	43	137	40
Russian Federation	45	45	47	137	40
Sri Lanka	46	46	46	138	41

presenting the original z-score rank, Table Five presents some alternative methods for ranking criminal justice system performance. One alternative method is designed to offset the drastic effects of outlier scores. We begin by transforming the standardized scores for each dimension to eliminate negative values. To do so, we simply add the lowest score on each dimension to all other scores within the same dimension. Using this method, each dimension now has a lower bound of 0. Next, we constrain the range of each dimension so that they all have the same upper bound.<sup>11</sup> We then sum these transformed scores across the three dimensions and rank them. These alternative ranks are found in Table Five under the column entitled **Constrained Rank**. Using this method, we have limited the potential for outliers to contribute too heavily to the overall score.

Finally, as another attempt to limit the influence of outliers, we transformed the standardized interval-level scores within each dimension to ordinal ranks and then summed the ranks. For example, Norway ranked first in two dimensions and second in the other. The overall ordinal score for Norway is thus  $(1 + 1 + 2 = 4)$ , which is the lowest score for all 47 nations. Therefore, Norway ranks first when we use this ordinal ranking strategy. By treating the rankings as truly ordinal, we ignore quantitative information about the precise interval between nations on each dimension. These alternative ranks are found in Table Five under the column entitled **Ordinal Rank**.

We acknowledge that presenting three different methods (z-score ranks, constrained ranks, and ordinal ranks) for combining the dimensions can be confusing, but we think it is important to demonstrate how simple methodo-

like this. One thing that becomes clear upon examining Table Five is that the different methods produce vastly different results for some nations, especially those unduly influenced by outlier values. On the other hand, nations such as Norway have particularly stable rankings across different methodologies. Readers are cautioned to look at all three scores since each is based on different assumptions.

We use one final method to consolidate the three different ranking systems presented in Table Five. For each nation, we simply take the sum of the three ranks and produce an overall rank based on this sum. The overall rank is listed in the final column of Table Five. Because it was generated using multiple methods, we believe this overall rank is the most defensible.

### DISCUSSION AND CONCLUSIONS

In this paper, we proposed a bias-free theoretical scheme for measuring the performance of national criminal justice systems according to three dimensions: equity, efficiency, and effectiveness. Using existing data sources, we then constructed measures of these three dimensions. These measures were then combined into a single Criminal Justice Performance Index and rank ordered. The rankings are somewhat fragile, assuming vastly different values depending on the methodology used to generate them (e.g., z-scores, constrained scores, and ordinal scores). Most of the instability in the ranks is due to the presence of outlier values.

The question about which rank to use is not only a methodological issue; it is also a theoretical one. The ranks produced by using z-scores are unduly influenced by outlier values on one or more of the three dimensions. For instance, Venezuela scores below the mean on equity and effectiveness, but due to its low police employment levels, it has the highest efficiency score (nearly six standard deviations above the mean). This one outlier value is large enough to offset the effects of the low equity and efficiency scores, resulting in a first-place ranking. Using either of the two alternative ranking methods lowers Venezuela's overall rank. The theoretical question that must be addressed in selecting one of these options is whether extremely high performance on one dimension should be able to compensate for weaker performance on other dimensions. The overall rank listed in Table Five is probably the most defensible since it relies on all of these alternative ranking methods.

Of course, some of the instability in the rankings could probably be reduced with better data. The equity index is just one attempt to measure the fairness of criminal justice systems. Although it has a high alpha reliability coefficient, there is little evidence to support its validity. The efficiency score (measured using police employment rates) is a proxy that was constructed largely due to concerns about missing data. Counting police officers is notoriously difficult, even within a single nation (Maguire, et al., 1998). Some of the extremely high citizen-per-police-employee ratios are probably due to underestimates of the number of police employees within these nations. Final-

ly, the effectiveness score (measured using homicide rates) is another proxy that was selected based on concerns about variations in crime definitions cross-nationally and the lack of evidence to support the reliability of crime measures other than homicide. It is neither a complete nor accurate measure of total crime. Many of the operational decisions made during this project were based on concerns about data availability, validity, and reliability. Although we have done our best to deal with these issues, we believe that better data would permit a more refined approach to measuring the performance of national criminal justice systems.

In addition to encouraging the ongoing quest for better data, we also hope that this study will prompt scholars to begin a (heated) debate about which factors constitute a "good" criminal justice system at the national level. Normative theories about how to improve specific criminal justice policies or agencies are common, but normative theories about how nations should construct criminal justice systems are rare. We do not claim to have developed an adequate measure of criminal justice system performance at the national level, but we have presented an admittedly controversial viewpoint that might stimulate an international debate on the issue.

All nations make choices about how to deal with crime. We believe that nations, like other units of government, should be held accountable for these choices. A valid and reliable measure of criminal justice system performance at the national level would be a useful tool for achieving accountability. We have laid the foundation for such an endeavor. The challenge now is to develop new theories and better data sources to build upon this foundation.

### NOTES

1. Some might criticize the development of a national criminal justice system performance indicator that assumes the "contemporary criminal justice paradigm" (i.e., beginning with police contact, moving through the judicial apparatus, and coming finally to the arena of corrections and punishment) described by Walker (1992) as biased in favor of the common law legal system and thus party to the type of "cultural imperialism" rightly derided by Beirne (1983). Our response to this potential criticism is twofold. First, we believe that the distinctions between the so-called legal families of the world might be more apparent than real (Mukherjee and Reichel, 1998). Second, we maintain that even if distinctions between legal families are valid, the criminal justice system is not an outgrowth of common law or any other identifiable legal system; rather, we argue that criminal justice systems derive from the concept and operational necessities of the modern nation-state. In other words, we think that it is important to disentangle the idea of legal systems from the notion of a criminal justice system. While the law and criminal justice are related to one another, the nature of this relationship is most assuredly not causal, with the dictates of a particular legal tradition calling forth the components of the entity that we now call the criminal justice system. Instead, the relationship between law and criminal justice can be thought of as spurious; both are direct byproducts of the modern nation-state. More specifically, the nation-state gives force and legitimacy to the legal system and also provides the essential operational foundations for the criminal justice system. To put all of this another way, the modern nation-state, which places a great emphasis on the value of the rule of law, requires some formal method for making this abstract legal principle

viable. Thus, it is the demands of the modern nation-state that produce the basic structures of the criminal justice system and not the legal system.

2. These first two dimensions are similar to Packer's (1968) famous distinction between the "due process" (fairness and equity) and "crime control" (effectiveness) models.

3. Implicit in this strategy is the notion that all three dimensions are equally important. There is probably no nation-state in the world that would agree with this assumption. Indeed, most nations would place greater emphasis on one or more of the dimensions. For example, many Western nations might find equity to be much more important than efficiency. However, the question about whether human rights are an essential element of justice is still hotly debated (Howard, 1993; Vinay, 1993). From a bias-free perspective, however, there is no justification for placing greater weight on any one dimension.

4. Each wave of the United Nations survey overlaps with one year from the previous wave. The Fourth Survey covered the years 1986-1990, and the Fifth Survey covered 1990-1994. We chose to use data from 1990 since the overlap minimizes the amount of missing data (because a number of agencies only responded to one of the two waves). When data were available in both waves, we used the Fifth Survey responses.

5. According to Humana's (1992:5) coding scheme, a score of 0 indicates "a constant pattern of violations"; a score of 1 indicates "frequent violations"; a score of 2 indicates "occasional breaches of respect"; and a score of 3 indicates "unqualified respect" in each particular area.

6. If there is distortion or bias in the recording of crime by police, it is difficult to know what direction that bias will take. If police see crime rates as reflecting their "success" at fighting crime, then they may have a motive to under-report. However, they also have a good motivation to report higher crime rates because their budget may often depend on the amount of crime with which they are faced.

7. It might be argued that the best measure of criminal justice system effectiveness, assuming that its mission is to fight crime, would be the number of crimes "cleared" by arrest. Unfortunately, this statistic is probably one of the most misleading in cross-national research because of the way in which cases are "cleared" in police agencies differs enormously. In many countries there is little difference between "arrest" and the "recording" of a crime. In others, clearance of a crime may be bureaucratic — a person may be released after a "warning" by police. Whether such a warning constitutes a clearance of the crime by arrest amounts to a big problem. In civil law countries, the concept of "arrest" is quite different than that in common law countries, and it may even vary within common law countries. Thus, this measure is too "legal system" bound and thus subject to the variations in legal systems. In contrast, crime rates are the product of the nation-state and are directly addressed at this macro level by the nation's criminal justice system.

8. Only 38 nations provided data on the total number of criminal justice system employees, whereas 69 nations provided data on the number of police personnel. Rwanda, Ethiopia, Costa Rica, and Maldives all reported a number of police personnel in 1990 that was either grossly inconsistent with earlier estimates, or was not concordant with other criminal justice employment estimates. For example, Maldives reported having 54 police personnel and 250 judges. For this reason, these four nations were not assigned efficiency scores and were therefore dropped from remaining analyses.

9. Definitional problems about what constitutes a police officer make it difficult to collect valid police employment data from different countries. Recent research identified a number of problems with official estimates of the number of police officers in the United States alone (Maguire, et al., 1998). These problems are at least as severe when collecting international data since the definition of a police officer is not consistent from one nation to the next (Bayley, 1985, 1992). For example, in some nations it is difficult to separate military personnel from police personnel.

10. These 47 nations are the only ones that had sufficient data to compute scores on all three dimensions.

11. Recall that these dimensions have already been standardized, thus they all have the same variance. They do not have the same range however, since some have more extreme values than others. The dimension with the smallest range of values is equity, which has a top score of approximately 3.7. For the other two dimensions, assume the highest scores are denoted by the value  $h$ .

We first solved for the equation  $h / 3.7 = x$ , and then divided every value in the dimension by  $x$ . This sets the top scores for each dimension at 3.7, but still maintains the correct ordering for all lesser scores. The resulting measure reduces the influence of outlier values, preserves the correct ordering of the scores, and ensures that each dimension contributes equally to the overall index.

## REFERENCES

- Alpert, Geoffrey, and Mark H. Moore. 1993. "Measuring Police Performance in the New Paradigm of Policing." Pp. 109-142 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Archer, Dane, and Rosemary Gartner. 1984. *Violence and Crime in Cross-National Perspective*. New Haven, CT: Yale University Press.
- Bayley, David H. 1985. *Patterns of Policing: A Comparative International Analysis*. New Brunswick, NJ: Rutgers University Press.
- \_\_\_\_\_. 1991. *Forces of Order: Policing Modern Japan*. Berkeley: University of California Press.
- \_\_\_\_\_. 1992. "Comparative Organization of The Police in English-Speaking Countries." In *Modern Policing*, edited by Michael Tonry and Norval Morris. Chicago: University of Chicago Press.
- \_\_\_\_\_. 1994. *Police For the Future*. New York: Oxford University Press.
- Beime, Piers. 1983. "Generalization and its Discontents: The Comparative Study of Crime." Pp. 19-38 in *Comparative Criminology*, edited by I.L. Barak-Glantz and E.H. Johnson. Beverly Hills, CA: Sage.
- Bennett, Richard, and James Lynch. 1990. "Does a Difference Make a Difference?" *Criminology*, 28: 153-181.
- Black, Henry Campbell. 1990. *Black's Law Dictionary, 6th Edition*. St. Paul, MN: West Publishing Company.
- Bureau of Justice Statistics. 1993. *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Government Printing Office.
- Clinard, Marshall B., and Daniel J. Abbott. 1973. *Crime in Developing Countries: A Comparative Perspective*. New York: John Wiley and Sons.
- Cole, George F. 1970. "The Decision to Prosecute." *Law and Society Review*, 4(3): 313-343.
- \_\_\_\_\_. 1993. "Performance Measures for the Trial Courts, Prosecution, and Public Defense." Pp. 87-108 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Cole, George F., Stanislaw J. Frankowski, and Marc G. Gertz (Editors). 1987. *Major Criminal Justice Systems*, 2nd Edition. Beverly Hills, CA: Sage.
- Das, Dilip. 1993. *Policing in Six Countries Around the World*. Chicago: Office of International Criminal Justice, University of Illinois at Chicago.

- David, Rene, and John E.C. Brierty. 1968. *Major Legal Systems of the World Today*. London: Free Press.
- \_\_\_\_\_. 1985. *Major Legal Systems of the World Today: An Introduction to the Comparative Study of Law*, 3rd ed., London, England: Stevens and Sons.
- DiIulio, John J. Jr. 1993a. "Measuring Performance When There is no Bottom Line." Pp. 143-156 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- \_\_\_\_\_. 1993b. "Rethinking the Criminal Justice System: Toward a New Paradigm." Pp. 1-18 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Dordick, Herbert S., and Georgette Wang. 1993. *The Information Society: A Retrospective View*. Newbury Park, CA: Sage.
- Duffee, David. 1990. *Explaining Criminal Justice: Community Theory and Criminal Justice Reform*. Prospect Heights, IL: Waveland.
- Duffee, David, Frederick Hussey, and John Kramer. 1978. *Criminal Justice: Organization, Structure, and Analysis*. NJ: Prentice-Hall.
- Eck, John E., and Dennis P. Rosenbaum. 1994. "The New Police Order: Effectiveness, Equity, and Efficiency in Community Policing." Pp. 3-26 in *The Challenge of Community Policing*, edited by D.P. Rosenbaum. Thousand Oaks, CA: Sage.
- Fairchild, Erika S. 1993. *Comparative Criminal Justice Systems*, Belmont, CA: Wadsworth.
- Feeley, Malcolm. 1991. *Court Reform on Trial: Why Simple Solutions Fail*. New York: Basic Books.
- \_\_\_\_\_. 1973. "Two Models of the Criminal Justice System." *Law and Society Review*, 7(3): 407-425.
- Foucault, Michel. 1977. *Discipline and Punish*. New York: Pantheon.
- Greenfeld, Lawrence A. 1993. "Foreword." Pp. v-x in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Groves, W. Byron, and Graeme Newman. 1989. "Against General Theory in Comparative Research." *International Journal of Comparative and Applied Criminal Justice*, 13(1): 23-29.
- Hancock, Barry W., and Paul M. Sharp. 1996. *Criminal Justice in America: Theory, Practice, and Policy*. Upper Saddle River, NJ: Prentice Hall.
- Hoebel, E. Adamson. 1954. *The Law of Primitive Man*. Cambridge: Harvard University Press.
- Hough, Mike. 1987. "Thinking About Effectiveness." *British Journal of Criminology*, 27(1): 70-79.
- Howard, Gregory J., Joshua Freilich, and Graeme Newman. 1998. "The Reliability of the United Nations Survey on Crime Trends and Criminal Justice Systems: The Case of Homicide." Forthcoming in *Global Report on Crime and Justice*, edited by Graeme Newman. New York: Oxford University Press.

- Howard, Rhoda E. 1993. "Human Rights and the Necessity for Cultural Change." Pp. 322-325 in *Taking Sides: Clashing Views on Controversial Issues in Crime and Criminology*, 3rd edition, edited by Richard C. Monk. Guilford, CT: Dushkin Publishing.
- Humana, Charles. 1992. *World Human Rights Guide*, 3rd ed. New York, Oxford University Press.
- Huang, W.S. Wilson, and Charles F. Wellford. 1989. "Assessing indicators of crime among international crime data series." *Criminal Justice Policy Review*, 3(1): 28-48.
- Inciardi, James A. 1984. *Criminal Justice*. Orlando, FL: Academic Press.
- Freedom House. 1997. *Freedom in the World: The Annual Survey of Political Rights and Civil Liberties 1996-1997*, edited by R. Kaplan. New York: Freedom House.
- Levinson, David. 1989. *Family Violence in Cross Cultural Perspective*. Newbury Park, CA: Sage.
- Logan, Charles H. 1993. "Criminal Justice Performance Measures for Prisons." Pp. 19-60 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Maguire, Edward R., Jeffrey B. Snipes, Craig D. Uchida, and Margaret Townsend. 1998. "Counting Cops: Estimating the Number of Police Officers and Police Agencies in the United States." Forthcoming in *Policing: An International Journal of Police Strategies and Management*.
- Mayhew, P., and Jan. J.M. van Dijk. 1997. *Criminal Victimisation in Eleven Industrialised Countries; key findings from the 1996 International Crime Victims Survey*, The Hague: WODC, Ministry of Justice.
- Malinowski, Bronislaw. 1926. *Crime and Custom in Savage Society*. New York: Harcourt, Brace and Company, Inc.
- Moore, Richter H. Jr. 1976. "The Criminal Justice Non-System." Pp. 5-13 in *Readings in Criminal Justice*, edited by Richter H. Moore, Jr., Thomas C. Marks, Jr., and Robert V. Barrow. Indianapolis, IN: Bobbs-Merrill.
- Mukherjee, S.K., and Philip Reichel. 1998. "Bringing to Justice." Forthcoming in *Global Report on Crime and Justice*, edited by Graeme Newman. New York: Oxford University Press.
- Newman, Graeme, Debra Cohen, and Adam C. Bouloukos, Eds. 1996. *International Fact Book of Criminal Justice Systems*. Published electronically by the U.S. Bureau of Justice Statistics: <http://www.ojp.usdoj.gov/bjs/abstract/wfcj.htm>.
- Newman, Graeme, and Gregory J. Howard. 1998. "Data Sources and Their Use." Forthcoming in *Global Report on Crime and Justice*, edited by Graeme Newman. New York: Oxford University Press.
- \_\_\_\_\_. 1998. "Criminal Justice Resources." Forthcoming in *Global Report on Crime and Justice*, edited by Graeme Newman. New York: Oxford University Press.



- Transparency International. 1997. "Transparency International Publishes 1997 Corruption Perception Index: An Index of Perceptions of Corruption Around the World." Press Release: Berlin, Germany.
- Ostrom, Elinor. 1973. "On the Meaning and Measurement of Output and Efficiency in the Provision of Urban Police Services." *Journal of Criminal Justice*, 1: 93-112.
- Packer, Herbert L. 1968. *The Limits of the Criminal Sanction*. Stanford, CA: Stanford University Press.
- Parks, Roger B. 1984. "Linking Objective and Subjective Measures of Performance." *Public Administration Review*, March/April: 118-127.
- Petersilia, Joan. 1993. "Measuring the Performance of Community Corrections." Pp. 61-86 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- President's Commission on Law Enforcement and the Administration of Justice. 1967. *The Challenge of Crime in a Free Society*. Washington, DC: U.S. Government Printing Office.
- Pursley, Robert D. 1994. *Introduction to Criminal Justice*, 3<sup>rd</sup> edition. New York: Macmillan.
- Radzinowicz, Sir Leon. 1977. *The Growth of Crime: The International Experience*. New York: Basic Books.
- Reichel, Philip L. 1994. *Comparative Criminal Justice Systems: A Topical Approach*. Englewood Cliffs, NJ: Prentice Hall.
- Schwartz, R., and J.C. Miller. 1965. "Legal Evolution and Societal Complexity." *American Journal of Sociology*, 70: 165-166.
- Shane, P.G. 1980. *Police and People: A Comparison of Five Countries*. St. Louis, MO: The C.V. Mosby Co.
- Siemaszko, Andrzej. 1993. "Central and Eastern European Victimization Rates: To Compare or Not to Compare?" Pp. 87-92 in *Understanding Crime: Experiences of Crime and Crime Control*, edited by A.A. del Frate, U. Zvekic, and J.J.M. van Dijk. Rome: United Nations Interregional Crime and Justice Research Institute.
- Skogan, Wesley G. 1984. "Reporting Crime to the Police: The Status of World Research." *Journal of Research in Crime and Delinquency*, 21(2): 113-137.
- Terrill, Richard J. 1984. *World Criminal Justice Systems*. Cincinnati: Anderson Publishing Company.
- Teske, R., and H. Arnold. 1982. "Comparison of the Criminal Statistics of the United States and Germany." *Journal of Criminal Justice*, 10: 359-374.
- United Nations. 1994. *Fourth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems: 1986-1990*. United Nations Office at Vienna, Crime Prevention and Criminal Justice Branch.
- \_\_\_\_\_. 1997. *Fifth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems: 1990-1992*. United Nations Office at Vienna, Crime Prevention and Criminal Justice Branch.

- United Nations Development Programme (UNDP). 1991. *Human Development Report*. New York: Oxford University Press.
- \_\_\_\_\_. 1996. *Human Development Report*. New York: Oxford University Press.
- United Nations Standard Minimum Rules for the Treatment of Prisoners. 1957. Approved by the Economic and Social Council, 31 July 1957, (resolution 663 C I (XXIV)), on the recommendation of the First Congress. A/CONF.6/C.1/L.1.
- Vetere, Eduardo, and Graeme Newman. 1977. "International Crime Statistics: An Overview from a Comparative Perspective." *Abstracts on Criminology and Penology*, 17: 251-267.
- Vinay, Lal. 1993. "The Imperialism of Human Rights." Pp. 326-330 in *Taking Sides: Clashing Views on Controversial Issues in Crime and Criminology*, 3<sup>rd</sup> edition, edited by Richard C. Monk. Guilford, CT: Dushkin Publishing.
- von Glahn, Gerhard. 1986. *Law Among Nations*. New York: Macmillan Publishing Company.
- Walker, Samuel. 1992. "Origins of the Contemporary Criminal Justice Paradigm: The American Bar Foundation Survey, 1953-1969." *Justice Quarterly*, 9(1): 47-76.
- Weber, Max. 1978. *Economy and Society*, Volumes 1 and 2, edited by G. Roth and C. Wittich. Los Angeles: University of California Press.
- Wilson, James Q. 1993. "The Problem of Defining Agency Success." Pp. 157-165 in *Performance Measures for the Criminal Justice System: Discussion Papers from the BJS-Princeton Project*. Washington, DC: Bureau of Justice Statistics.
- Wright, Burton, and Vernon Fox. 1978. *Criminal Justice and the Social Sciences*. Philadelphia: W.B. Saunders Company.