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ORGANIZATIONAL PERFORMANCE, TURNOVER, AND HUMAN RESOURCE MANAGEMENT: FOCUSING ON MUNICIPAL POLICE SERVICES

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ORGANIZATIONAL PERFORMANCE, TURNOVER, AND HUMAN RESOURCE MANAGEMENT: FOCUSING ON MUNICIPAL POLICE SERVICES

ABSTRACT OF DISSERTATION

A dissertation submitted in partial fulfillment of the Requirements for the degree of Doctor of Philosophy in the Martin School of Public Policy and Administration At the University of Kentucky

By

Yongbeom Hur
Lexington, KY

Director: Dr. Edward Jennings, Jr., Professor of Public Administration
Lexington, KY
2007

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Regardless of whether organizations are in the private sector or in the public sector, there is a general agreement that human resources are critical to keeping organizations effective as well as maintaining a high level of organizational performance. While more serious effort has been made to empirically examine how human resources influence organizational performance (e.g., studies about turnover consequences, studies about the relationship between human resource management practices and organizational performance) in the private sector, it is rare to find similar empirical studies in the public sector partly because it is hard to define public organizational performance. In my dissertation, I basically investigate how human resources are critical to organizational performance in the public sector with a question, “Do human resources really matter in the public sector, too?” Focusing on the crime control performance of municipal police departments, I examine the relationships among turnover, police performance, and human resource management (HRM) characteristics by surveying police departments of the U.S. cities whose population range is between 100,000 to 500,000 (Out of 205 surveyed cities, 65 cities participated). Firstly, I explore how human resource management practices (individually and systematically) influence crime control performance of the police. Based on universalistic HRM perspective (i.e., best HRM practices) and control theory perspective, I hypothesize that commitment HRM system (and individual practices) will have positive effect on crime control performance of the police. Secondly, I investigate more specific questions such as if turnover has significant effect on crime control performance and if HRM system has moderating effect on turnover consequence. Results about turnover effect confirm human capital theory that predicts the negative effect of turnover when employees with specific knowledge quit. However, no significant relationships are found between commitment HRM system (and individual practices) and organizational performance. The results might help municipal police departments deal with sworn officers’ turnover as well as set up proper HRM practices.
KEY WORDS: turnover, human resource management (HRM), crime control performance, best HRM practices, human capital theory
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DEDICATION

To my wife, Soonja, and my sons, Bo and Paul
ACKNOWLEDGMENTS

Many people helped me and supported me throughout the years that I worked on this study. Above all, Dr. Edward Jennings, my advisor, mentored me from A to Z. Without his guide and encouragement, I could not have moved even a step and finishing dissertation might have been just a dream. I really appreciate his help. I also wish to thank the complete dissertation committee, Dr. Merl Hackbart, Dr. Richard Fording, and Dr. Seok-Woo Kwon for providing inspiration and helpful comments. In addition to these committee members, I would like to express sincere gratitude to all participants in the survey and the Federal Bureau of Investigation. Although they are always busy preventing and controlling crimes, they were willing to share information with me. Therefore, I could finish my dissertation with meaningful results.

My deepest appreciation goes to my family. My wife, Soonja, have endured hard time only through trusting my promise – everything will be fine. My sons, Bo and Paul, have been a source of my pleasure and they are really grown up as young men I am proud of. Finally, I would like to thank my heavenly father who arranges perfect conditions and all these wonderful people for me and gives me a firm belief that I can make it as long as He is with me.
TABLE OF CONTENTS

Acknowledgments ................................................................................................................................... iii
List of Tables ........................................................................................................................................ vii
List of Figures ......................................................................................................................................... viii
Introduction ........................................................................................................................................... 1

I. Organizational Performance and Measurement
   1.1 Organization ................................................................................................................................. 4
   1.2 Organizational goals ..................................................................................................................... 7
   1.3 Organizational performance .......................................................................................................... 8
   1.4 Performance measurement .......................................................................................................... 9

II. Police Organization and Performance
   2.1 Police evolution and environmental change .............................................................................. 12
   2.2 Police organizational goals and mission statements .................................................................. 13
   2.3 Performance measurement and performance indicators ............................................................ 14
   2.4 Crime rates and clearance rates .................................................................................................. 19

III. Human Resources and Effectiveness in the Public Sector
   3.1 Governance ..................................................................................................................................... 21
   3.2 The Government Performance Project (GPP) ............................................................................ 23
   3.3 Bureaucratic effectiveness theories ............................................................................................ 29
   3.4 Government agency effectiveness model .................................................................................... 33
   3.5 Summary ....................................................................................................................................... 37

IV. Human Resource Management (HRM) and Organizational Strategy
   4.1 Determinants of human resource management practices ......................................................... 41
   4.2 Contextual factors of human resource management practices .................................................. 44
   4.3 Organizational characteristics and human resource management practices ............................ 46
<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Reduced Form of Governance and Examples of Its Variables</td>
<td>22</td>
</tr>
<tr>
<td>3-2</td>
<td>Schools of Thought Regarding the Effectiveness of bureaucracies</td>
<td>30</td>
</tr>
<tr>
<td>4-1</td>
<td>Organizational Characteristics and HRM Practices</td>
<td>48</td>
</tr>
<tr>
<td>4-2</td>
<td>Employees role behaviors for competitive strategies</td>
<td>52</td>
</tr>
<tr>
<td>5-1</td>
<td>Summaries of HRM Best Practices</td>
<td>60</td>
</tr>
<tr>
<td>5-2</td>
<td>Comparison between Control and Commitment HRM Practices</td>
<td>74</td>
</tr>
<tr>
<td>6-1</td>
<td>Different Turnover Measures</td>
<td>82</td>
</tr>
<tr>
<td>6-2</td>
<td>Turnover Effects on Individual, Organization, and Society</td>
<td>89</td>
</tr>
<tr>
<td>7-1</td>
<td>Two Systems of Workplace Industrial Relations</td>
<td>112</td>
</tr>
<tr>
<td>7-2</td>
<td>Empirical Research on the Turnover-Performance Relationship</td>
<td>115</td>
</tr>
<tr>
<td>8-1</td>
<td>Regression Results of Various Studies of Crime-Police Relationship</td>
<td>133</td>
</tr>
<tr>
<td>8-2</td>
<td>The Effect of Crime Clearance Rate (or Arrest Rate) on Crime</td>
<td>136</td>
</tr>
<tr>
<td>8-3</td>
<td>Recommended Police Department SEA Indicators</td>
<td>141</td>
</tr>
<tr>
<td>8-4</td>
<td>Effect Size Estimates of Macro-Level Predictors of Crime</td>
<td>146</td>
</tr>
<tr>
<td>9-1</td>
<td>Survey Participants List</td>
<td>155</td>
</tr>
<tr>
<td>9-2</td>
<td>Descriptive Statistics and Analysis of Variance (ANOVA) Results</td>
<td>156</td>
</tr>
<tr>
<td>9-3</td>
<td>Expected Results for the Underlying Factors of HRM Characteristics</td>
<td>158</td>
</tr>
<tr>
<td>10-1</td>
<td>Descriptive Statistics and Correlations</td>
<td>167</td>
</tr>
<tr>
<td>10-2</td>
<td>Cronbach’s Alpha for the HRM Characteristic Variables</td>
<td>169</td>
</tr>
<tr>
<td>10-3</td>
<td>Obtained Factors of HRM Characteristics</td>
<td>170</td>
</tr>
<tr>
<td>10-4</td>
<td>Effects of HRM Practices on Violent Crime Control Performance</td>
<td>173</td>
</tr>
<tr>
<td>10-5</td>
<td>Effects of HRM Practices on Property Crime Control Performance</td>
<td>174</td>
</tr>
<tr>
<td>10-6-a</td>
<td>Turnover Effects on Violent Crime Control Performance and Moderating Effects of HRM Factors</td>
<td>180</td>
</tr>
<tr>
<td>10-6-b</td>
<td>Turnover Effects on Violent Crime Control Performance and Moderating Effects of HRM Factors</td>
<td>181</td>
</tr>
<tr>
<td>10-7-a</td>
<td>Turnover Effects on Property Crime Control Performance and Moderating Effects of HRM Factors</td>
<td>182</td>
</tr>
<tr>
<td>10-7-b</td>
<td>Turnover Effects on Property Crime Control Performance and Moderating Effects of HRM Factors</td>
<td>183</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig 1-1</td>
<td>An Open System and Its Subsystems</td>
<td>5</td>
</tr>
<tr>
<td>Fig 3-1.</td>
<td>The Classical Performance Equation and Government Management</td>
<td>24</td>
</tr>
<tr>
<td>Fig 3-2.</td>
<td>The Government Performance Project Model</td>
<td>27</td>
</tr>
<tr>
<td>Fig 3-3.</td>
<td>The Changes in the Role of Human Resource Management Department</td>
<td>28</td>
</tr>
<tr>
<td>Fig 3-4.</td>
<td>The Effectiveness Model of Government Agencies</td>
<td>36</td>
</tr>
<tr>
<td>Fig 4-1.</td>
<td>A Conceptual Model of Theoretical Framework for Studying Strategic Human Resource Management</td>
<td>42</td>
</tr>
<tr>
<td>Fig 4-2.</td>
<td>Growth / Readiness Matrix</td>
<td>49</td>
</tr>
<tr>
<td>Fig 5-1.</td>
<td>Human-Capital-Enhancing HRM Practices and Strategies</td>
<td>68</td>
</tr>
<tr>
<td>Fig 5-2.</td>
<td>Administrative Information and HRM Control</td>
<td>69</td>
</tr>
<tr>
<td>Fig 6-1.</td>
<td>Relationships between Determinants, Turnover, and Other Variables</td>
<td>86</td>
</tr>
<tr>
<td>Fig 6-2.</td>
<td>The Effects of Turnover</td>
<td>88</td>
</tr>
<tr>
<td>Fig 7-1.</td>
<td>Alternative Forms of the Relationship of Voluntary Turnover and Organizational Performance</td>
<td>95</td>
</tr>
<tr>
<td>Fig 7-2.</td>
<td>HRM-moderated Relationship</td>
<td>96</td>
</tr>
<tr>
<td>Fig 7-3.</td>
<td>Optimal Organizational Turnover</td>
<td>104</td>
</tr>
<tr>
<td>Fig 7-4.</td>
<td>The Linear and the Attenuated Negative Relationships</td>
<td>107</td>
</tr>
<tr>
<td>Fig 7-5.</td>
<td>Examples of Power Functions</td>
<td>109</td>
</tr>
<tr>
<td>Fig 7-6.</td>
<td>Example of the HRM-moderated Relationship</td>
<td>110</td>
</tr>
<tr>
<td>Fig 7-7.</td>
<td>Optimal Turnover Rates with Different HRM Systems</td>
<td>123</td>
</tr>
<tr>
<td>Fig 8-1.</td>
<td>Logic Model of Community Oriented Policing Services Program</td>
<td>128</td>
</tr>
<tr>
<td>Fig 8-2.</td>
<td>The Interaction of Crime Generation and Crime Control</td>
<td>139</td>
</tr>
<tr>
<td>Fig 8-3.</td>
<td>Suggested Crime Control Model</td>
<td>149</td>
</tr>
<tr>
<td>Fig 10-1.</td>
<td>The Relationship Between the Sworn Officer’s Voluntary Turnover Rate Difference (TRD) and Crime Clearance Rates</td>
<td>186</td>
</tr>
</tbody>
</table>
Introduction

I began this research with the fundamental question of how we can achieve and maintain higher levels of organizational performance in the public sector. More specifically, I focus on human resources that have been regarded as one of the critical factors to achieve better organizational performance in both private and public sectors. In fact, it is a widely held premise that people provide organizations with an important source of sustainable competitive advantage and the effective management of human capital may be the ultimate determinant of organizational performance (Youndt, Snell, Dean, & Lepak, 1996). Therefore, human resources have received continuous attention from researchers in a variety of disciplines and lots of research has been conducted to investigate questions related to human resources especially in the public sector. For example, researchers have been interested in how human resource management (HRM) practices influence organizational performance, how to deal with human resource loss (i.e., turnover), how to control human resources to achieve better performance (e.g., control theory), and how to understand human resources in a different situation (e.g., strategic HRM). In the public sector, however, it is true that human resources are also perceived as critical to deliver public services effectively but no empirical efforts have been made to confirm the critical role of human resources.

This dissertation consists of analyses bearing on two major questions, each of which basically investigates the critical role that human resources play in achieving better organizational performance. The first question is about how different HRM practices would influence organizational performance. I explore the relationships
between organizational performance (i.e., crime control performance in this study) and different HRM practices (individual HRM practice and HRM system) from universalistic, contingency, and control theory perspectives. The second question deals with a more specific HR issue. I examine if employee turnover (turnover, hereafter) has a significant effect on organizational performance and if HRM practices moderate (weaken or strengthen) the effects of turnover on organizational performance. I also review the definitions of turnover and its measurement, causes, and effects, based on classic turnover studies (e.g., Price, 1977; Mobley, 1982) that initiated turnover research and have guided turnover studies for decades.

To answer the two major questions mentioned above, I sent questionnaires to 205 police departments in U. S. cities whose population range was between 100,000 and 500,000. In the current study, the term HRM practices generally refers to both individual HRM practices and a set of HRM practices. But individual HRM practices and HRM systems are also used to refer to individual HRM practices and a bundle of HRM practices, respectively.

Although the arguments presented in this research are not new in the private sector, this research is one of a few empirical efforts in the public sector to examine if human resources (HR) play a critical role in improving organizational performance, if HR loss (i.e., turnover) has a significant effect on organizational performance, and if HRM practices moderate turnover effects on organizational performance. The results of this research will help us to understand the critical role of human resources in the public sector in achieving higher level of organizational performance and to set up proper HRM policy (e.g., job designs, staffing, rewarding, retaining), especially when
quality employees are scarce and turnover rate is high. The results of this research may also give us an idea if human resources need to be dealt with differently, depending on the sector (i.e., public or private). As a foundation of the whole research, I first review some general issues of organizational performance and measurement; examine police organization, its goals, and performance indicators; and discuss how human resources are dealt with in the public sector.
I. Organizational Performance and Measurement

1.1 Organization

According to Thompson (1967), organizations can be understood from two perspectives: closed-system and open-system. In order to search for certainty, the closed-system perspectives such as scientific management school\(^1\), administrative-management school\(^2\), and bureaucracy school\(^3\) search for maximized economic efficiency, assuming that they are dealing with a determinate system (pp 4-5). The open-system perspective expects uncertainty rather than searching for certainty. According to Daft (2001, p12), organizations are (1) social entities, (2) goal directed, (3) designed as deliberately structured and coordinated activity systems, and (4) linked to the external environment. Daft explained that the key elements of an organization are not a building or a set of policies and procedures, rather the key elements are people and their relationships with one another. Daft also emphasized that an organization cannot exist without interacting with customers, suppliers, competitors and other elements of the external environment.

Daft (2001) noted that one significant development in the study of organization was the distinction between closed and open systems and provided a good explanation of both systems. Daft (2001, p14) explains a closed system as follows:

---

\(^1\) It focuses primarily on manufacturing or similar production activities, and seeks to maximize efficiency by planning procedures to ensure conformity with standards.

\(^2\) It focuses on structural relationships among production, personnel, supply, and other service units of the organization. It searches for efficiency by specializing tasks and grouping them into departments, and fixing responsibility.

\(^3\) It focuses on staffing and structure as means of handling cases. For this school, efficiency can be achieved by establishing rules for categories of activity, motivating proper performance of expert officials, and appointing experts to offices.
A closed system would not depend on its environment; it would be autonomous, enclosed, and sealed off from the outside world. Although a true closed system cannot exist, early organization studies focused on internal systems. Early management concepts, including scientific management, leadership style, and industrial engineering, were closed-system approaches because they took the environment for granted and assumed the organization could be made more effective through internal design. The management of a closed system would be quite easy. The environment would be stable and predictable and would not intervene to cause problems. The primary management issue would be to run things efficiently.

Unlike a closed system, an open system must interact with the environment to survive; it both consumes resources and exports resources to the environment. It cannot seal itself off. It must continuously change and adapt to the environment. Open systems can be enormously complex. Internal efficiency is just one issue.

In this paper, although it appears that many public organizations are still managed as if they are sealed off from their environment, I basically see public organizations as open systems as Daft (2001) suggested in the figure below.

Figure 1-1. An Open System and Its Subsystems

In a typical municipal government, there are many departments to provide
services such as public safety, parks and recreation, public library, road maintenance, and so on. According to Daft’s flow chart of an open system as seen in figure 1-1, all of those service departments belong to the “Transformation process,” whereas staff departments such as human resources department, finance department, and public relations belong to the “Input process” or the “Output process”. While service departments (or production departments) of the “Transformation process” are directly involved in providing various kinds of service to the citizen, staff departments in the “Input process” or the “Output process” are doing boundary spanning and are indirectly involved in delivering services to the citizen.

In this study, I explore the relationships among human resource management (HRM) practices, organizational performance, and turnover at a municipal department level rather than at a city government level. Although a police department is one of the service departments within a city government that directly provide services to the citizen, we can also regard it as a separate organization that not only needs inputs, such as human resources, information resources, and financial resources, but also produces outputs, such as crime control, traffic control, and so on. For example, when police departments are losing their employees for some reasons, we may guess that there is a problem at the “transformation process” in providing safety services to the citizen, and outputs such as crime clearance rate may decrease, consequently. Therefore, we may say that Daft’s flow chart of an open system as seen in figure 1-1 is also applicable to the current study.

---

4 Staff departments that perform boundary spanning are responsible for exchanges with the external environment
1.2 Organizational goals

According to Rainey (2003, p130), an organizational goal is a condition that an organization seeks to attain but the concept of a goal has many complications, with important implications for organizing and managing and for the debate over whether public and private organizations differ. These complications include the problem that goals are always multiple, that is, a goal is always one of a set of goals that one is trying to achieve (Rainey, 1993; Simon, 1973). Rainey (2003, p132) continued that the most often repeated observations about public organizations are that their goals are particularly vague and intangible, compared to those of private business firms, and that they more often have multiple, conflicting goals. For example, police chiefs must try to find a balance between keeping the peace, enforcing the law, controlling crime, preventing crime, assuring fairness and respect for citizen rights, and operating efficiently and with minimal costs (Moore, 1990).

In this study, I focus on so-called official goals of municipal police departments that are usually displayed in the mission statements. Mission is a concise statement of the unique, fundamental, current and future public purposes of the agency and its programs. It is also a statement of what the agency does, why it does it, and for whom – that is, the reason for the agency’s existence (ASPA's Center for Accountability & Performance (CAP), 2002, p12). Official goals are formal expressions of general goals that present an organization’s major values and purposes (Rainey, 2003). Although we may still face dilemma when we try to achieve one goal against another if the mission statement has conflicting goals, at least, we can understand what goals police organizations officially put first (I examine a typical mission statement of police departments at chapter two). That is, we are going to be at
a better position to measure goals of police organizations and evaluate how well they are doing in achieving them once we narrow down various goals to official ones.

1.3 Organizational performance
In this study, I use the term, “organizational performance” rather than “organizational productivity” when we evaluate how well (i.e., how effectively and efficiently) organizations are doing in achieving their goals in their mission statements. For example, when a police organization performs well in controlling crimes (e.g., high crime clearance rates), we can say that their crime control performance is at a high level. Although as Kearney and Berman (1999) explained, performance is similar to productivity as the effective and efficient use of resources to achieve outcomes, performance in the public sector has broader meaning than productivity, and it is guided and assessed by multiple, equally important standards of effectiveness, efficiency, and equity.

Even when we choose to use organizational productivity that is the subset of the organizational performance, there still exists a problem of interpreting productivity as Quinn (1978) pointed out. Quinn (1978) noted that one of the biggest problems facing the public productivity movement is the assumption that everyone shares a common definition of the term productivity. According to Quinn (1978), while economists and industrial engineers have a precise definition (i.e., output over input with quality considered) of productivity, administrators (or managers) have an ambiguous definition that has to do with overall performance of an organization with specific meaning varying from situation to situation. Since we are not free from the interpretation concern in any case of using performance or productivity, the best way
might be to make the term clear at the outset, regardless whether we choose productivity or performance.

In the current study, I measure performance rather than productivity of police departments because while productivity focuses on the ratio of input and output, performance covers broader aspects of police departments. In addition, performance is a more generic term than productivity. As in Hatry’s (1980) definition that performance measurement for government is the systematic assessment of how well services are being delivered to a community in terms of both how efficiently and how effectively, the term performance in this study consists of efficiency and effectiveness, in which efficiency concerns the relation of input required to the amount of output produced and effectiveness refers to the effects and quality of the service delivery.

1.4 Performance measurement

Why do we measure performance? Osborne and Gaebler (1992) explained a range of good reasons for measuring performance in the public sector: (1) to improve delivery of public services, (2) what gets measured, gets done, (3) to detect errors, (4) to recognize success, (5) to allow for organizational learning and improvement, (6) to mobilize support, (7) to improve accountability for budget expenditures, and (8) to improve public communication. Behn (2003) also similarly pointed out eight different purposes that public managers have for measuring performance – evaluate, control, budget, motivate, promote, celebrate, learn, and improve (pp 588-593)\(^5\), and argued that the characteristics for performance measurement would be different, depending on the different purposes of measuring performance. In the same vein, Kaplan and

\(^5\) For example, public managers may use performance measurement to evaluate how well their agencies are performing, or control their organizations (i.e., how can I ensure the subordinates are doing the right things).
Norton (1996) developed the Balanced Scorecard to prevent a narrow concentration on financial measures in business auditing and control systems in the private sector. The Balanced Scorecard requires an organization to develop goals, measures, and initiatives for four perspectives: (1) the financial perspective, in which typical measures include return on investment and economic value added, (2) the customer perspective, involving such measures as customer satisfaction and retention, (3) internal perspective, involving measures of quality, response time, cost and new product introduction, and (4) the learning and growth perspective, in which goals and measures focus on such matters as employee satisfaction and information system availability.

Although there are several reasons for assessing organizational performance as mentioned above, selecting the outcomes that should be tracked is essentially a judgment call (Hatry, 1999a, p43). Performance measures are objective, quantitative indicators of various aspects of the performance of public programs or agencies. Therefore, different kinds of performance measures are defined to track particular dimensions of performance, such as effectiveness, operating efficiency, productivity, service quality, customer satisfaction, and cost-effectiveness (Poister, 2003, p3). Hatry (1999b) actually suggested such criteria as validity$^6$, understandability$^7$, timeliness$^8$, potential for encouraging perverse behavior$^9$, uniqueness$^{10}$, data collection cost$^{11}$, controllability$^{12}$, and comprehensiveness$^{13}$ for selecting a set of performance measures.

---

$^6$ Does it measure what it should?
$^7$ Will the measure be reasonably understandable by government officials?
$^8$ Can the information be gathered in time for it to be useful to public officials?
$^9$ Will the measure result in behavior that is contrary to the objectives of the organization?
$^{10}$ Does the measure reveal some important aspect of performance that no other measure does?
$^{11}$ What does it cost to collect and analyze the data for the measure?
$^{12}$ To what extent is the measure controllable by the agency whose performance is being measured?
$^{13}$ Does the set of measures cover all or most performance aspects of the organization’s functions?
measures. After all, the choice of performance measures is dependent upon our objectives, and there are several types of performance measures such as cost-effectiveness measures\textsuperscript{14}, workload-accomplished measures\textsuperscript{15}, outcome measures, output measures, efficiency measures\textsuperscript{16}, productivity measures\textsuperscript{17}, and service quality measures\textsuperscript{18} (ASPA's Center for Accountability & Performance (CAP), 2002; Hatry, 1999b; Poister, 2003).

No matter how important a role measuring performance plays, especially in managing for results, if we cannot practically put performance measurement system into use or if we do not much use the results of measuring performance, performance measurement would turn into merely an impractical proposition, symbolic statement, or expensive trial. Therefore, scholars who study performance and its measurement usually stress prerequisites or first steps before implementing performance measurement. Hatry (1999a) pointed out three prerequisites that are highly desirable before processing performance measurement: high-level support for the performance measurement effort, reasonable program stability, and at least some computerized data-processing capability. Poister (2003) also suggested as desirable a process for designing and implementing performance measurement systems that includes securing management commitment as a first step.

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\textsuperscript{14} Unit cost to produce outcome.
\textsuperscript{15} Measures of the amount of workload that has been accomplished are the most commonly found measurements collected by operating agencies.
\textsuperscript{16} Efficiency measures are defined as the relation of the amount of resources applied to a service or input to the amount of output (i.e., input divided by output).
\textsuperscript{17} This is the converse of efficiency (i.e., ratios of output to input).
\textsuperscript{18} This is related to customer satisfaction with the goods or services.
II. Police Organization and Performance

2.1 Police evolution and environmental change
As Kelling (2003) explained in the summary of U.S. police history, during the 1970s, social scientists increasingly undertook research into policing, stimulated in part by pioneering fieldwork associated with President Johnson’s crime commission. One of the studies was the Kansas City experiment in which it was found that preventive patrol had little or no effect on citizens’ perception of personal safety or on reported crime. In the 1980s and the 1990s, there were growing neighborhood self-help movement and worse fiscal realities in the urban areas, which led to reductions in police personnel. By the 1990s, police practices, research, and scholarship had come together in “community policing.”

Although attention to problem solving and the “broken windows (Wilson & Kelling, 1982)”\(^1\) concept continued during the 1990s, new ideas gained favor among policy makers and practitioners of crime control and fear reduction. Compstat\(^2\) (derived from “computer statistics”) is one of those initiatives of crime prevention. Compstat combines crime and problem analysis, and a geographic focus, with strict measures of accountability. Since the 21\(^{st}\) century began, environments surrounding police organizations have become more unstable and unpredictable. Therefore, Stephens (2003) noted that managing the issues associated with growth – traffic, housing, schools, and infrastructure – consume substantial resources in many communities, and rapid demographic and social change continues in cities and towns.

\(^1\) Just as unrepaired broken windows signal that no one cares and it can lead to more serious disorder and crime.
\(^2\) This innovation by then-commissioner William Bratton in the New York City police department was championed by proponents as probably the most far-reaching administrative innovation in policing during the twentieth century (Kelling, 2003)
throughout the U. S.

Under these changing circumstances, for the police to perform better, the doctrine of tight managerial control may need to be supplanted by doctrines of worker participation, total quality management, and shared commitment to excellence, as Hatry and Greiner (1986) suggested. More specifically, it may be possible to decentralize police organizations, reduce reliance on rules and constant supervision, and increase reliance on selection, training, and the formal statement of values to create an organizational culture that can properly guide officers’ conduct (Sparrow, Moore, & Kennedy, 1990). However, although decentralization in a police organization has several advantages and a number of disadvantages are involved in centralization, it is true that centralization continues to be the dominant way of structuring decision making in police organizations (Stephens, 2003).

2.2 Police organizational goals and mission statements

Although it is a complicated job to define police organizational goals (i.e., why they exist), I focus on official goals that are usually displayed in the mission statement as mentioned previously. As seen in appendix 2-1 that shows some typical mission statements of police organizations, there are no specific forms in common. For example, some mission statements (e.g., Dayton, OH and Indiana, IN) consist of several sentences, whereas others (e.g., Jacksonville, FL; Atlanta, GA; Austin, TX; and Phoenix, AZ) have only one simple sentence. In addition, some police departments put their mission statements along with vision statement and goal (or

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3 (1) It frees managers from having to spend all their time and intellectual energy on day-to-day operational matters, allowing them to concentrate more time on strategies that will improve the organization’s capabilities. (2) It is likely to improve operational decisions because they are made by people who are closer to the facts to the situation. (3) It challenges more people to be creative and take responsibility for the problems in their area.
value) statement, others post mission statements only.

Although they are diverse in form, when we look at the contents of different mission statements, we find that most city police organizations want to promote safety and the quality of life for each person in the community through protecting their citizens’ properties and lives. In doing so, some police organizations emphasize community partnerships (e.g., Dayton, OH; Indianapolis, IN; Atlanta, GA), others stress respecting individual rights, human dignity, and community values (Indianapolis, IN; Jacksonville, FL) according to their mission statements. In addition, when we look at the goal in the goal (or value) statements that are usually under mission statements, we also find that most city police departments have similar goals that they are officially pursuing. That is, most police organizations have such general goals as crime fighting (i.e., traditional purpose), crime prevention, and reducing fear and enhancing security (Stephens, 2003). That is, through accomplishing these goals (i.e., mainly crime control and prevention), police may provide high quality of life to their citizens after all.

2.3 Performance measurement and performance indicators

Even after we narrowed down organizational goals (or purpose) of municipal police departments to one or two official goals, measuring how well an organization does in achieving those goals is not simple. For one reason, goals are usually vague and intangible in the public sector as Rainey (2003) pointed out. Therefore, as a way of measuring performance, it is usual to develop some performance indicators, which allow us to measure performance. For example, measuring workload is a form of performance indicators that Ammons (1996) called “bean counting” because of easy
measurement. However, Ammons warned that for anyone wanting to get ahead in the bean business, it is also important to know the quality of the beans and the efficiency with which they are grown and harvested.

Despite an abundance of potential benchmarks for police services, their use as measuring rods for judging or comparing municipal police departments has been controversial (Ammons, 1996). First of all, the Uniform Crime Reports (UCR) maintained by the Federal Bureau of Investigation (FBI), the most widely used crime statistics, also has a fundamental problem - i.e., some crimes go unreported. In fact, the most frequently used performance indicators for crime control are crime occurrence and crime clearance rates, and in England, for example, the only performance indicators listed in the Public Expenditure White Paper are also the crime rates and the clear-up rates (Carter, Klein, & Day, 1995). Police agencies of most countries are usually required to maintain those data and this leads to high availability of those data.

Carter and colleagues (1995), however, discussed some issues including reporting problems when we use crime rate as an indicator for measuring crime control performance. As Harrison and Gretton (1986) raised a question about the increased crime rate, suggesting that a large part of the increase in the official crime rate may be due to the greater propensity of victims to report crime, rather than reflecting a rise in the actual level. That is, recent changes such as greater telephone ownership, wider insurance cover, better recording practices, and changing public attitudes are likely to contribute to increasing propensity to report crimes. Therefore, Carter and colleagues (1995) concluded that the most useful figure was the clear-up
rate per sworn officer\(^4\) (HM Treasury, 1990), considering that it can more reflect the efforts the police have made to control crimes and it is not affected by environmental changes including greater propensity of victims to report crimes.

Now, I take a brief look at the English government’s efforts to develop proper performance indicators of crime control, which may show us how hard it is to define and measure police performance, based on Carter and colleagues (1995). Since Financial Management Initiative (FMI)\(^5\) of England provided an opportunity for each center (e.g., Home Office in this case) to develop systems, a ‘financial information system’ based on a system of functional costing was constructed and costs were allocated to eight functional categories of the police. That is, as an operational activity, the functional categories are patrol, crime, traffic, public order, community relations, and others; and as a non-operational activity, the functional categories are training and management. Later, to provide a guide to matters of efficiency in the principal functional areas for police activity, the matrix was developed, consisting of 435 indicators. For example, there were 43 indicators in the traffic category, including the number of officers dedicated to traffic duty, the number of police vehicle accidents, the number of breath tests conducted, and so on. Although unrealistic and unfair comparisons were made at the initial stage, subsequently more useful national comparisons across regions could be possible between ‘families’ of forces with a similar sized establishment, or on urban/rural lines or various other demographic and geographical dimensions.

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\(^4\) One of the questions about clear-up rate was why the clear-up rate has remained constant over a period (1984-1988) in which the police benefited from extra staff, new technology, and improved training (HM Treasury, 1990).

\(^5\) In 1982, the Thatcher administration of England launched this initiative with the question, ‘where is the money going and what are we getting for it?’ According to Carter and colleagues (1995), it was as dramatic as the French Revolution.
In the U.S., there has been also an effort to develop a set of good performance indicators for each category of service (e.g., police service) at the local government level. The Governmental Accounting Standards Board (GASB) recommended a set of indicators for police performance as part of its series on Service Efforts and Accomplishments (SEA) (Drebin & Brannon, 1992). GASB recommended input measurement indicators such as budget expenditures, equipment, facilities, vehicles; number of personnel, and hours expended; output measurement indicators such as hours of patrol, responses to calls for service, crimes investigated, and number of arrests; and outcome measurement indicators such as death and bodily injury resulting from crime, value of property lost due to crime, crimes committed per 100,000 population, crime clearance rate, response time, and citizen satisfaction.

To measure effectiveness of crime control services, Hatry and his colleagues (1992) also suggested more extensive indicators in the areas of crime prevention, offender apprehension, responsiveness, security feeling, and fairness and courtesy. For example, Hatry et al. developed a set of performance indicators to measure effectiveness of apprehending offenders in several quality practices. To measure crimes solved at least in part, they suggested performance indicators such as “percentage of reported crimes cleared by type of crime and whether cleared by arrest or by exception.” To measure the completeness of apprehension, they suggested “percentage of person-crimes cleared by type of crimes.” To measure quality/effectiveness of arrest, they suggested “percentage of adult arrests that survive

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6 Cases are said to be “cleared by arrest” when primary suspects have been arrested for that offense and turned over to the court. Cases are said to be “cleared by exception” when the victim refuses to cooperate, extradition is denied, the offender is deceased, or other extraordinary circumstances preclude the placing of charges.

7 If one person committed three crimes, it would be three “person-crimes.”
preliminary court hearing by type of crime, and percentage of adult arrests resulting in conviction.” To measure stolen property recovery, they suggested “percentage of stolen property (vehicles and other property) that is subsequently recovered.”

As seen in the efforts of the Home Office of England and suggestions by GASB and Hatry et al., we need many performance indicators to measure even one aspect (e.g., crime control) of police performance. In addition to developing a proper set of performance indicators to measure a specific aspect of organizational performance, we also need to consider whether or not we can measure those developed performance indicators with reasonable time and costs. If too much time and costs are required for collecting the data to measure a set of developed performance indicators, the performance measurement system would lack feasibility and we are likely to abandon efforts for measuring performance at some point. As Hatry (1999b, p43) noted, selecting the outcomes that should be tracked is essentially a judgment call. Likewise, selecting the performance indicators (i.e., what performance indicators and how many performance indicators) can be also dependent on the purpose of measurement and management commitment. Therefore, Behn (2003) argued that difference purposes require different measures. For example, the organization might need to measure outcomes, combined with inputs and with the effects of exogenous factors if they want to evaluate how well it performs. But when executives want to motivate line staff and middle managers to do the things necessary to improve performance, they might need to measure almost-real-time outputs, compared with production targets.

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8 According to Behn (2003), there are eight purposes that public managers have measuring performance: evaluate, control, budget, motivate, promote, celebrate, learn, and improve. (see pp 588-592 for more details).
2.4 Crime rates and clearance rates

In the current study, I chose crime clearance rates as a measure (i.e., performance indicator) of municipal police’s crime control performance (I discuss police performance measures in more depth at chapter eight). Although crime rates are also widely used measures, there is a concern of controllability – to what extent is the measure controllable by the agency whose performance is being measured? Therefore I followed Hatry’s (1980) suggestion about performance measures that the more control government managers have over a measure, the more the agency can be held accountable for it, other things being equal. For example, Sir Kenneth Newman, then Chief Constable of the Metropolitan Police, deflected criticism about large increases in London crime figures during 1986 by pointing to the effect of environmental factors on levels by saying, “figures that are supposed to be performance measures of the police are in fact a performance measure of society as a whole” (Carter et al., 1995). In fact, several external factors may be involved in crime occurrence such as the poverty level, unemployment rate, demographic ratios, and so on.

Although crime clearance rates are better performance measures of municipal police departments than crime rates, especially when we are interested in how well the police are performing and how hard they work to reduce crimes, we cannot measure crime control performance with only one measure. As Behn (1996) warned, the search for the one best measurement is just as futile as the search for the one best way. Kaplan and Norton (1992) also warned that no single measure of performance answers the questions from different perspectives. Now I need to go back to the

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9 They want performance measures that answer four questions from four different perspectives:
• How do customers see us? (customer perspective)
• What must we excel at? (internal business perspective)
• Can we continue to improve and create value? (innovation and learning perspective)
question raised by Behn (2003), “What is the purpose of measuring the performance?” because the characteristics of performance measures may vary, depending on the answer to this question. In this study, I am basically interested in how human resource management characteristics and turnover influence police performance. Although it is desirable to look at the several aspects of police performance to be sure of the real influence of those HR related factors, I narrowed down the scope of police performance to crime control performance, and chose crime clearance rates among various suggested measures (e.g., GASB, 1992; Hatry et al., 1992) mainly due to data availability.

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10 Other than crime clearance data were not available at the Federal Bureau of Investigation. In most cities, even crime clearance data were not available according to the survey I conducted.
III. Human Resources and Effectiveness in the Public Sector

Generally speaking, there is no doubt that human resources play a critical role in effectively achieving organizational goals, regardless of sector (i.e., private and public sectors). According to Porter (1985), human resource management (HRM) can help a firm obtain competitive advantage by lowering costs, by increasing sources of product and service differentiation, or by both. In this chapter, I review some efforts that explored effectiveness (or organizational performance) and effectiveness-related factors in the public sector to help understand how human resources are regarded in the public sector, especially when organizational performance or effectiveness is concerned.

3.1 Governance

According to Lynn, Heinrich, and Hill (2000a), governance\textsuperscript{1} regimes, even those with substantial extant controls, create or allow for substantial discretion at the street or front-line levels of public organizations, where the primary work of service delivery and regulation is performed. That is, front-line workers and their supervisors may have substantial influence on government outcomes by virtue of their interpretations of rules and standards and their judgments in individual cases. In the reduced form of governance that shows what factors are involved in producing organizational outcomes (i.e., organizational performance) as seen in table 3-1, we see that the importance of human resources is reflected in the managerial roles and actions (M).

As examples of variables in the table show, managerial roles and actions include

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\textsuperscript{1} According to Lynn et al. (2000), the term "governance" may be defined as regimes of laws, administrative rules, judicial rulings, and practices that constrain, prescribe, and enable government activity, where such activity is broadly defined as the production and delivery of publicly supported goods and services.
leadership practices, monitoring and controlling of human resources, and accountability for the outcomes. In sum, we see that the management of human resources is regarded as critical to effective service delivery (i.e., desired level of organizational performance) within the governance framework.

Table 3-1. Reduced Form of Governance and Examples of Its Variables

<table>
<thead>
<tr>
<th>Reduced form model components</th>
<th>Examples of variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O</strong> = outputs/outcomes</td>
<td>Individual level or organizational level</td>
</tr>
</tbody>
</table>
| **E** = environmental factors| Political structures  
Level of external authority 
Market structure/degree of competition 
Funding constraints |
| **C** = client characteristics| Client attributes/characteristics/behavior |
| **T** = treatments (primary work or core process or technology) | Program treatment/technology 
Organizational mission/objectives 
Determination of target population |
| **S** = structures           | Organization type 
Level of integration/coordination 
Centralization of control 
Administrative rules/incentives 
Institutional culture/values |
| **M** = managerial roles and actions | Leadership practices (e.g., innovation and goal setting, worker motivation, recognition and support, and delegation of authority or work tasks) 
Monitoring/control/accountability mechanisms |

Source: Lynn, Heinrich, and Hill (2000b)

In studying governance, however, the research problem is complicated by the fact that effectiveness or efficient performance may or may not be the goal of a legislative coalition. In other words, rational actors in legislatures do not necessarily
create rational organizations to execute their mandates (Lynn et al., 2000b). Therefore, if public organizations are inefficiently created or have structural problems that may impede effective operation, focusing on other factors (including human resources) to improve organizational performance may have only limited results. That is, organizational performance (i.e., outcomes (O)) is not likely to improve by paying attention to other factors such as environment (E), client characteristics (C), treatment (T), managerial roles and actions (M) rather than remedying structural problems (S) if public organizations have had structural problems since they were created.

3.2 The Government Performance Project (GPP)

The Government Performance Project (GPP)² began with a charge to identify and create sustainable improvements at all levels of American government and to help restore citizens’ trust and faith in government and government performance. It is an unprecedented research initiative evaluating the management capacity of federal, state, and local government entities (Beekman, 2003). Before checking how human resources are viewed in the GPP, I briefly outline the theoretical framework of the GPP model, based on Ingraham and Donahue’s (2000) explanation.

In the previous section, I reviewed that the importance of human resources is reflected in the reduced form of governance as a form of managerial roles and activities variable (M). In the GPP, Ingraham and Donahue (2000) noted that one of the questions³ that the GPP seeks to answer is “How management influences the

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² Beginning in 1996, under the auspices of the Pew Charitable Trusts, the Maxwell School of Citizenship and Public Affairs of Syracuse University and Governing Magazine had rated the management capacity of local and state governments and selected federal agencies in the United States. This activity is now carried out by the coalition of universities and Governing Magazine.

³ The other two questions that the GPP seeks to answer are: (1) how well do public entities perform? and (2) how can management be assessed?
performance of public entities.” According to Ingraham and Donahue (2000), government management can be divided into two complementary sets of organizational structures, procedures, and technology: those related to administrative functions, and those related to policy implementation. And these distinct dimensions of government management (i.e., administrative support and policy implementation) operate simultaneously and interact in highly complex ways to influence a government’s performance, and the GPP is interested in examining government’s management capacity. Figure 3-1 shows where government management is located in the classical policy/performance equation and how management capacity is involved in producing outputs/outcomes.

Figure 3-1. The Classical Performance Equation and Government Management

Source: Ingraham and Donahue (2000)

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4 This is government’s intrinsic ability to marshal, develop, direct, and control its human, physical, and information capital to support the discharge of its policy directions (Ingraham and Donahue, 2000).
In the figure, government management (i.e., the center box), which was regarded as a black box in the classical policy/performance equation, is now understood as management capacity and implementation technology. Management capacity supports implementation technology, which is more directly related to policy outcomes and government performance.

When we take a closer look at management capacity, management subsystems consist of financial management, human resources management, capital management, and information technology management; and those subsystems are integrated by exercise of leadership, use of information, and allocation of resources as seen in figure 3-2. The GPP model also emphasizes the existence of managing-for-results as the dominant mechanism by which leaders identify, collect, and use the information necessary to evaluate the institution’s performance in pursuit of key objectives (Ingraham and Donahue, 2000, p303). The Managing-for-results is not an isolated function, but one that substantively interacts with the management subsystems via activities surrounding leadership, information, and resources (p305).

As seen in figure 3-2, human resources management (HRM) is one of four management subsystems, and HRM refers to the policies, systems, and practices that influence employees' behaviors, attitudes, and performance, and subsequently the performance of the organization (Selden and Jacobson, 2003: p101). A government that does not have the right people and expertise to perform critical functions is likely to be ineffective in delivering services and meeting citizen expectations, and high-performing governments are more likely to assume a strategic HRM plan (Beekman, 2003: p9-10). According to Selden and Jacobson (2003), a strategic perspective of
HRM suggests that an organization should be forward thinking and consider human capital to be valuable assets. In contemporary governance, the role of HRM departments is shifting from a preoccupation with policing the merit system and rules to a broader human resources focus that emphasizes collaboration and partnership with leaders and managers to achieve government and agency goals. Selden and Jacobson also argue that to acquire and retain the right people, governments need the right systems, practices, and policies in place to attract them. Thus, we may say that the HRM system plays a critical role in delivering service effectively and meeting citizen expectations within governmental organizations, according to the GPP.
Figure 3-2. The Government Performance Project Model

Management Subsystems
- Financial Management
- Human Resources Management
- Capital Management
- Information Technology Management

Exercise of Leadership
Allocation of Resources
Use of Information
Managing for results

Program Delivery
Performance
Measurement

In order to characterize sound human resource management (HRM) in state, city, and county governments, the GPP study used five criteria (Selden and Jacobson, p102). The key components of good HRM include workforce and strategic planning, the ability to facilitate timely and quality hiring, sophisticated professional development programs, meaningful reward and evaluation structures, and disciplinary procedures. In addition, organizations with strategic human resource management are less likely to lose skilled workers and workers are more likely to be motivated to perform effectively in support of the government's goals. Figure 3-3 shows the shifting trend of the HRM department’s role.

Figure 3-3. The Changes in the Role of Human Resource Management Department

Selden and Jacobson explained the shifting of the HRM department’s role as follows. Initially, HRM departments performed primarily administrative functions, such as record keeping, pay roll, and compliance monitoring, and their general focus was on day-to-day operations. Over time, HRM departments began to respond to and initiate requests from their customers for developing programs, providing services, and addressing problems. They offered a full array of personnel services and were focused on short-term tactical goals. Most recently, the emphasis has shifted toward HRM

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5 (1) government conducts strategic analysis of present and future human resources needs, (2) government obtains a skilled workforce, (3) government maintains an appropriately skilled workforce, and (4) government motivates the workforce to perform effectively in support of the government's goals, and (5) government structures the workforce.
strategic leadership, and this approach focuses on creating and implementing long-term goals, building partnerships, and aligning human capital to meet the government’s needs.

In sum, the GPP designates human resource management as one of the important management subsystems that comprise management capacity. Since the GPP believes that more management capacity leads to a higher level of organizational performance or policy outcomes, human resources (i.e., human resource management in the GPP) are regarded as an essential component to achieve better performance. The GPP also found that strategic management of human resources is more likely to lead to a higher level of organizational performance than managing human resources independently without considering or aligning with organizational goals.

3.3 Bureaucratic effectiveness theories

Wolf (1993) explored what factors most influence bureaucratic effectiveness, using the case survey method (similar to meta-analysis) to aggregate the collective judgments of previous case-study researchers regarding bureaucratic effectiveness and other key practices of the U. S. cabinet agencies. After identifying effectiveness-affecting factors, Wolf (1993) tested the competing theories that explain bureaucratic effectiveness to see which theory explains best. Although different theories have been tried to explain bureaucratic effectiveness, little agreement has been reached at the theoretical level as to which practices of an agency most contribute to performance. The arguments of each school of thought are summarized in table 3-2.
Table 3-2. Schools of Thought Regarding the Effectiveness of America’s Bureaucracies

<table>
<thead>
<tr>
<th>School of Thought</th>
<th>Arguments</th>
<th>Scholars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Leadership</td>
<td>Agency effectiveness is largely attributed to the leadership skills, styles, and characters of their chiefs.</td>
<td>Barnard (1938), Machiavelli (1965), Nash (1952)</td>
</tr>
<tr>
<td>Weberian Institutionalism</td>
<td>The ideal type of Weberian bureaucracy is separate from politics and is characterized by a rigid hierarchical structure; functional specialization; separation of professional from private life; and behavior based on general, stable, strict, exhaustive, learnable rules. The Weberian ideal of the “rational-legal” bureaucracy remains a viable theory of bureaucratic effectiveness.</td>
<td>Weber (1965), Goodnow (1960), Wilson (1887)</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Professionalism describes the ideal bureaucracy as composed of careerists who operate freely based on an institutional memory and their own extensive professional training. Careerists are motivated by a strong “sense of mission”</td>
<td>Barnard (1938), Bernstein (1955), Kaufman (1960), Simon (1976), Heclo (1977), Dilulio (1987)</td>
</tr>
<tr>
<td>Economic Responsiveness</td>
<td>Inspired by economists and public choice scholars, this school of thought argued that the ideal bureaucracy is characterized by the alignment of incentives within the agency to those of its owners (i.e., taxpaying citizens in the governmental context). Therefore, the proper alignment of incentives is enforced by the effective monitoring of the agency by citizens or their representatives. Due to collective action problem, there is no incentive for individual owners/citizens to monitor bureaucratic activities. In this situation, performance is enhanced through mechanisms that foster competition between agencies, particularly if they allow clients to “vote with their feet.”</td>
<td>Downs (1967), Hirschman (1970), Niskanen (1971), Tullock (1965)</td>
</tr>
<tr>
<td>Population Ecology</td>
<td>Organizations are imbued with their essential characteristics at the time of their founding. Their survival and performance depend on the characteristics of their environment or their capacity to manage change.</td>
<td>Lawrence and Lorsch (1986)</td>
</tr>
<tr>
<td>Political Theory of the Firm</td>
<td>Agencies that are politically autonomous and possess key political resources such as executive support are best able to manage change effectively. Competition from other institutions and strong sense of mission will motivate employees to succeed, not just to survive.</td>
<td>Peterson (1989), Chubb (1990)</td>
</tr>
<tr>
<td>Natural Selection</td>
<td>Agencies survive and thrive when their characteristics match a volatile environment. Blind chance, not skill or flexibility, determines an agency’s ability to match.</td>
<td>Kaufman (1985)</td>
</tr>
</tbody>
</table>

Source: Adapted from Wolf (1993)

To identify factors that are likely to affect bureaucratic effectiveness, Wolf (1993) employed case survey method and selected fourteen independent variables, based on two criteria: (1) whether they were crucial to one or more of the schools of thought on bureaucratic effectiveness, and (2) whether there was disagreement among
theories as to their likely effect. From forty-four cases that were randomly selected from an extensive bibliography of four thousand executive branch studies (Goehlert & Reynolds, 1989), Wolf identified the following independent variables:

(1) Age of the organization
(2) Leadership skills of agency head
(3) Political autonomy
(4) Hierarchical structure
(5) Formalization
(6) Identification with the agency
(7) Government monopoly on mission
(8) Sense of mission
(9) Resources targeted on critical task
(10) Delegation of operational decision-making authority
(11) Adaptability
(12) Difficulty of agency mission
(13) Controversial mission
(14) Presidential support

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6 Each case had to (1) be a study of a U.S. federal agency, (2) not be authored by a current employee of the agency, (3) contain a distinct effectiveness evaluation, (4) have a source with citation and/or a bibliography.

7 The extent to which the agency had universal political support

8 Based on the factors such as careerism, living on the job site, uniforms/badges, and other indicators that the agency was an integral part of all aspects of the person's life

9 Based on evidence that agency personnel saw their work as important and were zealous in executing it

10 Based on indications that the agency used innovative approaches on the application of agency functions to new missions.

11 Extent to which necessary agency policies and operations clashed with long-held American traditions or threatened entrenched interested.
Among these variables, some factors such as (2) leadership skills of agency head, (8) sense of mission, (9) resources targeted on critical task, and (10) delegation of operational decision-making authority, are related to human resource management. As we reviewed previously, leadership is emphasized by the Government Performance Project (GPP) model because it integrates different subsets of management and leads to good management capacity. The delegation of operational decision-making authority and sense of mission among Wolf’s (1993) identified variables can be also understood from the viewpoint of strategic human resource management in the GPP.

After identifying important variables that are likely to influence bureaucratic effectiveness, Wolf (1993) tested competing theories of bureaucratic effectiveness as seen in table 3-2 and found that "Political theory of the firm" is most likely to explain bureaucratic effectiveness in the U.S. federal government agencies. According to Wolf (1993), the political theory of the firm is a newly formulated theory that draws heavily from population ecology and supplements this core with the principles of professionalism and the economic responsiveness. Population ecology theory explains that an organization's survival and performance depends on the practices of its environment or its capacity to manage change (Lawrence et al., 1986). As the results of maximum likelihood estimation, five independent variables such as autonomy, monopoly, sense of mission, adaptability, and presidential support are significantly related to the effectiveness of an agency. Citing Chubb and Moe (1990), Wolf (1993) explained that strong sense of mission and competition from other agencies provide incentives for superior performance and adaptability enables agencies to maintain or increase these and other conditions that contribute to effectiveness.
3.4 Government agency effectiveness model

Although the topic of organizational effectiveness is not simple and involves different kinds of models such as goal models, internal process models, and stakeholder models, Rainey and Steinbauer (1999) used a relatively straightforward definition of agency effectiveness in their study: the agency performs well in discharging the administrative and operational functions pursuant to the mission. Therefore, the concept of effectiveness in their study refers to whether the agency does well what it is supposed to, whether people in the agency work hard and well, whether the actions and procedures of the agency and its members are well suited to achieving its mission, and whether the agency actually achieves its mission.

In order to develop government agency effectiveness model, Rainey and Steinbauer (1993) formulated some propositions about agency effectiveness drawing on government effectiveness studies. Before reviewing the propositions Rainey and Steinbauer (1999) developed, I take a brief look at the characteristics of leadership and managing employees that effective government agencies tend to have, based on Rainey (2003) and Hale’s (1996) literature review of high performance government agencies. Gold (1982) found that effective government agencies focus on treating employees fairly and respectfully through honest and open communication, emphasize delegation of responsibility and authority as widely as possible, and emphasize innovative ways of managing. Wilson (1989) summarized that in an effective government agency, discretionary authority for operators is maximized, and leaders have a bottom-up implementation perspective. Denhardt (1993) found that manager clearly articulates values and employees accept responsibility and performance accountability in effective government agencies. Holzer and Callahan
(1998) noted that effective government agencies develop human resources, empower employees through team building, recognition, and balancing employee and organizational needs. In sum, effective government agencies appear to have commitment human resource management (HRM) practices\textsuperscript{12}.

According to propositions about high performance government agencies that Rainey and Steinbauer (1999) developed, public agencies are more likely to perform effectively when there are higher levels of the following conditions:

- Relations with oversight authorities are attentive, supportive, and delegative
- Relations with other stakeholders are characterized by general public support, effective relations with partners and suppliers, effective negotiation network
- Autonomy in operationalization and pursuit of agency mission
- Mission valence (the attractiveness of mission) including difficult but feasible, reasonably clear and understandable, worthy/legitimate, interesting/exciting, and important/influential
- Strong organizational culture, linked to mission
- Leadership characterized by stability, commitment to mission, effective goal setting, and effective coping with political and administrative constraints
- Task design characterized by intrinsic innovation and extrinsic rewards
- Development of human resources such as effective recruitment, selection, placement, training, and development
- Professionalism among members: commitment to task and mission accomplishment
- Motivation among members: public service motivation, mission motivation, and task motivation.

\textsuperscript{12} I define and explain the kinds of HRM practices such as control and commitment HRM practices at chapter five. Simply put, in an organization with commitment HRM practices, employees are regarded as valuable assets and we can expect high level of investments in employees. In addition, employees are encouraged to participate in various issues of organizations.
In these propositions, we observe that Rainey and Steinbauer (1999) emphasized leadership, motivation of employees, and human resource development in addition to relationships with oversight authorities and stakeholders; and task design, mission-related propositions. Again, Rainey and Steinbauer (1999) also regarded the management of human resources as critical to becoming an effective government agency. That is, human resources need to be treated as valuable assets and something must be done to increase employee’s motivations such as public service motivation\textsuperscript{13}, mission motivation\textsuperscript{14}, and task motivation\textsuperscript{15}. Rainey and Steinbauer (1999) suggested specific relationships among factors emphasized in the propositions, which leads to a suggested government agency effectiveness model as seen in figure 3-4.

\textsuperscript{13} This can be defined as a general altruistic motivation to serve the interests of a community of people, a state, a nation, or humankind
\textsuperscript{14} While public service motivation focuses on altruistic service that benefits a community or a larger population, mission motivation has as its target or objective the mission of the agency. Therefore, when motivated, an individual will extend effort and seek to perform well in ways that he or she perceives to be related to accomplishing the mission.
\textsuperscript{15} This is about the influence of the relatively specific and immediate extrinsic and intrinsic rewards available through the person's role in the organization.
Figure 3-4. The Effectiveness Model of Government

Source: Rainey and Steinbauer (1999)
In the effectiveness model, we observe that the employee motivation is located closest (i.e., most directly related) to agency effectiveness. This might mean that if employees in a government agency are not motivated enough, it is hard to expect a high level of effectiveness in the agency. The model also suggested that motivation level is affected by various factors such as organizational culture, leadership, mission valence (attractiveness of the mission), and task design. In sum, the Rainey and Steinbauer effectiveness model considers human resources not as replaceable parts but as specific and valuable assets that managers need to pay special attention to if they want their agencies effective in delivering services.

3.5 Summary

In this chapter, I reviewed how human resources are regarded in the different efforts to understand effective public organizations. After reviewing the arguments from the different perspectives such as governance frame, the Government Performance Project, government agency effectiveness theories, and the effectiveness model of government organizations, we found that human resources are commonly regarded as a critical factor to becoming an effective organization in the public sector.

As seen in the reduced form of governance equation, the importance of human resources in producing outcomes is reflected in managerial roles and activities (M). However, as Lynn, Heinrich, and Hill (2000b) pointed out, effectiveness or efficient performance may or may not be the goal of a legislative coalition. That is, if public organizations are inefficiently created, organizational performance (i.e., outcomes (O)) is not likely to improve by paying attention to other factors rather than remedying structural problems (S).
In the Government Performance Project (GPP) model, human resource management (HRM) is one of the major subsystems of management that comprise management capacity, and HRM refers to the policies, systems, and practices that influence employees' behaviors, attitudes, and performance, and subsequently the performance of the organization. The GPP also emphasizes leadership that helps to integrate different management subsystems, such as financial management, human resources management, capital management, and information technology management, and leads to good management capacity. According to the GPP model, a government that does not have the right people and expertise to perform critical functions is likely to be ineffective in delivering services and meeting citizen expectations. Since the HRM system plays a critical role to making governmental organizations effective, the GPP model indicates that governments need the right systems, practices, and policies in place to attract and retain the right people.

From the forty-four cases that were randomly selected from an extensive bibliography of four thousand executive branch studies, Wolf (1993) identified fourteen variables that were likely to affect government agency effectiveness. Among them are three HRM-related factors: leadership skills of agency head, resource targeted on critical tasks, and delegation of operational decision-making authority. After identifying effectiveness-related variables, Wolf (1993) tested competing theories of bureaucratic effectiveness to examine which theories best explained those effectiveness-related variables and confirmed that "Political theory of the firm" best explained bureaucratic effectiveness in the U.S. federal government agencies. The political theory of the firm is a newly formulated, drawing heavily
from population ecology and supplementing with principles of professionalism and economic responsiveness.

Rainey and Steinbauer (1999) developed propositions about effective government organizations by drawing on government effectiveness studies. In the propositions, we observe that as a critical factor to being effective, Rainey and Steinbauer (1999) identified leadership, motivation of employees, and human resource development in addition to relationships with oversight authorities and stakeholders, task design, mission-related propositions. In the suggested model of government effectiveness, employee motivations are located closest (i.e., most directly related) to agency effectiveness. Therefore, effectiveness is less likely to be achieved within government organizations if employees are not highly motivated.
IV. Human Resource Management (HRM) and Organizational Strategy

According to Wright and McMahan (1992), the human resource management (HRM) field has sought to become integrated into the strategic management process through the development of a new discipline referred to as Strategic Human Resource Management (SHRM). This is defined as the pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals. In this chapter, I review some of the widely cited SHRM studies (e.g., Jackson & Schuler, 1995; Lengnick-Hall & Lengnick-Hall, 1988; Miles & Snow, 1984; Schuler & Jackson, 1987; Wright et al., 1992) and identify their arguments (including typologies) about human resources from a strategic point of view, hoping that the concept of relationships between HRM practices and organizational strategies may help to understand the results of my study since I explore if HRM characteristics of the municipal police departments have effects on crime control performance and turnover effects in the dissertation.

Human resource management (HRM)\(^1\) consists of the various practices used to manage people in organizations. These practices commonly have been grouped into subdisciplines of selection, training, appraisal, and rewards (Fombrum, Tichy, & Devanna, 1984). Wright and McMahan (1992) argued that whereas each function of HRM has evolved through technical innovations generated primarily from a micro-perspective that focuses only on the particular function, strategic human resource management (SHRM) studies have begun to examine the determinants of HR practices from a strategic perspective. According to Wright and McMahan (1992),

\(^1\) According to Jackson and Schuler (1995), HRM encompasses (a) specific human resource practices such as recruitment, selection, and appraisal; (b) formal human resource policies; and (c) overarching human resource philosophies.
SHRM is different from traditional HRM at least in two dimensions: First, vertically, it entails the linking of HRM practices with the strategic management process of the organization, and second, horizontally, SHRM emphasizes the coordination or congruence among the various human resource management practices through a pattern of planned action.

4.1 Determinants of human resource management practices

In this section, I briefly review Wright and McMahan’s (1992) theoretical models that explain why an organization has a certain kind of HRM practices (i.e., the determinants of HRM practices).

In figure 4-1, Wright and McMahan (1992) explained that the four models (model 1 through 4) are strategic models (or theories) of HRM that view HRM activities as being determined by proactive, strategically intended decisions, and the remaining two (model 5 and 6) are non-strategic models (or theories) of HRM, which tend to explain non-strategic and possibly even dysfunctional determinants of HRM practices.

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2 Jackson and Schuler (1995) also provided the similar summary of these models before suggesting internal and external contextual factors of HRM practices.
The resource-based view of the firm (i.e., model 1) emphasizes the link between strategy and the internal resources of the firm. It sees human resources as the essential asset to have sustained competitive advantage. Therefore, training and investment in human resources are expected from this perspective. The cybernetic systems model (i.e., model 2) sees organizations as input, throughput, and output systems in transactions with a surrounding environment. Therefore, HR input such as HR Skills, Knowledge, and Abilities (SKAs) affects HR throughput, which in turn affects HR outputs, while both input and throughput are influenced by firm strategy, and firm strategy got feedback from output such as productivity, satisfaction, and turnover. In sum, HRM practices are influenced and decided by various factors such
as a surrounding environment, firm strategy, and HR input, throughput and output. The agency/transaction cost theory (i.e., model 3) is based on the assumption that employees have strong incentives to shirk (i.e., reducing their performance) and free ride (i.e., relying on the efforts of others in the group) and no incentive to increase their performance unless task conditions allow employees to demonstrate their unique contributions and to benefit from those contributions (Jones, 1984). Therefore, the role of HRM practices is to allow for the measurement of unique contributions and to provide adequate rewards for individual employee performance. The behavioral approach (i.e., model 4) focuses on employee behavior as the mediator between strategy and firm performance and assumes that the purpose of HRM practices is to elicit and control employee attitudes and behaviors. In this approach, it is also assumed that strategies lead to HRM practices, which elicit employee role behaviors, and those desirable role behaviors eventually lead to a number of outcomes that provide benefits to the firm.

Wright and McMahan (1992) also suggested non-strategic models (models 5 and 6) of HRM in order to fully understand the ways in which HRM practices can either support or fail to support a firm’s strategy. According to Wright and McMahan (1992), the determinants of HRM practices in these non-strategic models are not the results of rational strategic decision-making processes, but rather derived from institutional and political forces. The resource dependence model (i.e., model 5 in the figure) focuses on power relationships within and among organizations and assumes that all organizations depend on a flow of valuable resources (e.g., money, technology, skills) into the organization in order to continue functioning. Therefore, the ability to exercise control over any of these valued resources provides an
individual or group with an important source of power (Pfeffer, 1981). In sum, the resource dependence model sees that those power relations tend to affect investments in certain HRM practices. The institutional approach (i.e., model 6 in the figure) sees that many structures, programs, and practices in organizations attain legitimacy through the social construction of reality. According to this view, many HRM practices may be the result of social construction processes whereby external entities influence the creation.

4.2 Contextual factors of human resource management practices

As determinants of HRM practices, Jackson and Schuler (1995) also identified internal and external contextual factors. As internal factors, they identified (1) technology, (2) structure, (3) size, (4) life cycle stages, and (5) business strategy. As external factors, they identified (1) legal, social, and political environments, (2) unionization, (3) labor market conditions, (4) industry characteristics, and (5) national culture.

(1) Technology refers to a system’s processes for transforming inputs into usable outputs. For example, Jackson and Schuler argued that HRM practices would be directly influenced by the presence of advanced manufacturing technology (AMT) and total quality management, based on Snell and Dean’s (1992) study. For example, Snell and Dean found that firms using traditional technologies were less likely than firms using AMT to engage in selective hiring, comprehensive training, and externally equitable compensation. (2) Organizational structure describes the allocation of tasks and responsibilities among individuals and departments, and the impact of structure on HRM practices is particularly evident in discussion of
multinational firms and international joint ventures. With respect to (3) size, based on institutional theory, Jackson and Schuler (1995) noted that larger organizations should adopt more sophisticated and socially responsive HRM activities because these more visible organizations are under more pressure to gain legitimacy. Based on economic theories, Jackson and Schuler also argued that because of the costs associated with many aspects of HRM, acceptable economies of scale must be reached before sophisticated HRM systems can be implemented. (4) Organizational life cycle stages are associated with changing managerial priorities, and these changing priorities, in turn, have implications for HRM. For example, Jackson and Schuler argued that selection criteria and assessment methods for top-level executives need to be matched to life cycle stages, based on Gerstein and Reisman (1983). (5) Business strategy also affects HRM practices. Citing Miles and Snow’s (1978) typology of business (i.e., prospectors, analyzers, and defenders), Jackson and Schuler (1995) argued that the postures toward the environment should have implications for the quantity and pace of human resource flows. For example, defenders who seek to maintain the same limited product line with emphasis on high volume and low cost, are less concerned about recruiting new applicants externally and more concerned about developing current employees.

As a first external contextual factor, Jackson and Schuler (1995) identified the legal, social, and political environments and argued that those environments affect almost all aspects of HRM, based on institutional and resource dependence theories. Taking an example that in the U.S., unionized employees have received wages about 33% greater than those of nonunion employees, Jackson and Schuler...
identified unionization as a second external contextual factor and noted that unions give voice to their members; establish policies and procedures for handling wage and working condition grievances; provide for job security; and secure health and retirement benefits. As a third external contextual factor, labor market conditions can be characterized by unemployment levels, labor diversity, labor market structure, etc. For example, when unemployment rate is high, recruiting process is likely to be more selective due to abundant applicants. Industrial characteristics, as a fourth external factor, differ depending on the sectors (i.e., the private and the public sectors), the extent of regulations, and so on. For example, the definition of effectiveness or behaviors evaluation is different depending on whether organizations are in the private sector or in the public sector. National culture is also identified as an external contextual factor since multinational enterprises have long before appeared and national economies are not within their national boundaries any more.

4.3 Organizational characteristics and human resource management practices
Miles and Snow (1984) explored relationships between organizational characteristics and HRM practices, and suggested three types of organizational characteristics. After investigating several hundreds companies in a dozen different industries, Miles and Snow observed that there were three types of organizational characteristics (or strategic behavior): defenders, prospectors, and analyzers. Defenders have narrow and relatively stable product-market domains and devote primary attention to improving the efficiency of their existing operations. Defender characteristics include a limited product line, capital-intensive technology, a functional structure, and skills in product efficiency. Prospectors continually search for product and
market opportunities and regularly experiment with potential responses to emerging environmental trends. Prospector characteristics include a diverse product line; multiple technology; geographically divisionalized structure, and skills in product research and development. Analyzers operate in two types of product-market domains – one is relatively stable, and the other is changing. Analyzer characteristics include a limited basic product line; search for a small number of related product; mixed structure; and skills in production efficiency, process engineering, and marketing. After three types of organizational characteristics were proposed, Miles and Snow (1984) called organizations reactors if strategy-environment inconsistency exists, and strategy, structure, and process are poorly aligned in organizations.

Table 4-1 shows how HRM practices can be different depending on organizational characteristics, and Miles and Snow (1984) argued that because the demand for human resources services derives from strategic considerations in most organizations, the development of HRM systems has tended to lag behind developments in strategy and structure.
Table 4-1. Organizational Characteristics and HRM Practices

<table>
<thead>
<tr>
<th></th>
<th>Defender</th>
<th>Prospector</th>
<th>Analyzer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic HRM Strategy</strong></td>
<td>Building Human resources</td>
<td>Acquiring Human resources</td>
<td>Allocating Human resources</td>
</tr>
<tr>
<td><strong>Recruitment, Selection, &amp; Placement</strong></td>
<td>Emphasis: “make” Little recruitment above entry level Selection based on weeding out undesirable employees</td>
<td>Emphasis: “buy” Sophisticated recruiting at all levels Selection may involve psychological testing</td>
<td>Emphasis: “make and buy” Mixed recruiting and selection approaches</td>
</tr>
<tr>
<td><strong>Staff Planning, Training, &amp; Development</strong></td>
<td>Formal, extensive skill building Extensive training programs</td>
<td>Informal, limited skill identification and acquisition Limited training programs</td>
<td>Formal, extensive skill building and acquisition Extensive training programs</td>
</tr>
<tr>
<td><strong>Performance appraisal</strong></td>
<td>Process-oriented procedures Identification of training needs Comparison with previous years’ performance</td>
<td>Results-oriented procedures Identification of staffing needs Comparison with other companies during the same period</td>
<td>Mostly process-oriented procedures Identification of training and staffing needs Mostly comparison with previous years’ performance, some comparison with other companies</td>
</tr>
<tr>
<td><strong>Compensation</strong></td>
<td>Oriented toward position in organization hierarchy Internal consistency Compensation driven by superior/subordinate differentials</td>
<td>Oriented toward performance External competitiveness Compensation driven by recruitment needs</td>
<td>Oriented toward hierarchy, some performance Internal consistency and external competitiveness Compensation driven by superior/subordinate differentials and recruitment needs</td>
</tr>
</tbody>
</table>

Source: Adapted from Miles and Snow (1984)

4.4 Strategic situation and human resource management practices

Arguing that achieving competitive advantage through human resources requires that these activities be managed from a strategic perspective, Lengnick-Hall and Lengnick-Hall (1988) explained why it is desirable to integrate human resources management and strategic choice as follows. First, integration provides a broader range of solutions for solving complex organizational problems. Second, integration ensures that human, financial, and technological resources are given consideration in setting goals and assessing implementation capabilities. Third, through integration organizations must explicitly consider the individuals who comprise them and must implement policies. Finally, reciprocity in integrating human resource and strategic concerns limits the neglect of human resources as a vital source of organizational
Lengnick-Hall and Lengnick-Hall (1988) proposed a typology for strategic management of human resources through the “Growth/Readiness” matrix shown in figure 4-2, and contended that movement from one strategic situation to another (i.e., from one quadrant to another in the figure) results from an interaction between environmental conditions and organizational choice.

Figure 4-2. Growth / Readiness Matrix

Lengnick-Hall and Lengnick-Hall explained that corporate growth expectations (i.e., Y-axis) are a proxy for the goals of the organization and high growth generally means increased opportunities, high cash flow, and expansion. Organizational readiness (i.e., X-axis) measures availability or obtainability of human resources skills, numbers, styles, and experience needed for strategy implementation, therefore it is a proxy for implementation feasibility. Lengnick-Hall and Lengnick-Hall argued...
that since current techniques or skills become less competitive over time, strategic situations tend to change from left to right (i.e., from high readiness to obsolescence) while growth expectation moves from top to bottom (i.e., from high growth expectation to lower growth goals) because markets become saturated and new competitors enter the marketplace.

Quadrant 1 (development) is characterized by high growth expectations and a poor level of readiness between strategy and human resources skills as seen in the figure. In this situation, a firm may choose to invest heavily in its human resources to improve implementation feasibility or a firm may decide to change corporate goals to reflect the lack of readiness. When an organization is located in quadrant 2 (expansion) characterized by high growth expectations and good readiness indications between strategy and skills, the primary question involves resource allocation: what proportion of resources should be devoted to achieving continued growth and what proportion should be channeled into managing the effects of growth (e.g., updating planning systems, managing information, socializing new employees). Lengnick-Hall and Lengnick-Hall explained that the resolution to resource allocation depends on the level of human resources investment required to maintain desired growth and continued readiness, profitability, and other performance measures that are important to the firm. In quadrant 3 (productivity) where characteristics includes low growth expectation and strong readiness, the key question is how to channel the results of productive activities because a firm in this quadrant has an established competitive advantage and operations are highly effective and efficient. The redirection quadrant (quadrant 4) is characterized by low growth expectations and poor readiness. Firms located in this quadrant are typically in declining industries or have maintained
obsolete products or manufacturing processes that are no longer competitive, therefore they must decide whether to redirect employee activities or to alter the business focus (i.e., exit). For example, if a firm decides to redirect employee activities, retaining, restructuring, and realignment are needed. If a firm decided to exit, turnover is often required. Based on MacMillan and Jones (1986), Lengnick-Hall and Lengnick-Hall suggested that firms in this quadrant must examine organization culture and employment philosophy because firms that reach this stage usually have an organization culture that is firmly established and values that have dominated during times of growth and implementation are often maladaptive. In conclusion, Lengnick-Hall and Lengnick-Hall suggested a testable hypothesis that firms engaging in a strategy formulation process that systematically and reciprocally considers human resources and competitive strategy will perform better over the long term than firms that manage competitive strategy and human resources independently of each other.

4.5 Competitive strategy and human resource management practices

Based on Porter’s (1980; 1985) discussion of a firm’s competitive advantage, Schuler and Jackson (1987) suggested three competitive strategies and their proper HRM practices that organizations may use to gain competitive advantage: innovation, quality enhancement, and cost reduction. According to Schuler and Jackson (1987), a certain type of role behavior is needed from an employee apart from the specific technical skills, knowledge, and abilities required to perform a specific task, and this employee role behavior is associated with HRM practices. Table 4-2 shows several dimensions along which employee’s role behavior can vary.
Table 4-2. Employees role behaviors for competitive strategies

<table>
<thead>
<tr>
<th></th>
<th>Highly repetitive, predictable behavior</th>
<th>Highly creative, innovative behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Very short-term focus</td>
<td>Very long-term behavior</td>
</tr>
<tr>
<td>3</td>
<td>Highly cooperative, interdependent behavior</td>
<td>Highly independent autonomous behavior</td>
</tr>
<tr>
<td>4</td>
<td>Very low concern of quality</td>
<td>Very high concern for quality</td>
</tr>
<tr>
<td>5</td>
<td>Very low concern of quantity</td>
<td>Very high concern for quantity</td>
</tr>
<tr>
<td>6</td>
<td>Very low risk taking</td>
<td>Very high risk taking</td>
</tr>
<tr>
<td>7</td>
<td>Very high concern for process</td>
<td>Very high concern for results</td>
</tr>
<tr>
<td>8</td>
<td>High preference to avoid responsibility</td>
<td>High preference to assume responsibility</td>
</tr>
<tr>
<td>9</td>
<td>Very inflexible to change</td>
<td>Very flexible to change</td>
</tr>
<tr>
<td>10</td>
<td>Very comfortable with stability</td>
<td>Very tolerant of ambiguity and unpredictability</td>
</tr>
<tr>
<td>11</td>
<td>Narrow skill application</td>
<td>Broad skill application</td>
</tr>
<tr>
<td>12</td>
<td>Low job involvement</td>
<td>High job involvement</td>
</tr>
</tbody>
</table>

Source: Schuler (1988)

Schuler and Jackson (1987) argued that since an organization pursuing an innovation strategy is to be the most unique producer, conditions for innovation must be created either formally through official corporate policy or more informally. Therefore, the role behavior for this organization includes: a high degree of creative behavior, a longer-term focus, a relatively high level of cooperative, interdependent behavior, moderate concern for quality and quantity, an equal degree of concern for process and results, a greater degree of risk taking, and a high tolerance of ambiguity and unpredictability. Quality improvement can be possible through the employee’s commitment to work, changing processes of production, and others, therefore an organization with a quality-enhancement strategy needs the employee’s role behavior such as relatively repetitive and predictable behaviors, a more long-term focus, a modest amount of cooperative, interdependent behavior, a high concern for quality, a
modest concern for quantity of output, high concern for process, low risk-taking activity, and commitment to the goals of the organization. Since a firm with cost-reduction strategy typically attempts to gain competitive advantages by being the lowest cost producer, Schuler and Jackson (1987) argued that the profile of employee role behaviors includes relatively repetitive and predictable behaviors, rather short-term focus, primary autonomous and individual activity, high concern for quantity of output, primary concern for results, low risk-taking, and a relatively high degree of comfort with stability.

Based on role behaviors in each competitive strategy (i.e., innovation, quality-enhancement, and cost-reduction), Schuler and Jackson (1987) suggested proper HRM practices in each case. Firms pursuing innovation strategy are likely to have the following HRM characteristics: (1) jobs that require close interaction and coordination among groups of individuals, (2) performance appraisals that are more likely to reflect longer-term and group-based achievements, (3) jobs that allow employees to develop skills that can be used in other positions in the firm, (4) comparison systems that emphasize internal equity rather than external or market-based equity, (5) pay rates that tend to be low, but that allow employees to be stockholders and have more freedom to choose the mix of components, and (6) broad career paths to reinforce the development of a broad range of skills. The key HRM practices in a firm with quality-enhance strategy are: (1) relatively fixed and explicit job description, (2) high levels of employee participation in decisions relevant to immediate work conditions and the job itself, (3) a mix of individual and group criteria for performance appraisal that is mostly short term and results-oriented, (4) relatively egalitarian treatment of employees and some guarantees of employment
security, and (5) extensive and continuous training and development of employees. An organization with cost-reduction strategy is likely to have HRM practices such as (1) relatively fixed and explicit job descriptions that allow little room for ambiguity, (2) narrowly designed jobs and narrowly defined career paths that encourage specialization, expertise, and efficiency, (3) short-term, results-oriented performance appraisals, (4) close monitoring market pay level for use in making compensation decisions, and (5) minimal levels of employee training and development. Schuler and Jackson (1987) concluded that although all firms are not seeking to gain competitive strategy, for those attempting to do so, the experiences of other firms suggest that effectiveness can be increased by systematically melding HRM practices with the selective competitive strategy.

4.6 Summary

So far I reviewed some strategic human resource management (SHRM) studies in which human resources are understood from the strategic perspective. Although these studies mainly focus on organizations in the private sector, we may get some hints about how to understand HRM characteristics and HRM practices that municipal police departments may have. For example, we may interpret the influence of HRM practices and characteristics on crime control performance (i.e., performance indicator in this study) in the municipal police departments from the strategic viewpoint. If we find a significant relationship between HRM characteristics and crime control performance, we may interpret that HRM characteristics are well tuned to organizational strategies. Likewise, if no significant results are found, we may interpret that there might be inconsistency between HRM practices and their organizational strategies or that HRM practices are irrelevant for
crime control performance.

Schuler and Jackson (1987) argued that HRM practices are associated with expected role behaviors that are different depending on competitive strategies (i.e., innovation, quality enhancement, and cost reduction) that an organization pursues. According to Lengnick-Hall and Lengnick-Hall (1988), HRM practices would be different depending on strategic situations (i.e., development, expansion, productivity, and redirection), that can be explained with corporate growth expectation and organizational readiness. Miles and Snow (1984) observed three basic types of organizational characteristics (i.e., defenders, prospectors, and analyzers) and suggested appropriate HRM practices for each type of organizational characteristics. For example, defenders are likely to have little recruitment above entry level whereas prospectors are likely to have sophisticated recruiting at all levels.

Wright and McMahan (1992) summarized HRM literature and answered the question, “what determines HRM practices?” by suggesting strategic and non-strategic models. Strategic models of HRM practices view HRM activities (or practices) as being determined by proactive and strategically intended decisions, and Wright and McMahan (1992) suggested four strategic models: resource-based view, cybernetic system, agency/transaction cost, and behavioral approach. The authors also suggested non-strategic models that do not see HRM practices as the results of proactive decision-making. Instead, in non-strategic models, HRM practices are viewed as results of institutional and political forces that do not consider organizational goals or strategic end. In addition to Wright and McMahan’s (1992) strategic and non-strategic models that explain the determinants of HRM practices,
Jackson and Schuler (1995) argued that HRM practices are also influenced by contextual factors of an organization. That is, they identified internal contextual factors (i.e., technology, structure, size, life cycle stages, and business strategy) and external contextual factors (i.e., legal, social, and political environments, unionization, labor market conditions, industry characteristics, and national culture), both of which are likely to influence HRM practices an organization adopts.
V. HRM Practices, Organizational Performance, and Hypotheses

From the perspective of strategic human resource management (SHRM), HRM practices may be determined according to organizational characteristics (i.e., Miles and Snow, 1984: defender, prospector, and analyzer), strategic situations (i.e. Lengnick-Hall and Lengnick-Hall, 1988: development, expansion, productivity, and redirection), or competitive strategies (i.e., Schuler and Jackson, 1987: innovation, quality-enhancement, and cost reduction). While those typologies are suggested as strategic models, Wright and McMahan (1992) also suggested non-strategic models since sometimes HRM practices can fail to support a firm’s strategy. According to Wright and McMahan, the determinants of HRM practices in some organizations (especially public organizations) may not be the results of rational strategic decision-making processes, but rather derived from institutional and political forces.

In this chapter, I review HRM practices from both universalistic and contingency perspectives, focusing on the link between HRM practices and organizational performance. From the universalistic perspective, there are HRM best practices that always lead to better organizational performance in any circumstances, whereas the contingency perspective argues that we can expect better performance only when HRM practices are integrated with organizational strategy because different employee behaviors are required under different organizational strategy and different HRM practices will elicit and control employees’ behaviors. After reviewing arguments of both universalistic and contingency perspectives, I review some empirical studies that tested if HRM practices are correlated with organizational performance from the universalistic and the contingency perspectives. Since control theories also appear to explain the link between HRM practices and
organizational performance, I also review some arguments from the control theory perspective, too. At the end of this chapter, I establish some hypotheses that predict the relationships between HRM practices and crime control performance, based on the arguments of universalistic, contingency, and control theory perspectives.

5.1 The universalistic perspective on HRM practices

There are generally two primary perspectives to describe the link between HRM practices and organizational performance; one is the universalistic (or best practices) and the other is the contingency (Youndt et al., 1996). In this section and the next, I outline these two perspectives based on HRM studies that provide summaries about either one of those perspectives or both (e.g., Arthur, 1992; Becker & Gerhart, 1996; Delaney & Huselid, 1996; Delery & Doty, 1996; Walton, 1985; Youndt et al., 1996).

The universalistic approach has an assumption that certain HRM practices have positive and direct effects on organization performance. In fact, a fair amount of empirical evidence that supports this assumption has been accumulated. Some studies (e.g., Bartel, 1994; Becker & Huselid, 1992; Gerhart & Milkovich, 1992; Ichniowski, 1986; Wagner, 1994) focus on the effect of individual HRM practices, others (e.g., Arthur, 1994; Huselid, 1995; MacDuffie, 1995; Walton, 1985), especially recently, focus on bundles or systems of HRM practices. For example, some studies focus on individual HRM practices such as selectivity in staffing (e.g., Becker et al., 1992; Schmidt, Hunter, McKenzie, & Muldrow, 1979), training (e.g., Bartel, 1994; Knoke & Kalleberg, 1994), incentive compensation (e.g., Gerhart et al., 1992), formal grievance procedure (e.g., Ichniowski, 1986), and employee participation (e.g., Wagner, 1994), and found that each of those individual HRM
practices has positive effects on organizational performance.

More recently, researchers have found that bundles, or systems, of HRM practices have more influences on organizational performance than individual practices working in isolation (e.g., Youn disturbance, 1996). For example, Arthur (1992; 1994) found that commitment-maximizing HRM systems have more positive effects on manufacturing performance than cost-reduction HRM systems. According to Arthur (1992, 1994), the commitment-maximizing HRM system is characterized by broadly defined jobs, high level of employee participation, formal dispute resolution, regularly share business information with employees, more extensive general training, and relatively high wages. Youn et al. (1996) and Becker and Gerhardt (1996) similarly argued that there are the best HRM practices that lead to better organizational performance, but they noted that those best HRM practices may vary depending on researchers. Table 5-1 shows some examples of the best HRM practices that are suggested by different researchers.

Although there are some variations in defining the best HRM practices depending on the studies, Youn et al. (1996) observed that at their roots, most studies focus on enhancing the skill base of employees through human resource activities such as selective staffing, comprehensive training, and broad developmental efforts like job rotation and cross-utilization as seen in the table. Youn et al. (1996) explained the reasons why those best HRM practices might result in high performance, based on two different theories. According to human capital theory, people who possess Skills, Knowledge, and Abilities (SKAs) are valuable to firm, so HRM practices that help improve employees’ SKAs are more
likely to increase organizational performance.

Table 5-1. Summaries of HRM Best Practices

<table>
<thead>
<tr>
<th>Authors</th>
<th>HRM best practices</th>
</tr>
</thead>
</table>
| Walton (1985)            | - Flexible definition of duties  
- Frequent use of teams as accountable unit  
- Flat organization structure with mutual influence system  
- Management emphasis on problem solving and relevant expertise  
- Individual pay linked to skills and mastery  
- Job security  
- Priority for training  
- Employee participation encouraged on wide range of issues  
- Business data shared widely  
- Mutuality in labor relations/joint planning on expanded agenda |
| Pfeffer (1994)           | - Employment security  
- Selective recruiting  
- High wages/Incentive pay  
- Employee ownership  
- Information sharing  
- Participation  
- Empowerment  
- Job redesign/teams  
- Training and skill development/Cross-training  
- Wage compression  
- Promotion from within |
| Huselid (1995)           | - Personnel selection  
- Performance appraisal  
- Incentive compensation  
- Formal grievance procedures  
- Information sharing  
- Labor/management participation  
- Recruiting intensity  
- More training hours |
| MacDuffie (1995)         | - Work teams  
- Problem-solving groups  
- Job rotation  
- Decentralization  
- Recruitment and hiring  
- Contingent compensation  
- More training hours |
| Kochan and Osterman (1994) | - Self-directed work teams  
- Job rotation  
- Problem-solving groups/quality circles  
- Total Quality Management |
| Cutcher-Gershenfeld (1991) | - Self-directed work teams  
- Problem-solving groups/quality circles  
- Feedback on production goals  
- Formal conflict resolution |

Source: Adapted from Walton (1985), Youndt et al. (1996), and Becker and Gerhardt (1996)
Youndt et al. (1996) also explained with resource-based theory. The resource-based theory emphasizes that internal resources like employees play a critical role to developing and maintaining a firm’s competitive capabilities (see Wright and McMahan’s (1992) determinants of HRM practices). Researchers (e.g., Barney, 1995; Pfeffer, 1994; Ulrich & Lake, 1991; Wright et al., 1992) noted that people may be the ultimate source with which we can sustain competitive advantage because other sources such as technology, financial capital, and scale economies can be easily imitated and have been weakened by globalization and environmental changes.

5.2 The contingency perspective on HRM practices

The contingency perspective posits that the impact of HRM practices on organizational performance is conditioned by organizations’ strategic postures that may be determined by organizational characteristics, strategic situations, or competitive strategies. Therefore, if a firm’s approach to competition does not rely on the talents and capabilities of employees, HRM practices may not have an effect on organizational performance (Youndt et al., 1996).

Delery and Doty (1996) noted that contingency arguments are more complex than universalistic arguments because contingency arguments imply interactions rather than the simple linear relationships incorporated in universalistic theories. According to Delery and Doty (1996), the organization’s strategy is considered to be the primary contingency factor, therefore a contingency perspective requires a researcher to select a theory of firm strategy and then specify how the individual HRM practices will interact with firm strategy to result in organizational
Youndt et al. (1996) explained the link between contingency approach to HRM practices and a high level of organizational performance from two perspectives: the behavioral perspective and control theory perspective. From the behavioral perspective, organizational characteristics or strategies require unique attitudes and role behaviors if performance is to be effective. According to this perspective, HRM practices can be the means to elicit and reinforce the kinds of employee behaviors that an organization needs. That is, strategic context influences individual HRM practices such as employee selection (e.g., Hambrick, 1983), job design (e.g., Keefe & Katz, 1990), and performance appraisal and compensation (e.g., Kerr, 1985). For example, under the cost reduction strategy in which organizations can create customer value by reducing costs, emphasis is placed on efficiently managing a low-skilled, manual workforce. Therefore, in that situation, comprehensive employment testing to find the best qualified candidates (e.g., Hofstede, 1978) or elaborate training system (e.g., Cascio, 1991) may have a negligible impact on organizational performance. However, under the quality strategy that focuses on continually improving manufacturing processes to increase product reliability and customer satisfaction, the ultimate determinants of organizational competitiveness may be the intellectual capital of organizations. Therefore, human-capital-enhancing HRM systems with such features as selective staffing, comprehensive training, developmental behavior-based performance appraisal, and group incentives are likely to have positive impacts on organizational performance (Youndt et al. 1996).
5.3 HRM practices and organizational performance

As we reviewed in the previous sections, some strategic HRM (SHRM) researchers argued that there are so-called best HRM practices (i.e., universalistic HRM practices) which may lead to a high level of organizational performance, whereas other SHRM researchers argued that HRM practices need to be integrated with organizational strategies to be effective (i.e., contingency perspective). In this section, I review some empirical research that explored the relationships between HRM practices and organizational performance from either universalistic or contingency perspectives.

As one of the first empirical efforts to evaluate the effect of HRM system on organizational performance from the strategic viewpoint, Arthur (1994) investigated the effects of HRM practices on organizational performance, using an empirical taxonomy of HRM practices such as control and commitment HRM categories. Arthur found that an organization with commitment HRM practices had higher organizational performance than an organization with control HRM practices. With a sample of 30 existing U.S. steel minimills where they begin the steel making process with steel scrap instead of iron ore, Arthur (1994) categorized their HRM practices into control and commitment HRM systems (or bundles of HRM practices), compared their organizational performance (i.e., scrap rate and labor hours) among minimills with different HRM systems, and found that minimills with the commitment HRM system had fewer labor hours per ton and fewer scrap rate (i.e., higher performance). Although Arthur (1994) found that HRM system had a significant effect on organizational performance in this study, he raised a question if HRM system has similar effect in the public sectors.
Huselid (1995) argued that if superior HRM practices (i.e., the best HRM practices) increase employees’ discretionary effort, their use would increase a firm’s productivity, drawing on the theoretical literature (e.g. Barney, 1991) that suggests HRM practices can affect individual employee performance through their influence over employees’ skills, motivation, and organizational structures. Huselid also argued that complementarities among HRM practices (i.e., internal fit) and alignment of HRM practices with a firm’s competitive strategy (i.e., external fit) would increase a firm’s productivity, too. Testing with a sample consisting of 968 firms that had more than a hundred employees in the U. S., Huselid found that best HRM practices led to increased productivity (i.e., sales per employee in the study). However, the results did not support the external fit argument (i.e., contingency argument) and showed only modest support for the effect of internal fit among HRM practices on productivity.

Based on Levine and Tyson’s (1990) study, MacDuffie (1995) argued that three conditions must be met for any HRM system to contribute to improving performance: (1) when employees possess knowledge and skills that managers lack; (2) when employees are motivated to apply these skills and knowledge through discretionary efforts; and (3) when the firm’s business or production strategy can only be achieved when employees contribute such discretionary effort. Between two historical production strategies (i.e., mass production and flexible production strategies), Macduffie (1995) argued that under flexible (or lean) production strategy workers are given a more central role in the production system, and extensive training, broad job classifications, and job rotations are required for employees to
develop skills for problem-solving. He also argued that workers would only contribute their discretionary efforts to problem-solving if they believe that their individual interests are aligned with those of the company, and that the company will make a reciprocal investment in their well-being. Using an international data set comprising 62 automotive assembly plants, MacDuffie (1995) tested his argument that HRM system contributes more to productivity\(^1\) and quality\(^2\) of assembly plant when HRM system is integrated with manufacturing policies from contingency perspective. The result showed that flexible production strategy consistently led to better performance than the mass production approach, and that result confirmed the universalistic arguments rather than contingent approach about the effects of HRM practices. That is, the argument that either mass or flexible production plants with a good fit between their HRM systems and production strategies would better perform was not supported.

With the data collected from about 200 banks, Delery and Doty (1996) tested three modes of SHRM theories to see the effects of HRM practices on financial performance: universalistic, contingency, and configurational. As reviewed previously, the universalistic view refers to best HR practices that lead to better performance if an organization adopts them, and the contingency view means HRM practices need to be consistent with business or production strategy if high performance is to be achieved. According to Delery and Doty, while the contingency view focuses on individual HRM practices, the configurational view is more concerned about the pattern of multiple independent variables (i.e., internal fit between HRM practices) – that is, synergistic effects are expected if there is

\(^1\) Labor productivity is defined as hours of actual effort required to build a vehicle.
\(^2\) Consumer-perceived quality, defined as defects per 100 vehicles.
consistency among HRM practices. Drawing on SHRM literature (e.g., Miles et al., 1984; Osterman, 1987; Pfeffer, 1994), Delery and Doty identified seven strategic HRM practices: internal career opportunities, formal training systems, appraisal measures (behavior or results based), profit sharing, employment security, voice mechanism (formal grievance and participation in decision making), and job definition. According to the results in their study, the universalistic view was relatively more supported than the other views, and especially, three HRM practices such as job security, profit-sharing, and results-oriented appraisal had strong and positive relationships with organizational finance performance. The results also provided some support for the contingency perspective by revealing the links between financial performance and three HRM practices such as performance appraisal, employee participation, and internal career opportunity when they were consistent with organizational strategies. For example, banks that were able to align their HRM practices with strategy were estimated to have nearly 50 percent higher financial performance (e.g., return-on-assets in the study) than other banks whose HRM practices were one standard deviation out of alignment. In addition, the results also showed some support for the configurational view. For example, the more closely a bank’s employment system resembled the market-type system, the higher level its performance reached. In sum, the results showed that all the three perspectives of HRM practices had positive effects on organizational performance (i.e., financial performance in the study).

The universalistic and the contingency views of the effects of HRM practices

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3 The market-type system is characterized by hiring from outside an organization, providing little training, and evaluating performance through the use of results measures. Oppositely, the internal system is characterized by hiring from internal labor market, and extensive training and socialization (Delery and Doty, 1996, p809-810)
on performance were also tested by Youndt, Snell, Dean, and Lepak (1996). With the sample comprising manufacturing plants in metal-working industry (100 – 150 managers at different positions participated), Youndt et al. focused on the relationships between organizational performance – customer alignment, machine efficiency, and employee productivity – and the four most commonly recognized areas of HRM practices (i.e., staffing, training, performance appraisal, and compensation). The results showed that human-capital-enhancing HRM practices have significant and positive effects on organizational performance (i.e., customer alignment, machine efficiency, and employee productivity in the study), which supports the universalistic perspective. Further analysis, however, revealed that the main effect of human-capital-enhancing HRM practices on performance was predominately a function of the performance enhancement obtained when firms linked human-capital-enhancing HRM systems with a high quality manufacturing strategy. Therefore, the contingency perspective was much more supported. For example, as seen in figure 5-1, machine efficiency, one of the operational performance measures, appears to increase as a plant adopts more human-capital-enhancing HRM practices. When the data are analyzed further by categorizing participating plants according to the manufacturing strategy they adopt (i.e., high quality manufacturing strategy and cost reduction manufacturing strategy), we observe that machine efficiency increases only when a plant adopts high quality manufacturing strategy.

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4 According to Youndt et al. (1996), human-capital-enhancing HRM practices are characterized by selective staffing, comprehensive training, developmental behavioral-based appraisal, and group incentive and external equity compensation. Administrative HRM practices have opposite characteristics.

5 High quality strategy focuses on continually improving manufacturing processes to increase product reliability and customer satisfaction, whereas organizations with cost reduction strategy creates customer value by reducing costs and this can be done by diminishing the amount of human capital needed in the production process. (Youndt et al, 1996)
In sum, mixed results have existed. Some studies (Huselid, 1995; Arthur, 1994; Macduffie, 1995) found the results that supported the universalistic perspective, and other studies (Delery and Doty, 1996; Younct et al., 1996) revealed that the contingency perspective better predicted the relationship between HRM practices and organizational performance.

5.4 Control theory and HRM practices

In order to achieve better performance through effective control over employees, control researchers have suggested different control methods (or strategies), based on
task programmability\(^6\) and outcome measurability\(^7\); the control methods, in turn, lead to different HRM practices (Eisenhardt, 1985; Ouchi, 1979). For example, Thompson (1967) suggested control methods such as computational\(^8\), compromise\(^9\), judgmental\(^10\), and inspirational\(^11\) strategies; Ouchi (1979) and Eisenhardt (1985) suggested behavioral control, output/outcome control, and input/clan controls, depending on the task programmability (or knowledge of cause/effect relations) and the outcome measurability (standards of desirable performance). Figure 5-2 summarizes the arguments of control theory researchers.

Figure 5-2. Administrative Information and HRM Control

<table>
<thead>
<tr>
<th>Outcome Measurability</th>
<th>Knowledge of Cause/Effect Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystallized</td>
<td>(Computational Strategy)</td>
</tr>
<tr>
<td></td>
<td>Behavior Control</td>
</tr>
<tr>
<td></td>
<td>Output Control</td>
</tr>
<tr>
<td></td>
<td>Or Both</td>
</tr>
<tr>
<td>Ambiguous</td>
<td>(Compromise Strategy)</td>
</tr>
<tr>
<td></td>
<td>Behavior Control</td>
</tr>
<tr>
<td></td>
<td>- Centralization</td>
</tr>
<tr>
<td></td>
<td>- Articulated Procedures</td>
</tr>
<tr>
<td></td>
<td>- Close Supervision</td>
</tr>
<tr>
<td></td>
<td>- Behavior Appraisal</td>
</tr>
<tr>
<td></td>
<td>(Judgmental Strategy)</td>
</tr>
<tr>
<td></td>
<td>Output Control</td>
</tr>
<tr>
<td></td>
<td>- Decentralization</td>
</tr>
<tr>
<td></td>
<td>- Results Criteria</td>
</tr>
<tr>
<td></td>
<td>- Performance-Rewards</td>
</tr>
<tr>
<td></td>
<td>- Link</td>
</tr>
<tr>
<td></td>
<td>(Inspirational Strategy)</td>
</tr>
<tr>
<td></td>
<td>Socialization/Clan Control</td>
</tr>
<tr>
<td></td>
<td>Input Control</td>
</tr>
<tr>
<td></td>
<td>- Rigorous Staffing</td>
</tr>
<tr>
<td></td>
<td>- Training-Development</td>
</tr>
<tr>
<td></td>
<td>- Socialization</td>
</tr>
</tbody>
</table>

Source: Adapted from Snell (1992), Thompson (1967), Ouchi (1979), and Eisenhardt (1985)

Note:
- Computational, judgmental, compromise, and inspirational strategies are Thompson’s (1967) terms.
- Behavior, output, and socialization/clan control are Ouchi’s (1979) terms

\(^6\) When we have knowledge about cause and effect of the task, it is task-programmable.
\(^7\) If outcomes are tangible, they are measurable
\(^8\) Where there is certainty regarding both cause/effect relations and outcome preferences, computers have been most widely employed for making decisions.
\(^9\) Where there is certainty regarding cause/effect but uncertainty regarding outcome preferences.
\(^10\) Where outcome preferences are clear but cause/effect relationships are uncertain.
\(^11\) Where there uncertainty on both cause/effect relationships and outcome preferences
From the perspective of control theory, we may say that better organizational performance can be achieved through less control costs, and less control costs can be possible through appropriate control methods and induced HRM practices. Of course, any control methods can entail some costs. As Ouchi (1979) noted, for example, costs for search and acquisition are associated with input control, and costs for monitoring and evaluating are expected when we adopt behavioral and output control. However, if we do not properly consider the task programmability (or knowledge of cause/effect relations) and the outcome measurability (or standards of desirable performance) that control theory scholars suggested before choosing any type of control methods, more costs would be necessary.

According to Thompson (1967), as a classic control theory, decision issues in controlling a complex organization always involve two major dimensions: beliefs about cause/effect relations and preferences regarding possible outcomes. Therefore, each type of decision issue calls for a different strategy of controlling. For example, as seen in figure 5-2, when there is certainty regarding both causation and outcome preferences, computational strategy is proper. In an opposite situation where there is uncertainty on both dimensions, inspirational strategy is proper for controlling the organization. However, judgmental or compromise strategy is necessary when either of those two dimensions is not clear.

Ouchi (1979) introduced three fundamentally different mechanisms (i.e., markets, bureaucracies, and clans) through which organizations can seek to cope with the problem of evaluation and control. According to Ouchi, bureaucratic form is preferred in many situations despite its inadequacies since pure markets rarely exist.
Informal social structure (i.e., clans) as an input control is effective in control when behavior control or outcome control costs too much and is not possible. Ouchi argued that a control mode which relies heavily on selecting the appropriate people can expect high commitment as a result of internalized values, whereas a control mode heavily depending on monitoring and evaluation in an explicit manner is likely to offend people’s sense of autonomy and of self-control and result in an unenthusiastic, purely compliant response, based on Etzioni (1965).

Eisenhardt (1985) considered control variables such as reward structure, task characteristics, and information systems for organizational design from two perspectives: organizational theory and agency theory. Based on Thompson’s (1967) and Ouchi’s (1979) arguments, Eisenhardt argued that the control strategy an organization would adopt is a function of task characteristics (or task programmability) and outcome measurement from the perspective of organizational theory. Eisenhardt also argued that the control strategy is a function of costs of information systems and uncertainty from the perspective of agency theory. For example, if a task is neither programmed nor has a measurable outcome from organizational perspective, input control such as a selective recruiting becomes appropriate, and the input control in this situation would also minimize divergence of preferences and be least expensive among control means from the perspective of agency theory. In sum, Eisenhardt (1985) integrated both organizational and agency theory perspectives and predicted the type of control strategy for an organization. In fact this integrated perspective can provide more practical choices than any single perspective. From economic perspective (i.e., agency theory), the costs of information system may become a major practical barrier to adopting behavioral or output control system in many cases. Consequently an organization tends to rely on
input control when monitoring and evaluating employee’s behavior or outcomes cost too much and/or task is neither programmable nor measurable.

Snell (1992) empirically tested the theoretical arguments of control theory that the type of control (behavioral, output, or input controls) an organization relies on would depend on the knowledge of cause/effect relations as well as standards of desirable performance. That is, Snell tested if an organization relies on a specific type of control, depending on the administrative information that managers might have. According to the results, Snell (1992) concluded that the input, behavior, and output controls did not appear to be mutually exclusive and, therefore those control types might serve different purposes and could be implemented together although the three control types are different from each other with distinct patterns of practices. In this section I reviewed the arguments of some control studies such as Thompson (1967), Ouchi (1979), Eisenhardt (1985), and Snell (1992) in order to better understand HRM practices that might be induced by control methods we choose.

5.5 Control/Commitment HRM practices, police organizations, and hypotheses

Although the best HRM practices are different depending on the researchers (see table 5-1 for the summary of various best HRM practices) – that is, the concept of “the best practices” is still developing, at their roots most studies focus on enhancing the skill base of employees through HR activities such as selective staffing, comprehensive training, and broad developmental efforts like job rotation and cross-utilization, as Youndt et al. (1996) observed.

One strategic HRM researcher, Walton (1985) categorized HRM practices
into control and commitment systems and argued that workers respond best not when they are tightly controlled (i.e., under control HRM system), but when they are given broader responsibilities, encouraged to contribute, and helped to take satisfaction in their work (i.e., under commitment HRM system). As seen in table 5-2, Walton compared control and commitment HRM system in various aspects and argued that any organizations that adopt commitment HRM practices would achieve better organizational performance than an organization with control HRM practices from the universalistic perspective of HRM.

Among various typologies of HRM practices, I chose Walton’s (1985) HRM typology as a basic perspective in my study because of two reasons. First, Walton’s control/commitment HRM typology includes comprehensive aspects of HRM practices that cover most of the common best practices summarized in table 5-1. Second, although commitment HRM system is basically suggested from the universalistic perspective, we also find that it is associated with human-capital-enhancing strategy and control HRM system matches with cost-reduction strategy when we compare the characteristics of commitment and control HRM system with those of the strategies. Therefore, it is also possible to investigate the connection between the type of HRM system an organization has and the strategy an organization adopts and to interpret the effect of HRM practices on organizational performance from the contingency perspective. That is, if we find the positive effects of commitment HRM system on organizational performance, we may interpret that the organization likely to have HRM practices that are consistent with the organizational strategy. Likewise if we find no significant relationship between the effects of commitment HRM system and organizational performance, we may
interpret that the organization likely to have HRM practices that are not consistent with the organizational strategy. This interpretation is possible because the effects of HRM practices on organizational performance can be explained by either universalistic perspective or contingency perspective (Wright and McMahan, 1992).

Table 5-2. Comparison between Control and Commitment HRM Practices

<table>
<thead>
<tr>
<th>Job design principles</th>
<th>Control HRM practices</th>
<th>Commitment HRM practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual attention limited to performing individual job</td>
<td>Individual responsibility extended to upgrading system performance</td>
<td></td>
</tr>
<tr>
<td>Job design deskills and fragments work and separate doing and thinking</td>
<td>Job design enhances content of work, emphasizes whole task, and combines doing and thinking</td>
<td></td>
</tr>
<tr>
<td>Accountability focused on individual</td>
<td>Frequent use of teams as basic accountable unit</td>
<td></td>
</tr>
<tr>
<td>Fixed job definition</td>
<td>Flexible definition of duties, contingent on changing conditions</td>
<td></td>
</tr>
<tr>
<td>Performance expectation</td>
<td>Measured standards define minimum performance. Stability seen as desirable.</td>
<td>Emphasis placed on higher, “stretch objectives, which tend to be dynamic and oriented to the marketplace.</td>
</tr>
<tr>
<td>Management organization: structure, system, and style</td>
<td>Structure tends to be layered, with top-down controls.</td>
<td>Flat organization structure with mutual influence systems</td>
</tr>
<tr>
<td>Coordination and control rely on rules and procedures</td>
<td>Coordination and control based more on shared goals, values, and traditions.</td>
<td></td>
</tr>
<tr>
<td>More emphasis on prerogatives and positional authority</td>
<td>Management emphasis on problem solving and relevant information and expertise.</td>
<td></td>
</tr>
<tr>
<td>Status symbols distributed to reinforce hierarchy</td>
<td>Minimum status differentials to de-emphasize inherent hierarchy</td>
<td></td>
</tr>
<tr>
<td>Compensation policies</td>
<td>Variable pay where feasible to provide individual incentive.</td>
<td>Variable rewards to create equity and to reinforce group achievements: gain sharing, profit sharing</td>
</tr>
<tr>
<td>Individual pay geared to job evaluation</td>
<td>Individual pay linked to skills and mastery</td>
<td></td>
</tr>
<tr>
<td>In downturn, cuts concentrated on hourly payroll.</td>
<td>Equality of sacrifice.</td>
<td></td>
</tr>
<tr>
<td>Employment assurance</td>
<td>Employees regarded as variable costs.</td>
<td>Priority for training and retaining existing workforce.</td>
</tr>
<tr>
<td>Employee voice policies</td>
<td>Employee input allowed on relatively narrow agenda.</td>
<td>Employee participation encouraged on wide range of issues.</td>
</tr>
<tr>
<td>Business information distributed on strictly defined “need to know” basis.</td>
<td>Business data shared widely.</td>
<td></td>
</tr>
<tr>
<td>Labor-management relations</td>
<td>Adversarial labor relations; emphasis on interest conflict.</td>
<td>Mutuality in labor relations. Unions, management, and workers redefine their respective roles.</td>
</tr>
</tbody>
</table>


If the best HRM practices are universal, then they can be applied to any organizations regardless of the characteristics an organization has. Likewise, if police organizations have the best HRM practices that are likely to lead to better
performance under any circumstances, we can predict the positive effect of the best practices, too. More specifically, in the context of police organizations, I expect a positive relationship between crime control performance and individual HRM practices such as broad job design, more discretion allowed, formal grievance resolution mechanism, information sharing policy, employee participation encouraged, and more selective staffing, based on the HRM literature that explored the correlations between organizational performance and individual HRM practices from the universalistic perspective (e.g., Bartel, 1994; Becker et al., 1992; Gerhart et al., 1992; Knoke et al., 1994; Schmidt et al., 1979; Wagner, 1994). I also expect a positive relationship between crime control performance and commitment HRM system (i.e., the bundle of best HRM practices) according to Walton (1985) and Arthur (1992, 1994).

In addition to the best HRM practices concept that supports the positive relationships between commitment HRM practices (individually and as a system) and crime control performance from the universalistic perspective, the control theory also suggests that commitment HRM practices will have more positive effects on effective crime control performance than control HRM practices in the context of police organizations because we see neither clear outcome measurability nor complete knowledge of cause and effect relations. Actually it is doubtful that police organizations themselves choose those organizational strategies and HRM practices like other organizations in the private sector. According to Wright and McMahan (1992), firms in the private sector tend to choose best strategies to be competitive and are likely to have specific organizational characteristics and HRM practices that may elicit and reinforce desirable behaviors from the employees (i.e., behavioral
approach). In the public sector, however, organizations characteristics and HRM practices are determined not by strategy, instead, but by non-strategy such as institutional and political forces as explained in the resource-dependent model and the institutional model. Simply put, in the public sector the behavioral approach (i.e., universalistic and contingency perspectives) may not explain well the HRM practices in the context of public sector where organizational strategies are not usually determined by organizations themselves and therefore consequent HRM practices are not likely to be consistent with organizational strategies.

As a different approach to explain the link between HRM practices and organizational performance (Youndt et al., 1996), control theory supports commitment HRM practices in improving the crime control performance of the municipal police departments. As seen in figure 5-2, employee control strategies are categorized along two dimensions such as knowledge of cause and effect relations, and outcome measurability (as we reviewed, these dimensions are differently named by different control theory researchers). Although some costs are expected regardless of the control methods we choose, we expect more overall cost (including loss) to an organization when we do not choose a right control method, based on those two dimensions. For example, if we choose output control even when knowledge of cause and effect is incomplete and outcome measurability is ambiguous, monitoring and evaluating costs would be tremendous and we are not likely to get the goals we wants even with more money spent. Usually, costs of information system can be a major barrier that prevents organizations from adopting behavioral or output control system especially when we lack the knowledge of cause and effect relations and outcome is not easily measurable as Eisenhardt (1985) noted.
In the context of police organizations, we can imagine that there are lots of demands and expectations from citizens that the police officers are to meet. Among various demands that citizens want the police to take care of, the police do not seem to have a clear idea about how to effectively reduce crimes, based on their crime control statistics – that is, there is lack of knowledge of cause/effect relations. We also do not properly measure the outcomes of crime control police activities, either. The main reason for this is the fact that goals are usually vague and intangible in the public sector. As we reviewed previously, the case of England Financial Management Initiative (FMI) that adopted 435 performance indicators can be a good example to show that police performance is not measurable with ease. Therefore, in the municipal police departments in which we lack the knowledge of cause and effect relations and outcome measurability is incomplete, input control (or clan control) appears to be appropriate for police organizations. That is, as an input control, we can adopt HRM practices such as rigorous staffing, developmental training, and socialization for a police department as seen in figure 5-2, and those HRM practices are part of commitment HRM characteristics.

In sum, we expect that commitment HRM system and its individual HRM practices are more likely to result in better crime control performance in the police organizations, based on the best HRM practice concept and control theory. In fact, this expectation is consistent with Hatry and Greiner’s (1986) and Sparrow, Moore, and Kennedy’s (1990) suggestion that for the police to perform better, the doctrine of tight managerial control may need to be supplanted by doctrines of worker participation, total quality management, and shared commitment to excellence as we
reviewed in chapter two. This expectations is also consistent with Rainey and Steinbauer’s (1999) effectiveness model, and government effectiveness studies such as Hale's (1996), Gold (1982), Wilson (1989), Denhardt (1993), and Holzer and Callahan (1998) as we reviewed at chapter three. Therefore, I establish hypotheses about the effects of individual HRM practices and HRM systems on crime control performance of the municipal police departments as below.

**H1**: Municipal police departments that have individual HRM practices as below (individual practices of commitment HRM system) are more likely to have better crime control performance respectively.

1. Broad job classification,
2. More discretion allowed
3. Formal complaint/grievance resolution mechanism
4. Information-sharing-policy\(^{12}\)
5. Employees’ participation encouraged in a wide range of issues,
6. No bonus or incentive system for individuals, and
7. More selective staffing

**H2**: Municipal police departments that have commitment HRM systems are more likely to have better crime control performance.

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\(^{12}\) Most information is usually shared among employees regardless whether or not the information is directly necessary to them.
VI. Turnover, Measures, and Causes and Effects

In this chapter, I briefly review some basics of turnover study such as definitions, turnover measures, and causes and effects of turnover, mainly based on Price (1977) and Mobley (1982), which have been regarded as the most comprehensive, classic turnover studies and have provided guidance for turnover studies so far. Later in this chapter, I review some turnover studies in the context of police organization that mainly focused on why police officers leave.

6.1 Voluntary and involuntary turnover

As Tai, Bame, and Robinson pointed out (1998), turnover researchers have not used a consistent definition of turnover. Price (1977) defined turnover as the degree of individual movement across the membership boundary of a social system. Mobley (1982) defined turnover as the cessation of membership in an organization by an individual who receives monetary compensation from the organization. Simply put, turnover is defined as employees leaving their organizations due to whatever reasons. Under the traditional turnover perspective, it is assumed that people leave organizations due to either voluntary or involuntary reasons. Price (1977) and Mobley (1982) also distinguished voluntary turnover (i.e., initiated by individual) from involuntary turnover (i.e., initiated by organization, plus death and mandatory retirement) and explained that the term "quits" is probably the most frequent label for voluntary turnover and "quits" and "resignations" are generally used interchangeably.

Turnover researchers usually argue that the differentiation between voluntary and involuntary turnovers is necessary. According to Shaw, Delery, Jenkins, and
Gupta (1998), treating quits (i.e., voluntary turnover), discharge (i.e., involuntary turnover), and total turnover as synonymous ignores the markedly different etiologies and effects of those phenomena. For example, in an organization with high quit rates, for various reasons employees find it more attractive to leave than to stay, whereas in an organization with high discharge rates, presumably incorrect hiring decisions are remedied through termination. Therefore, Shaw et al. (1998) emphasized that voluntary and involuntary turnover must be treated differently because their difference is not just superficial, but fundamental. McElroy, Morrow, and Rude (2001) also stressed that the failure to separate the types of turnover might mask or even exacerbate the effects of any single form of turnover on organizational performance. In fact, voluntary turnover is more often studied than involuntary turnover because of the following reasons that Price (1977) explained. First of all, most turnover is voluntary. Second, the formation of theory is easier when the phenomenon to be explained is homogeneous (i.e., it is very difficult to explain both quits and dismissals by the same theory). Finally, voluntary turnover is more subject to control by managers. That is, retirements and deaths are less easily controlled than quits and it is natural for managers to focus their attention on phenomena over which they have some degree of control.

Even when we differentiate voluntary turnover from involuntary turnover, retirement needs special attention since the elimination of mandatory retirement policies has had the effect of making retirement “a voluntary organizational behavior” (Hanisch & Hulin, 1990). Therefore, voluntary retirement should be differentiated from mandatory retirement (i.e., involuntary turnover). However, there are important conceptual differences between voluntary retirement and quitting even
after we differentiate voluntary retirement from mandatory retirement. Although they are similar in that workers may withdraw from their current workplace due to work-related variables such as job satisfaction and stress, quitting is usually followed by continued regular employment whereas voluntary retirement is usually followed by some type of decreased commitment to work (Adams & Beehr, 1998; Feldman, 1994). According to Adams and Beehr (1998), the differences between quitting and voluntary retirement can be explained in terms of personal finances\(^1\), perception of alternatives\(^2\), level of pay\(^3\), age\(^4\), and marital status\(^5\). In the present study, I basically distinguish voluntary retirements from mandatory retirements, but no further differentiation is made between voluntary retirements and quitting because most municipal police departments do not keep turnover data in that detail and the results of pilot survey\(^6\) confirmed it.

According to Shaw et al. (1998), employee may find it more attractive to leave than to stay when an organization has a high quit rate. High quit rate (i.e., high voluntary turnover rate) may mean that an organization is less likely to have proper human resource management (HRM) policies or practices, and consequently quality employees are more likely to leave. If voluntary turnover has significant negative effects on organizational performance, it is necessary to make serious efforts to

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1. There is positive relationship between good financial condition and intent of voluntary retirement, whereas no relationship between good financial condition and intent of quitting.
2. Workers considering voluntary retirement weigh their current situation against decreased participation in the work force but workers considering quitting more often weigh their current situation against other possible work alternatives.
3. Low pay may lead workers to quit their current jobs in favor of those that pay better, but voluntary retirement workers are leaving their jobs for choosing to decrease participation in the work force.
4. Age would have a negative relationship with quitting intention but have a positive relationship with the intention of voluntary retirement.
5. It is expected that there is a positive relationship between having spouse and voluntary retirement but a negative relationship between being married and quitting.
6. Before conducting main survey, I surveyed 12 police departments with different population ranges to see if the questionnaires are proper and if they can provide the data as requested.
reduce voluntary turnover through adopting proper HRM policy or practices (e.g., direct investment, such as pay or benefit; and indirect investment, such as training, job stability, or procedural justice).

6.2 Turnover measures

There are various turnover measures that we can use for the research but each measure has both advantages and disadvantages. Table 6-1 summarizes the formula for each measure, based on Price (1977) and Mobley (1982).

Table 6-1. Different Turnover Measures

<table>
<thead>
<tr>
<th>Turnover Measure</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Average length of Service (stayers)</td>
<td>Sum of length of service for each member / # of members</td>
</tr>
<tr>
<td>2. Average length of Service (leavers)</td>
<td>Median length of service of all members who leave during a period</td>
</tr>
<tr>
<td>3. Accession rate</td>
<td># of new members added during the period / Average # of members on payrolls during the period</td>
</tr>
<tr>
<td>4. Separation rate</td>
<td>(# of quit) or (# of discharges) or (# of total separation) / Average # of members on payrolls during the period</td>
</tr>
<tr>
<td>5. Stability rate</td>
<td># of beginning members who remain during the period / # of members at beginning of period</td>
</tr>
<tr>
<td>6. Instability rate</td>
<td># of beginning members who leave during the period / Average # of payroll during the period being studied</td>
</tr>
<tr>
<td>7. Survival rate</td>
<td># of stayers in the cohort with specified length at service / # in the original cohort</td>
</tr>
<tr>
<td>8. Wastage rate</td>
<td># of leavers in the cohort with specified length at service / # in the original cohort</td>
</tr>
</tbody>
</table>

Source: Adapted from Price (1977) and Mobley (1982)

Average length of service\(^7\) for stayers (i.e., the first measure in the table) has advantages such as easy computation and understandability, but this measure does

\(^7\) Price (1977) preferred to use service rather than employment to encompass both work organizations and voluntary associations such as churches and fraternal orders.
not indicate the total number of members exposed to the possibility of turnover during a period. As shown in Price’s (1977) example, even when an organization experiences a very large rate of turnover among its low-service members (i.e., new members), if an organization has a relatively large core of members with long tenure, the average length of service for stayers would be high. That is, this measure will not indicate most of the turnover of the low-service members. Although we can overcome this disadvantage by using Van der Merwe and Miller’s (1971; 1973) average length of service for leavers (i.e., the second measure in the table), it would take a fairly large unit to have sufficient leavers to yield a stable statistic. Accession rate and separation rate (i.e., the third and the fourth measures in the table) can enhance the utility of turnover rates because they indicate how much turnover characterizes an organization. These rates, however, have no precise meaning and therefore their utility is limited. For example, a 100 percent separation rate (i.e., turnover rate is one) could indicate (1) the entire labor force had turned over once during the year, (2) half the labor force had turned over twice, the other half remaining stable, or (3) a quarter of the labor force had turned over four times, and so on. Even with this drawback, however, the separation rate is probably the most frequently used turnover measure in the literature as Price (1977) pointed out, and the current study also adopted separation rate as turnover measure mainly due to data availability.

Unlike accession and separation rates, stability and instability rates (i.e., the fifth and sixth measures in the table) have precise meanings. For example, 50 percent instability rate can be interpreted in only one-way: half of the members at the beginning of the period leave by the end of the period. However, they do not control
the length of service, probably the most important variable associated with turnover. To overcome the drawbacks that separation/accession rates and stability/instability rates, the survival and wastage rates (i.e., the seventh and eighth measures in the table) were introduced. That is, these rates not only have a precise meaning, but also control the length of service by restricting themselves to the new members who enter during a period. However, the survival and wastage rates can be used only when the organizations are quite large. For example, to obtain the cohort of 100 workers recommended for this measure by Silcock (1955), we imagine that only quite large organizations can have that size of cohort. Therefore, as Price (1977) noted, none of the other turnover measures experiences the size disadvantage as seriously as the survival and wastage rates although they are the most sophisticated of the turnover measures.

In sum, Price (1977) suggested some combinations of turnover measures. For example, if an organization is fairly large but not large enough to use the survival and wastage rates, the average length of service for leavers can be used with the separation rate because this combination can provide two important pieces of information about organizational turnover – its location (i.e., who are leaving) and volume (i.e., how many are leaving). In the current study, I use separation rates as a turnover measure and divide them into voluntary and involuntary turnover. However, there is no combination with any other turnover measures in this study simply because I found in the pilot survey\(^8\) that most municipal police departments do not keep turnover records in details, so it is not possible to calculate other turnover measures.

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\(^8\) I surveyed 12 municipal police departments before conducting main survey.
measure. In reality, even separation records are not well kept for many years especially when the city size is small (e.g., population is under 100,000).

6.3 Turnover causes and effects

Since the causes and effects of turnover are differently argued, depending on turnover studies, it would be meaningful to review how turnover researchers view the causes and the effects of turnover, based on the classic turnover theories (Price, 1977; Mobley, 1982). After briefly summarizing the before-turnover part (i.e., what causes turnover?), I review the after-turnover part (i.e., what are turnover effects?) in more details.

According to Price (1977), the degree of satisfaction\(^9\) is the most important factor to voluntary turnover. Namely, higher satisfaction likely results in lower turnover rates and lower satisfaction likely leads to higher turnover rates. Price, however, noted that the influence of satisfaction to turnover can be moderated by job opportunity in the market. For example, if there is little opportunity in a job market, even lower level of satisfaction may not lead to higher turnover rate. In addition, satisfaction itself may be also affected by other factors such as pay scale, the degree of integration\(^10\), job-related (or instrumental) communication, formal communication\(^11\), and the degree of centralization. Therefore, we can expect a low level of turnover when an organization has a high pay level; a high degree of integration; a high level of job-related/formal communication; a low degree of centralization; and few opportunities in a job market. Figure 6-1 summarizes the

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\(^9\) This is the degree to which the members of a social system have a positive and affective orientation toward membership in the system (Price, 1972).

\(^10\) This is the extent of participation in primary and/or quasi-primary relationships (Blau, 1960).

\(^11\) This is officially transmitted information (Price, 1977).
relationships among determinants, intervening variables, and turnover.

Figure 6-1. Relationships between Determinants, Intervening Variables, & Turnover

![Diagram showing relationships between Pay, Integration, Job-related Communication, Formal Communication, Centralization, Satisfaction, Job opportunity, and Turnover]

Source: Price (1977)

Mobley’s (1982) turnover model looks more complicated than the Price’s (1977) model. According to Mobley, although the negative relationship between job satisfaction and turnover is established well, we need to move beyond the simple replication of the satisfaction-turnover relationship toward research on the cognitive and behavioral processes that may occur between satisfaction and actual turnover. In his expanded model of the employee turnover process (Mobley, Griffeth, & Meglino, 1979), job satisfaction is affected by individual (occupational and personal) values, organizational factors, and labor market factors. The Mobley et al. model also includes expectations regarding present job and alternative jobs as variables that might affect the perceived attraction of present job and alternative jobs. In addition,
the type of gratification (immediate vs. delayed), belief regarding non-work consequences of quitting, and impulsive behavior are also added as other affecting factors to the model. In sum, the Mobley et al. (1979) tried to explain the reasons of turnover in more depths by adding cognitive and behavioral factors to the Price’s model. As a result, their model became more complicated.

More than two decades ago, Mobley (1982) noted that the bulk of the research on turnover had focused on causes and correlates and relatively less attention had been devoted to the consequences of turnover (i.e., the after-turnover part), and Mobley’s description about turnover research trends is still right. According to Price (1977), turnover may have effects on organizational variables such as (1) the number of administrative staff, (2) formalization, (3) integration; (4) employee satisfaction, (5) innovation, (6) centralization; and (7) effectiveness (see figure 6-2 for the direction of effect).

Price (1977) divided these seven variables into three groups according to the amount of supporting data in the literature. Administrative staff, formalization, and integration are placed in the first group that has medium amount of supporting data. The second group that has small amount of supporting data includes satisfaction, innovation, and centralization. The third group has mixed supporting data, and includes effectiveness (i.e., organizational performance). Since there has been mixed empirical evidence on effectiveness as a result of turnover, Price (1977) concluded that the conventional wisdom is probably right in its belief that turnover generally has a negative effect on effectiveness in nonlinear fashion. The intermediate and final effects of turnover are summarized in figure 6-2.
Figure 6-2. The Effects of Turnover

Note: + and – indicate the direction of turnover effect. For instance, + Administrative staff means administrative staff would increase due to turnover.

Source: Adapted from Price (1977)

While Price (1977) approached turnover effects from the organizational perspective (except satisfaction that is an individual level), Mobley (1982) differentiated turnover effects according to the three different levels of perspectives such as individual, organization, and society. Table 6-2 shows the summary of the negative and positive effects of turnover from each perspective.
Table 6-2. Turnover Effects on Individual, Organization, and Society

<table>
<thead>
<tr>
<th>Negative Effects</th>
<th>Individual</th>
<th>Organization</th>
<th>Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruption of social and communication pattern</td>
<td>Costs of recruiting, hiring, assimilation, and training</td>
<td>Increased cost of production</td>
<td>Regional inability to keep industry</td>
</tr>
<tr>
<td>Decreased Satisfaction</td>
<td>Replacement costs</td>
<td>Disruption of social and communication structure</td>
<td>Productivity loss</td>
</tr>
<tr>
<td>Increased workload</td>
<td>Decreased productivity loss</td>
<td>Decreased satisfaction among stayers</td>
<td></td>
</tr>
<tr>
<td>Decreased Commitment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decreased Cohesion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Effects</th>
<th>Individual</th>
<th>Organization</th>
<th>Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased internal mobility opportunity</td>
<td>Displacement of poor performers</td>
<td>Mobility to new industry</td>
<td></td>
</tr>
<tr>
<td>Stimulation, cross-fertilization from new coworker</td>
<td>Infusion of new knowledge/technology</td>
<td>Reduced income inequity</td>
<td></td>
</tr>
<tr>
<td>Increased cohesion</td>
<td>Stimulate changes in policy and practice</td>
<td>Decreased job stress-related costs</td>
<td></td>
</tr>
<tr>
<td>Increased commitment</td>
<td>Increased structural flexibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decrease in other “withdrawal” behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduction of conflict</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Mobley (1982)

For example, as seen in table 6-2, several negative effects can be expected at the organizational level such as costs of recruiting and training; productivity loss; disruption of social and communication structure; and decreased satisfaction among staying employees (i.e., decline in morale). At the same time, positive turnover effects are also expected at the organizational level. That is, we may expect displacement of poor performers; increased innovation, flexibility, and adaptability; and reduction of conflict. Since positive and negative turnover effects usually coexist as seen in the table, Mobley (1982) argued that what we need is a mechanism to evaluate the net utility of turnover to the organization rather than the traditional assumption that turnover has negative effects on the organizational performance.

6.4 Police Turnover Studies

Like other turnover research, turnover causes have been dominantly focused on by
police turnover studies, too. The implicit assumption of police turnover studies is that turnover is an important organizational problem, which is costly to the organization and therefore, should be reduced (Staw, 1980). According to the national surveys that asked police chiefs and sheriffs about the major concerns they have, staff shortage due to turnover has been consistently ranked first or second among major concerns that police chiefs have (Gettinger, 1984; Manili & Connors, 1988; Webster & McEwen, 1992). Turnover can be an even more serious concern especially among small police agencies because they are particularly inclined to reduce law enforcement services while new employees are being recruited or receive basic training (Harris & Baldwin, 1999; Warrell, 2000a).

Turnover is also one of big concerns in the field of medical service. Therefore, some researchers tried to calculate the costs of registered nurses’ turnover. For example, Jones (1990a; 1990b) estimated that recruitment costs were more than $10,000 per registered nurse termination which included the unfilled positions, hiring costs, orientation and training costs, and new nurses’ low productivity. When taking indirect and hidden turnover costs into account, however, Johnston (1991) estimated that turnover costs per registered nurse might exceed $25,000. Likewise, Phelan (1991) contended that $12,000 was a conservative estimate of the replacement cost for a single police officer. But, when we take indirect and hidden turnover costs into account as Johnson (1991) did, turnover costs per police officer may be more than $25,000. Harris and Baldwin (1999) summarized the possible costs and the negative effects of police officers’ turnover as follows. Turnover of police officers may (1) increase recruitment, selection, and replacement costs; (2) increase training and development costs, including more on-the-job orientation and
supervisory coaching costs; (3) lower productivity while new officers learn their jobs; (4) disrupt programs and organizational efficiency; and (5) decrease morale among officers who remain.

Theoretical studies about the causes of police turnover show that job satisfaction level (Favreau & Gillespie, 1978; Wilson & McLaren, 1950) and job stress (Bopp, 1974; McDowell, 1971; Reiser, 1974) have been regarded as the most probable reasons of turnover. For example, according to the congruency theory suggested by Moriarty and Field (1990; 1994), when the expectations of new police officers are not met during early years of their careers, the incongruency between their expectation and real experience leads to police officers’ voluntary turnover. While some empirical research exploring the negative relationship of job satisfaction with pay and benefits, and turnover rate (Hoffman, 1993; McIntyre, 1990; Phelan, 1991; Teske, 1976; Wales, 1988) confirmed their predictions, other empirical studies found the importance of management to raise their employees’ overall satisfaction to reduce turnover rates (Lipson, 1987; White, 1991).
VII. Turnover-Performance Relationships and Hypotheses

In this chapter, I review theoretical backgrounds for different arguments of turnover-performance relationships and also I review some empirical research that tested the arguments about turnover effects. At the end of this chapter, I establish some hypotheses about turnover effect on organizational performance and the moderating role of human resource management (HRM) system in the context of police organizations. Before beginning to review theoretical backgrounds for different arguments about turnover effects, I briefly outline different kinds of arguments about turnover effects, based on Shaw, Gupta, and Delery (2005) in the introduction section.

7.1 Introduction

Recently, Glebbeek and Bax (2004) pointed out that the research on turnover is dominated by analyses in which turnover is treated as the dependent variable. Noting that empirical studies that explored the effects of turnover are still rare, Glebbeek and Bax asserted that there seems to be no tradition of empirical research into the effects of employee turnover (p278). Among a few empirical studies that investigated turnover effects, some studies (e.g., Alexander, Bloom, & Nuchols, 1994; Shaw et al., 2005) demonstrated that turnover has a significant effect on organizational performance, and others (e.g., Baron, Hannan, & Burton, 2001; Huselid, 1995; Koys, 2001) showed that turnover does not have a significant effect at all. These empirical results are consistent with Price’ (1977) categorization. That is, Price put organizational performance (or effectiveness) into the group that has mixed results – some support negative effects of turnover on effectiveness and others
do not - as reviewed in the previous chapter. Furthermore, even among the studies that showed the significance of turnover effect, the sign (i.e., positive or negative) and the shape (e.g., linear, curvilinear, U-shape, and inverted-U shape) of the relationships are different, depending on the studies.

In this situation where there seems to be no consistency of the arguments and the empirical demonstration about the relationship between turnover and organizational performance, Shaw et al.'s (2005) categorizations help to understand the different arguments developed so far. Shaw et al. (2005) categorized the arguments about the relationships between turnover and organizational performance into four theoretical patterns as follows: (1) the linear negative relationship, (2) the inverted-U relationship, (3) the attenuated negative relationship, and (4) the human resource management (HRM) -moderated relationship.

According to Shaw et al. (2005), human capital theory (I explain this in the next section) appears to provide a formal platform for the arguments such as the linear negative, the inverted-U, and the attenuated negative relationships, suggesting that organizational performance is determined by the accumulation of firm-specific human capital embodied in the work force (Strober, 1990). Therefore, when turnover frequently occurs, an organization's firm-specific human capital accumulations would be depleted, and therefore the level of organizational performance would be lowered.

Beginning from Dalton and Todor’s (1979) question about the traditional belief that turnover effects on organizational performance are always negative, the
argument of the inverted-U relationship has been developed. In this perspective, as suggested by human capital theory, high levels of voluntary turnover are detrimental for work force performance. At low to moderate levels, however, voluntary turnover may improve work force performance by playing a revitalizing role. That is, due to the likelihood of stagnation or trained incapacitation at low levels of voluntary turnover, some turnover can be functional in an organization. The argument of the attenuated negative relationship is another variation of the human capital theory foundation for the turnover-organizational performance relationship, built on learning curve theory (I explain this later in this chapter, too). Based on Price's (1977) proposal that successively higher amounts of turnover will be found ultimately to produce, more often than not, successively lower amounts of effectiveness at a decreasing rate, Shaw et al. (2005) explained that voluntary turnover has negative effects on work force performance (i.e., organizational performance) by diminishing firm-specific human capital accumulations, but these losses are becoming less severe as turnover rate is getting higher (i.e., at a decreasing rate).

So far, the three different theoretical patterns of the relationships were briefly reviewed and these relationships are displayed in figure 7-1. From the perspective of management, if the relationship were an inverted-U shape, it would be good if we know the turnover level when organizational performance begins to decrease. Likewise, if the relationship were a negative attenuated shape, it would be helpful to know the turning point (i.e., when the slope becomes closer to zero). If the relationship were a negative linear, knowing the slope of the linear relationship would be helpful to predict the level of performance at a certain level of turnover. In
Shaw et al.’s (2005) studies with concrete pipe manufacturing plants and with trucking companies, the negative attenuated relationship was found and the turning point of the relationship was actually calculated.

Figure 7-1. Alternative Forms of the Relationship of Voluntary Turnover and Organizational Performance

Although Shaw et al. (2005) classified the arguments of the relationship between turnover and organizational performance into four patterns, the HRM-moderrated relationship (the fourth one) can be related to any of the other three patterns. Regardless of the shape or the sign of the relationship, the HRM-moderated argument predicts that an organization with inducement- and investment-oriented HRM system is more likely to lead to a more negative relationship between turnover and organizational performance, whereas an organization characterized by less inducement- and investment-oriented HRM system is expected to have a less
negative relationship. For example, figure 7-2 shows the difference of turnover effects on performance between an organization with control HRM system and an organization with commitment HRM system when the relationship between turnover and organization performance is negative and linear. As seen in the figure, an organization with control HRM system would have higher performance level (point A on y-axis) than an organization with commitment HRM system (point B on y-axis) at the same turnover rate. In other words, as turnover rate increases, performance would decrease at higher rate (i.e., a bigger negative slope) in an organization with commitment HRM system than in an organization with control HRM system.

Figure 7-2. HRM-moderated Relationship

Source: Adapted from Shaw, Gupta, and Delery (2005)

7.2 Theoretical argument for the linear negative relationship

The argument for the linear, negative relationship between turnover and organizational performance mainly comes from human capital theory initiated by
Schultz (1961). Scholars who support human capital theory usually emphasize the specific knowledge employees might have when they leave. For example, Pencavel (1972) argued that the employer has to balance the advantages of operating with a low turnover rate against the costs of higher remuneration paid to keep his labor force contented. Therefore, if most employees do not have specific knowledge in a company, their turnover is less likely to influence organizational performance in a negative way. That is, spending too much money to keep low turnover rate in this case may not be a good idea in terms of cost and benefit. Alchian and Demetz (1972) and Williamson (1985) also argued that the firm experiences no dislocation costs when human asset specificity is negligible and any team effects are of a primitive kind.

The advice that if you want a good job, get a good education embodies the essence of human capital theory (Strober, 1990). Although this theory was originally developed to explain the relationship between education and earning, Strober (1990) emphasized that human capital theory says more than the positive relationship between educational level and income. Becker (1962) suggested a particular mechanism explaining education effects on earning by human capital theory as follows:

(1) Education increases skills
(2) Productivity is going up by increased skills
(3) Higher productivity is then rewarded through higher earnings.

In fact, human capital theory has been challenged. For instance, researchers
ask a question of whether education/experience raises earnings by raising productivity or by other behavioral relationships. According to Strober (1990), the productivity connection between education/experience and earnings has been explained by alternative theories such as screening hypothesis, efficiency wage models, internal labor market theories, and radical theory, all of which have challenged the human capital theory. Below are the brief reviews of those theories.

The screening hypothesis is that education is positively correlated with earnings not because additional education yields higher productivity, but because employers use additional education as a screen, or filter, or signal to hire better-educated workers into jobs that pay more. Blaug (1976) even predicted that the human capital theory would gradually fade away to be swallowed up by the new theory of signaling (a variant of the screening hypothesis) formulated by Spence (1973; 1974) and (Arrow, 1973). According to the signaling theory, employers may pay higher wages to more educated employees even if education has no effect on productivity. The signaling theory assumes that potential workers with relatively high ability levels can invest more cheaply in education than can employees with lesser ability. Therefore, higher ability workers can “signal” their higher level of ability productivity to employers. Now from the employer’s perspective, if employers find those with more education more productive, they will continue to use education as a signal of higher productivity even though education itself has nothing to do with productivity enhancement.

Efficiency wage models challenge human capital theory with respect to the

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1 If a person has relatively higher cognitive ability, he or she can go through school with less effort and less pain than a person with lower level of cognitive ability.
connections between experience and productivity, and between productivity and earnings. According to this theory, employers may pay workers less than their value added during the early years of employment, but pay them more than their value added in later years, which provides incentives for employees to remain with the firm and continue to remain maximally productive. The internal labor market theory explains why wages at non-entry level positions do not depend on supply and demand while external labor markets set wages based on supply and demand. The internal labor market theory explains that non-entry level jobs are filled not from the external market but through promotion and transfer of those who are already employed by the firm. Therefore, administrative rules and procedures are the determinants of the level of wages, not supply and demand. Finally, radical theorists believe that education does increase productivity but the link between education and productivity is not skill acquisition, as human capitalists maintain, but the reproduction of the class structure of society. That is, schools teach students from the working class those skills and behaviors that are useful in working-class occupation, but they teach middle- and upper-class students skills and behaviors needed to assume leadership roles in society.

In sum, although the human capital theory has been challenged by some alternative theories, it still explains well the connection between training/education and performance at an individual level and most arguments about turnover effects on organizational performance are based on this theory as Shaw et al. (2005) noted. According to the human capital theory, skills and knowledge would be increased by education or training and human resources loss (i.e., turnover) with those skills and knowledge likely have negative effects on organizational performance, especially
when those skills and knowledge are specific. In other words, if those skills and knowledge acquired through education or training are not specific, organizational performance may not be influenced even when organizations experience a high turnover rate.

7.3 Theoretical argument for the inverted-U relationship

The inverted-U relationship predicts that organizational performance would be increasing if turnover levels are from low to middle because turnover may play a revitalizing role to an organization for that range. However, high levels of turnover may be detrimental to organizational performance due to the same reasons that were explained in the human capital theory.

Staw (1980), like a few other turnover researchers (e.g., Abelson & Baysinger, 1984; Dalton et al., 1979; Price, 1977), paid attention to positive consequences of turnover as well as negative consequences. Staw (1980) observed that traditionally the implicit assumption underlying turnover study has been that turnover is an important organizational problem, so it should be reduced. Although the costs of turnover may include (1) selection and recruitment costs, (2) training and development costs, (3) operational disruption, and (4) demoralization of organizational membership, Staw (1980) identified some moderating variables that can serve to minimize those adverse effects of turnover. That is, turnover will be less costly for persons in lower level positions, in plentiful labor markets, in non-interdependent roles, and from non-cohesive work groups. Staw (1980) also identified some positive consequences of turnover such as increased performances, reduction of entrenched conflict, increased mobility and morale, and innovation and
adaptation although the benefits of turnover are less obvious than the costs of turnover because they are less quantifiable and less attainable in the near-term.

The traditional perspective about a new employee’s performance assumes that the performance of a new employee is initially low and, only after getting experience, reaches the level of the preceding employee (i.e., J- or S- shape curve). Unlike the traditional perspective, Staw (1980) argued that newcomers may be more highly motivated than the old employees and may possess greater abilities and training. Therefore, Staw (1980) suggested the inverted-U shaped relationship between tenure in the organization and performance. However, for some jobs such as social work, nursing, and police work in which the psychological demands of the job are relatively high, Staw explained that “early burn-out” or "bureaucratic” curve might describe the relationships better. That is, as some scholars argued, employees in those jobs tend either to conform more to a bureaucratic role (Blau & Scott, 1962; Van Maanen, 1975) or to a psychological 'burn-out' in which employees distance themselves from the client being served (Maslach, 1978).

Basically Staw argued that performance is generally a joint function of skills and effort. While experience may contribute positively to job skills and knowledge, effort or motivation may be at its highest when the individual first arrives in the organization especially for psychologically high demanding jobs. In sum, Staw (1980) contributed to forming the inverted-U shaped argument about the relationship between turnover and organizational performance through pointing out the positive effects of turnover and suggesting a different approach to the relationship between performance and employee’s tenure in the organization.
Dalton and Todor (1979) also contributed to initiating the inverted-U relationship between turnover and organizational performance by emphasizing the positive consequences of turnover, but they pointed out the positive effects of turnover not only from the organizational perspective but also from the economic, sociological, and social psychological perspectives. From the organizational perspective, Dalton and Todor (1979) criticized most organizational theorists who had only focused on the negative aspects of turnover, and argued that turnover might increase organizational effectiveness through the higher chance of innovation because the process of mobility brings “new blood” and new ideas into the organization. From the economic perspective, Dalton and Todor argued that neither one person nor one firm should suffer from turnover with the assumption that wages and marginal product are equal (i.e., marginal productivity theory). Based on Gitlow’s argument (1971), Dalton and Todor argued that an employee, as a rational and income-maximizer, will respond to existing structure of wages by moving away from employment of less net attractiveness and toward employment of relatively greater attractiveness according to marginal productivity theory. Therefore, turnover would increase net national product, reduce inequitable distribution of income, and contribute to the long-term growth rate of the economy from the economic perspective.

Furthermore, Dalton and Todor (1979) argued that from the sociological perspective, society does not necessarily gain by the reduction of turnover in the organization because the reduction of turnover may involve important dysfunctions to society. In other words, society's social and economic advancement could be
accomplished by vertical (i.e., promotion) and horizontal mobility (i.e., turnover). In fact, Blau and Duncan (1967) early argued that job changes are important components of the vertical mobility process and horizontal migration has become increasingly effective as a selection process by which individuals are channeled to places where their potential can be realized more fully. Likewise, Adams (1963) also argued that mobility might serve to reduce inequality or inequity in social exchange. Dalton and Todor, citing Golant’s (1971) argument, also reviewed the positive function of turnover from the psychological and social psychological perspectives, and argued that an individual's decision to initiate a particular movement (i.e., turnover) can be defined as an adjustment process in an adaptive system maintaining its homeostatic level.

Unlike other researchers (i.e., Dalton and Todor, 1979; Staw, 1984) who indirectly suggested the inverted-U shape, Abelson and Baysinger (1984) directly showed why the relationship between turnover and organizational performance should be inverted-U shape using cost concepts. Abelson and Baysinger argued that total turnover cost (TTC) is the combination of retention cost (RC) associated with attempts to reduce the turnover rate and turnover cost (TC) associated with the separation of incumbent employees plus the costs of searching for and training new employees. As seen in figure 7-3, the optimal level of aggregate turnover for most organizations will be greater than zero because RC will be the highest when an employer wants to maintain turnover rate at the level close to zero and TC will be the highest when turnover rate is at its highest level. Therefore, RC curve and TC will move in an opposite direction and the intersection can be an optimal point for TTC (i.e., minimum cost)
According to Abelson and Baysinger (1984), even when one focuses solely on the turnover of employees whom the organization prefers to retain, there is some portion of the turnover rate that is not necessarily organizationally dysfunctional. Since total turnover cost (TTC) is viewed as a mixture of RC and TC (i.e., U-shaped dot line) as seen in figure 7-3, the relationship between organizational performance and turnover rate will be consequently inverted-U shape. Abelson and Baysinger (1984) explained that at a very low rate of turnover, organizational performance is low because excessive financial resources and opportunities for productive organizational structure and management process are being inappropriately sacrificed in an effort to prevent the voluntary separation of preferred employees,

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2 When TTC is at its lowest level, organizational performance (OP) is at it highest level because we can say that OP and cost are in opposite positions. Therefore, we can draw inverted-U shape relationship between OP and turnover as seen in figure 7-5.
which can be dysfunctional. Likewise, at a very high rate of turnover, excessive turnover costs are being incurred in an inappropriate attempt to reduce retention cost, therefore cost saving through low wages and poor work conditions may not be enough to cover the cost incurred due to turnover.

Since turnover costs (TC) and retention costs (RC) may differ among different organizations, Abelson and Baysinger (1984) argued that the optimal rate of turnover (i.e., at the lowest point of total turnover cost as seen in figure 7-3) would be different, depending on organizations. They also argued that these costs such as TC and RC, in turn, should vary systematically with individual, organizational, and environmental attributes that influence costs at any given rate of turnover for the organization as a whole, as well as individually perceived costs and benefits of quitting/staying behavior.

7.4 Theoretical argument for the attenuated negative relationship

This perspective was built on the sociological literature on turnover and learning curve theory. Originally, Price (1977) proposed that successively higher amounts of turnover would be found ultimately to produce, more often than not, successively lower amounts of effectiveness at a decreasing rate.

From this perspective, researchers argue that turnover would have negative effects on work force performance by diminishing firm-specific human capital accumulations, but these losses would be less severe and the negative effects of turnover on organizational performance would be ameliorated at a high level of turnover. Therefore, as Shaw et al. (2005) noted, this argument implies that a linear,
negative formulation may underestimate the negative effects of turnover at a low turnover rate and overestimates the effects of turnover at a high turnover rate.

As seen in figure 7-4, if turnover is at a low level (i.e., L on x-axis), the predicted level of organizational performance is H1 when the relationship is linear and negative, whereas the predicted level of organizational performance is L1 when the relationship is attenuated and negative. Therefore, if the true relationship is attenuated and negative, the reduced performance would be lower than the organization level that linear, negative relationship predicts. Likewise, if turnover is at a high level (i.e., H on x-axis), the predicted level of organizational performance is L2 when the relationship is linear, negative, but the predicted level of organizational performance is H2 when the relationship is attenuated, negative. Therefore, if the true relationship is attenuated and negative, the expected organizational performance would be overestimated if we think the relationship is linear, negative.
Why are the negative effects less severe when turnover is at a high level? According to Shaw et al.’s (2005) explanation, when turnover is at a low level, input-throughput-output processes are disrupted and energy and resources are redirected from safety concerns in order to maintain operations as skill levels are reduced by turnover. When turnover is very high, however, increases in turnover beyond some point are likely to be minimally disruptive because the organization is already geared toward continual workforce replacement. The amelioration of negative turnover effects at a high turnover can be also explained by learning curve theory. Logan (1992) basically explained the learning curve theory, based on Newell and Rosenbloom's (1981) power law. According to the power law displayed in the
equation as below, the time taken to perform a task decreases as a power function of practice.

\[ RT = a + b^{N-c} \]

Where,
- RT: reaction time
- a: the asymptote
- b: the difference between initial and asymptotic performance;
- N: the amount of practice
- c: the learning rate.

In the equation, we see that if c (i.e., learning rate) is getting higher, b (i.e., the difference between initial and asymptotic performance) is getting smaller with the assumption that N (i.e., the amount of practice) is same. We can see this relationship with ease in figure 7-5 where the functions differ only in the learning rate (c). Logan explained this relationship with the instance theory of automacity. According to Logan, when subjects have no experience on a task, they solve the problems by applying a general algorithm. Then the solutions produced by the algorithm are encoded into memory and retrieved when the problems are encountered again. After sufficient practice, performance will become automatic in that all problems can be solved by memory retrieval. Although Logan’s theory is about individual psychological behavior, it can be applied to an organizational phenomenon such as turnover. For example, when turnover is at a low level, an organization may not know how to deal with it properly, so organizational performance may decrease quickly. However, when turnover rate continues to increase, an organization may come to know how to handle it from the experience (i.e., sufficient practice). Therefore, organizational performance is less likely to be much affected. Of course,
the learning rate may vary, depending on the kind of skills and knowledge employees need to learn or the industrial fields.

Figure 7-5. Examples of Power Functions

\[ RT = a + b^{N-c} \]

Note: the functions differ only in their exponents and the value of the exponent (i.e., learning rate) appears below each function. Each function begins at the same point and asymptotes at zero. Source: Logan (1992)

7.5 Theoretical argument for the HRM-moderated relationship

So far I reviewed theoretical backgrounds for the arguments about turnover effects on organizational performance, such as the negative linear, the inverted-U, and the attenuated negative relationships. Some turnover researchers (Arthur, 1994; Guthrie, 2001; Shaw, Delery, Jenkins, and Gupta, 1998) also argue that human resource management (HRM) systems may have a moderating effect on the relationship between turnover and organizational performance such that the negative effects of turnover would be severer in an organization with commitment (or inducement) HRM characteristics.
For example, if HRM characteristics of an organization have a moderating effect on the relationship between turnover and organizational performance as they argued, the linear, negative relationship would be different depending on HRM characteristics an organization has, as seen in figure 7-6. As seen in the figure, even at the same level of turnover, the expected level of organizational performance is lower (i.e., L on the y-axis) in an organization with commitment HRM characteristics than an organization with control HRM characteristics.

Figure 7-6. Example of the HRM-moderated Relationship

Note: Based on the assumption that there is a negative, linear relationship between turnover and performance.

The argument of the human resource management-moderated relationship has been developed, based on Arthur (1994), Guthrie (2001), and Shaw, Delery, Jenkins, and Gupta (1998). While the concept of fit (or the congruence) between organizational policies and practices has emerged as an important subject of study.
among contingency theory researchers, Arthur (1994) argued that the negative relationship between turnover and organizational performance would be stronger among organizations whose human resource management (HRM) systems were characterized by the use of inducement- (e.g., high pay and benefits level and procedural justice) and investment (e.g., training and job stability)-oriented HRM system. In those organizations, employees are expected to do their jobs with more discretion and experience, rather than just following rules and standard operation procedures (SOPs) that directly instruct employees to do what they are supposed to do in a certain manner. Under these circumstances, new employees are more likely to have difficulty in doing their jobs because they do not have enough experience and less guidance (i.e., rules and SOPs) is provided. In his empirical research, Arthur (1992) performed cluster analysis and categorized 30 steel minimills\textsuperscript{3} into two groups - cost reduction group and commitment maximizing group, based on industrial relations functions as seen in table 7-1. Later Arthur (1994) changed each group’s name into control HRM system and commitment HRM system to be consistent with previous research on human resource strategy (Lawler, 1986; Walton, 1985).

\textsuperscript{3}They begin the steel making process with steel scrap instead of iron ore.
Table 7-1. Two Systems of Workplace Industrial Relations

<table>
<thead>
<tr>
<th>Industrial relations functions</th>
<th>Type of System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost Reduction</td>
</tr>
<tr>
<td>Organization of work</td>
<td>Job tasks narrowly defined</td>
</tr>
<tr>
<td>Employee relations</td>
<td>No formal employee complaint/grievance mechanisms</td>
</tr>
<tr>
<td></td>
<td>Little communication/socialization efforts</td>
</tr>
<tr>
<td>Staffing/supervision</td>
<td>Low skill requirement</td>
</tr>
<tr>
<td></td>
<td>Intense supervision/control</td>
</tr>
<tr>
<td>Training</td>
<td>Limited training efforts</td>
</tr>
<tr>
<td>Compensation</td>
<td>Limited benefits</td>
</tr>
<tr>
<td></td>
<td>Relatively low wages</td>
</tr>
<tr>
<td></td>
<td>Incentive-based</td>
</tr>
</tbody>
</table>

Source: Arthur (1992)

Unlike an organization with commitment HRM system, employees are treated more like replaceable commodities in the organizations characterized by low inducement and investment practices (i.e., control HRM system). Under these circumstances, the negative relationship between turnover and organizational performance would be attenuated because new employees can easily follow up what prior employees did with more rules and SOPs provided that guide behavior in relatively more situations (Guthrie, 2001). According to Arthur (1994), the goal of control HRM systems is to reduce direct labor costs, or improve efficiency, by enforcing employee compliance with specified rules and procedures and basing
employee rewards on some measurable output criteria, whereas commitment HRM systems shape desired employee behaviors and attitudes by forging psychological links between organizational and employee goals. In sum, Arthur (1994) argued that organizations with control HRM systems might benefit from employee turnover up to some point and after that there may begin to be negative turnover effects on manufacturing performance.

The different effects of turnover on organizational performance can be also explained by Graen’s (1976) role-making theory. According to Graen, role-making systems are those processes whereby the participant in the organization: (a) acquires acknowledge about the content of the constraints and demands placed upon his behavior and the sources of those constraints and demands, (b) receives and sends persuasive communications regarding his behavior in the role, (c) accepts a particular pattern of behavior, and (d) modifies this pattern over time. Graen (1976) argued that the particular way a person comes to behave in his or her organizational role may be a function of the formal, written job descriptions, when the person is progressing from the status of “newcomer” to that of “established incumbent” in that position. We can imagine that under control HRM system, there are relatively more rules and procedures and more detailed formal job descriptions, so it would take less time for newcomers to catch up the performance level of former employees than under commitment HRM system.
7.6 Empirical studies of turnover effect

Table 7-2 summarizes the hypotheses of empirical studies that explored the turnover-performance relationship. Since the table includes most of the recent empirical turnover studies, it is meaningful to review each empirical study in more depth.

In their study, Alexander, Bloom, and Nuchols (1994) hypothesized that registered nurses’ (RN) turnover is likely to have significant and negative effects on hospital performance because RNs directly participate in the core technology of hospitals. After finding that RN turnover is associated with lower hospital operating efficiency (i.e., H1 is supported as seen in the table), Alexander et al. suggested the four possible reasons for cost inefficiency due to RN turnover. Firstly, costs of recruiting and orienting replacement nurses are incurred; secondly, costs are incurred from using temporary agency nurses to fill vacancies; thirdly, we can imagine reduced efficiency of team-based care on patient care units, and finally, administrative costs are incurred to supervise new nurses who have not internalized the production norms of the hospital. In addition to those four possible reasons, as Pencavel (1972) argued, turnover of an employee with specific knowledge [e.g., registered nurses in Alexander et al.’s (1994) study] that can be acquired through education or training may be another reason of efficiency decreasing. Reflecting Mueller and Price’s (1989) advice that cross-sectional data are problematic for testing hypotheses about the consequences of turnover, Alexander et al. measured turnover costs at different times such as one year after turnover and two years after turnover. Rather than confirming the argument of the inverted-U shape relationship (H2 in their study, see table), Alexander et al. (1994) confirmed the human capital
theory (Strober, 1990; Pencavel, 1972) that predicts a linear, negative relationship between turnover and organizational performance.

Table 7-2. Empirical Research on the Turnover-Performance Relationship

<table>
<thead>
<tr>
<th>Studies With sample</th>
<th>Hypotheses related to turnover effects</th>
</tr>
</thead>
</table>
| Alexander et al. (1994) With 333 hospitals | H1: Higher registered nurse (RN) turnover in hospitals is associated with lower hospital operating efficiency (supported).  
H2: Relative to hospitals with high or low turnover among staff RN, hospitals with moderate turnover will experience greater operating efficiency (not supported). |
| Arthur (1994) With 30 minimills | H1: Turnover will be higher in control human resource systems than in commitment human resource systems (supported).  
H2: There will be a stronger negative relationship between turnover level and manufacturing performance in commitment human resource systems than in control HR systems (supported). |
| McElroy et al (2001) With 31 sales regions in which about 5,200 employees working at a national financial services company headquartered in a mid-western state | H1. Involuntary turnover-that is, dismissals-will be positively related to organizational performance measure (not supported).  
H2. Voluntary turnover will not be significantly related to organizational performance (not supported).  
H3. Reduction-in-force will exhibit a negative relationship with organizational performance measures (supported) |
| Koys (2001) With 28 stores in a regional restaurant chain | H1. There is a significant relationship between Year 1’s unit-level employee satisfaction (positive), organizational citizenship behavior (positive), and employee turnover (negative) and Year 2’s unit-level profitability (not supported for turnover effect)  
H2. There is a significant relationship between Year 1’s unit-level employee satisfaction (positive), organizational citizenship behavior (positive), and employee turnover (negative) and Year 2’s unit-level customer satisfaction (not supported for turnover effect). |
| Guthrie (2001) With 164 multi-industry firms in New Zealand that have more than 100 employees | H1. There is positive association between the use of high-involvement work practices and employee retention and firm productivity (supported) |
| Glebbeek and Bax (2004) A temporary job agency that has 110 offices spread throughout The Netherlands. | H1. The overall relationship between employee turnover and firm performance has an inverted U-shape (not supported) |
| Shaw et al. (2005) Study 1 - 141 plants of the American Concrete Pipe Association  
Study 2 – 299 trucking organizations | H1a. There is a significant negative relationship between voluntary turnover rates and work force performance (not supported).  
H1b. The relationship between voluntary turnover and work force performance is curvilinear, such that higher performance levels are evident as voluntary turnover increases initially, but the relationship becomes negative as turnover rates rise (not supported).  
H1c. The relationship between voluntary turnover and work force performance is curvilinear such that the relationship is generally negative, but is attenuated as turnover rates rise (supported)  
H1d. The relationship between voluntary turnover and work force performance is moderated by HRM inducements and investments such that the negative relationship is attenuated when HRM inducements and investments are low (not supported). |

Note 1. All data were collected in the U.S. except Guthrie (2001) and Glebbeek and Bax (2004).  
Note 2. Multivariate regression was performed for all studies except McElroy et al. (2001) who used partial correlation and Koys (2001) who used bivariate regression.
Arthur (1994) tested hypotheses about turnover effect on organizational performance, using the results of a previous study (i.e., Arthur, 1992) that adopted cluster analysis technique to empirically identify two types of human resource management systems (i.e., control HRM and commitment HRM). In his empirical study, Arthur concluded that (1) specific combinations of policies and practices are useful in predicting differences in performance and turnover across steel minimills, and (2) HRM systems moderate the relationship between turnover and manufacturing performance such that there is a stronger relationship between turnover and manufacturing performance in an organization with commitment HRM system than in an organization with control HRM system.

McElroy, Morrow, and Rude (2001) and Koys (2001) used simple methods such as partial correlation and bivariate regression to investigate turnover effects on organizational performance. In their study in which the regional subunit of finance company constituted the unit of analysis, McElroy et al. (2001) found that only reduction-in-force had significant effects on organizational performance among voluntary turnover, involuntary turnover, and reduction-in-force as seen in table 7-2. Unlike previous studies that used cross-sectional data, Koys (2001) used longitudinal data in the study. Although the relationship between turnover and organizational performance did not turn out significant, the results indicated that organizational performance such as profitability and customer satisfaction is significantly
influenced by HR outcomes such as employee satisfaction and organizational citizenship behavior\textsuperscript{4} rather than vice versa.

Guthrie (2001) examined the relationship between firms’ use of high-involvement work practices and employee retention and productivity, using the sample that consisted of multi-industry firms with more than 100 employees in New Zealand. Since Guthrie selected the sample from multi-industries outside of the U.S., it actually offered a test of whether or not Arthur’s (1994) results can be generalized beyond the small, U.S., single-industry sample. The results indicated that employee turnover was associated with decreased productivity when high-involvement work practices (i.e., commitment HRM system) were extensively adopted, whereas employee turnover was associated with increased productivity when those high-involvement practices were not much adopted (in other words, control HRM practices were adopted). High involvement work practices represent a significant investment in human capital. Therefore, these findings are supportive of generalizing Arthur’s (1994) study. Guthrie concluded that although high-involvement work practices may enhance employee retention, greater use of these practices may also increase firms’ exposure to disruptions associated with employee turnover at the same time.

Glebbeek and Bax (2004) investigated if Abelson and Baysinger’s argument of inverted-U relationship between turnover and performance is correct. Following

\textsuperscript{4} According to Organ, D. W. 1988. Organizational citizenship Behavior. Lexington, MA: Lexington Books., there are five categories of organizational citizenship behavior. Conscientiousness means employees carry out individual task performance well beyond the minimum required levels. Altruism implies that they give help to others. Civic virtue suggests that employees responsibly participate in the political life of the organization. Sportsmanship indicates that people do not complain, but have positive attitudes. Courtesy means that they treat others with respect.
Koys’ (2001) approach to overcome the problem of causal interpretation of cross-sectional analysis, Glebbeek and Bax employed cross-lagged regression analysis and found that reversed causality was not the case. By adding the squared term of turnover to the regression equation, the authors tested the Abelson and Baysinger’s hypothesis and concluded that although curvilinearity was clearly indicated, the nature of this nonlinearity (inverted-U or U shape) was not strongly supported, based on the results.

Shaw, Gupta, and Delery (2005) tested four alternative hypotheses about the relationship between voluntary turnover and organizational performance. In their study, they found that the relationship was curvilinear, such that the relationship was generally negative, but was attenuated as turnover rates rose. Since this result is different from the Glebbeek and Bax’ (2004) results that indicated an inverted-U relationship (although the results did not provide compelling evidence for it), Shaw et al. suggested two probable reasons as follows. The first reason may come from the fact that Glebbeek and Bax used total turnover rate rather than voluntary turnover that was used in Shaw et al.’s study, based on the argument that quits and discharges are distinct phenomena (McElroy et al., 2001; Shaw et al., 1998). The second probable reason is that trained incapacity and stagnation underlying the inverted-U proposition may be more relevant in some organization than others.

In sum, only a few hypotheses were supported in the empirical studies that explored turnover effects on organizational performance. That is, the negative, linear

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5 If the reversed-causality theory held, later year’s turnover should have been more strongly related to early year’s performance than vise versa.
6 They are the linear negative relationship, the inverted-U relationship, the attenuated negative relationship, and the HRM-moderated relationship as explained previously
relationship and attenuated, negative curvilinear relationship were supported in Alexander et al.’s (1994) study and Shaw et al.’s (2005) study, respectively. In addition, Arthur (1994) showed the significant moderating role of human resource management (HRM) system in the relationship between turnover and organizational performance and Guthrie (2001) confirmed Arthur’s (1994) finding with multi-industry sample, indicating that Arthur’s results can be generalized.

7.7 Hypotheses on turnover effect and the moderating role of HRM system

As Shaw et al. (2005) pointed out, the existing arguments about the relationship between turnover and organizational performance are based on human capital theory. That is, specific knowledge (i.e., acquired through education or training) may impose particular costs on the employer if an employee with specific knowledge quits. In the police departments, we do not expect that any newcomer can properly perform the police job without enough training. Experience on the job seems to be necessary to perform police job properly even with proper training. In other words, police jobs require a certain level of specific knowledge and experience. Therefore, I basically expect the negative effects of turnover on police performance according to human capital theory. More specifically, I expect an inverted-U relationship that predicts negative turnover effects on police performance after a certain level of turnover, based on Staw (1980), Abelson and Baysinger (1984), and Dalton and Todor (1979).

As we reviewed previously, Staw (1980) argued either a narrowly or widely inverted-U relationship between turnover and performance especially for the jobs such as police works or nursing that demand much psychologically. Therefore, in the police organizations, turnover may have positive effects on performance rather than
negative effects until a certain level of turnover. Abelson and Baysinger (1984) also predicted the inverted-U shape relationship for all organizations using the cost concepts such as total turnover cost (TTC) concept, turnover cost (TC), and retention cost (RC). Under this approach, the optimal level of aggregate turnover for most organizations will be greater than zero because RC will be the highest when an employer wants to keep the turnover rate close to zero and TC will be the highest when turnover rate is at its highest level. Since the RC curve and the TC curve move in an opposite direction, the intersection can be a minimal cost point for TTC as seen in figure 7-3 before. That is, a minimum level of cost requires a certain level of turnover (i.e., above zero), and this also means the highest level of organizational performance. Dalton and Todor (1979) viewed turnover effects from the different perspectives such as organizational, economic, sociological, and socio-psychological, and argued that turnover might increase organizational effectiveness through the higher chance of innovation because the process of mobility brings “new blood” and new ideas into the organization. In sum, the inverted-U shape relationship is expected between turnover and police performance as below.

\[ H3. \text{Turnover initially has a positive effect on police performance until a certain level of turnover and has a negative effect on police performance after that point. (i.e., the relationship between turnover and police performance is inverted-U shape).} \]

In the public sector, there are relatively more rules and procedures that employees are required to follow than in the private sector. Therefore, we may say that public organizations (e.g., police organizations in this study) are more likely to
have control-oriented human resource management (HRM) system. This general tendency in the public sector, however, does not necessarily mean that every public organization has a similar control-oriented HRM system. That is, for some reasons such as financial conditions, task demands, and political environment, some organizations may have more control-oriented (or less commitment-oriented) HRM systems and others may have more commitment-oriented (or less control-oriented) HRM systems.

Likewise, in the private sector, although we generally expect that firms are more likely to have commitment-oriented (less control-oriented) HRM systems than in the public sector, some firms employ control-oriented (less commitment-oriented) HRM systems, others employ commitment-oriented (less control-oriented) HRM systems. Arthur (1992) argued that firms usually choose their HRM systems (i.e., control-oriented or commitment-oriented HRM), depending on their business strategies. Youndt et al. (1996) also argued that manufacturing strategy (i.e., cost manufacturing strategy\(^7\) and quality manufacturing strategy\(^8\)) moderates the relationship between HRM systems and operational performance. That is, a cost manufacturing strategy will positively moderate the relationship between administrative HRM system and performance; and a quality manufacturing strategy will positively moderate the relationship between Human-Capital-Enhancing HRM system and performance.

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\(^7\) Organizations can create customer value by either reducing costs. In many cases, programmed production systems and highly structured jobs have become de facto methods for deskill manufacturing workers and reducing their discretion.

\(^8\) This focuses on continually improving manufacturing processes to increase product reliability and customer satisfaction. In this setting, the technical and problem-solving skills of employees tend to be more important.
In the current study, rather than trying to find out the reasons why a police organization employs a certain kind of HRM system – it may be another research topic, I investigate if HRM characteristics an organization might have (i.e., control-oriented and commitment-oriented HRM) moderate turnover effects on organizational performance in the public sector. I assume that police organizations have different HRM characteristics due to different reasons such as financial situation, task demands, or political environments. According to Arthur (1994) and Guthrie (2001), in those organizations with commitment HRM system, employees are expected to do their jobs with more discretion and experience, rather than by many rules and procedures that directly instruct employees to do what they are supposed to do in a certain manner. Therefore, if an employee quits in that organization, we can expect that newcomers may have difficulties in doing their jobs due to lack of experience and enough written guides. According to the role making theory (Graen, 1976), the formal, written job descriptions are critical to the way a person comes to behave in his or her organizational role. We can imagine that an organization with a control HRM system usually tends to have more formal job descriptions than an organization with a commitment HRM system, so newcomers come to reach the expected level of performance within a relatively short time.

Figure 7-7 shows that same turnover levels may mean different things to the organizations, depending on the HRM system they have. In the figure, for an organization with commitment HRM system (or less control HRM system), point “A” on the x-axis appears to exceed optimal turnover rate (TO\(^0\)), so more turnover would reduce organizational performance if the relationship between turnover and organizational performance is inverted-U shaped. For an organization with control
HRM system, however, point “A” does not exceed the optimal turnover rate (TO₁) yet, so more turnover may increase organizational performance until the optimal turnover rate (TO₁) is reached. That is, as seen in L1 and L2 that are tangent lines on the points in which vertical dot line of point A meets the curves, the slope of L2 is positive while the slope of L1 is negative. In sum, I expect that the turnover effects on the police performance would be moderated by the HRM systems (or the bundle of HRM practices) that police organizations might have. Therefore, I establish the hypothesis as below.

**Hypothesis 4.** The negative effects of turnover on police performance are greater in an organization with more commitment-oriented human resource management (HRM) characteristics than in an organization with more control-oriented HRM characteristics.

Figure 7-7. Optimal Turnover Rates with Different HRM Systems

Note: This is based on the assumption that there is an inverted-U shape relationship between turnover and police performance and the optimum level of turnover is smaller in an organization with commitment HRM system than in an organization with control HRM system.

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VIII. Crime Control and Related Factors

8.1 Introduction

According to Worrall (2005), there are two major perspectives of crime control: operational and political perspectives. Since the operational perspectives are concerned about due process when crime is controlled, the main question will be how the justice system should operate. In other words, a delicate balance has to be achieved between crime control and due process perspectives (Packer, 1968). Unlike the operational perspectives, the political perspectives (consisting of the liberal and conservative perspectives) are interested in the causes of crime, the consequences of crime for society, and what to do to deal with crime. In the current study, I am basically interested in the causalities of crime and factors influencing crimes rather than how the justice system should operate. Therefore, I review the crime control literature from the political perspective.

In this chapter, I review the Community Oriented Policing Services (COPS) program that has been conducted, based on the Violent Crime Control and Law Enforcement Act signed by President Clinton in 1994. The COPS program intended to lower crime occurrence and to provide a better safety feeling by putting additional sworn officers on the street (i.e., hiring grants), improving technology (i.e., Making Officer Redeployment Effective grants\(^1\)), and paying more attentions to distressed neighborhoods or jurisdictions with economic challenges (i.e., innovative grants).

\(^1\) The COPS’ Making Officer Redeployment Effective (More) program expands the amount of time current law enforcement officers can spend on community policing by funding technology, equipment, and support staff, including civilian personnel.
Therefore, it is meaningful to see how the COPS program planned to accomplish its goals (i.e., the logic model). After reviewing the COPS program, I review what the literature found in response to the question of whether hiring more police officers reduces crimes – the most common and simple question in the traditional policing, as well as in the literature about the effectiveness of police in reducing crime. I also review the Service Efforts and Accomplishments (SEA) indicators for crime control suggested by the Governmental Accounting Standards Board and crime control effectiveness measures that Ammons (1996) suggested for crime control, which may suggest the effectiveness measures of the police. In the conclusion section, I suggest a Crime Control Model that reflects the influencing factors found in the literature.

8.2 The Crime Act and the Community Oriented Policing Services (COPS)

In 1994, President Clinton signed the Violent Crime Control and Law Enforcement Act (hereinafter, the Crime Act). Of the $30 billion in expenditures authorized by the Crime Act, nearly $9 billion was allocated for Title I, which is also known as the “Public Safety Partnership and Community Policing Act of 1994” (Roth & Ryan, 2000a). The crime act pursued two objectives: one is to increase the number of sworn officers on the street\(^2\), and the other is to adopt community-oriented policing (Gaffigan, Roth, & Buerger, 2000). Gaffigan et al. (2000) explained that community policing stressed greater police responsiveness to the community at several levels, including more personal service; greater citizen input into police priorities; increased police attention to previously ignored “quality of life” issues; and an expanded commitment to crime prevention. According to Trojanowicz, Kappeler, Gaines, and Bucqueroux (1998), community policing is both a philosophy and organizational

\(^2\) Responding to perceptions of increased levels and viciousness of violent crime during the late 1980s, presidential candidate Bill Clinton pledged to put 100,000 new police officers on the streets on the Nation, as part of his campaign.
strategy – a philosophy that allows the police and residents to work together in new ways to solve problems and an organizational strategy encompassing decentralization and individual autonomy that supports the philosophy. Title I, the legislative basis for the Community Oriented Policing Services (COPS) program, listed four specific goals\(^3\) intended to change both the level and practice of policing in the United States (Roth et al., 2000a).

When we look at the logic model of the COPS program in figure 8-1, we see that the program output is not to directly lower crime occurrence that belongs to community outcomes (the far right box in the figure). Rather it aims to increase arrests (or clearance rates) through problem solving, partnership building, crime prevention, and reorienting the organization. According to the logic model, through problem solving, partnership building, and crime prevention, we can also achieve high levels of social/physical quality of life, informal social control, information sharing, and police respect/satisfaction; and the decreased fear of crime as community outcomes. The logic model expects crime reduction by the combination of increased arrests and other community outcomes mentioned above. In the logic model, we also see that there are mutual negative effects between crime occurrence and arrests. That is, a high level of crime occurrence is likely to result in a low level of crime clearance, probably due to an increased workload; and high level of crime clearance is likely to result in low level of crime occurrence according to deterrence theory. As seen in the figure, organization reorientation (including officer discretion, capacity for change, and so on) is one of the expected COPS program outputs, and other program outputs such as problem solving, partnership building, and prevention

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\(^3\) (1) to increase the number of officers deployed in American communities, (2) to foster problem solving and interaction with communities by police officers, (3) to encourage innovation in policing, and (4) to develop new technologies for assisting officers in reducing crime and its consequences.
can be achieved through organization reorientation.

To test if the COPS program has significant negative effects on crime, Zhao, Scheider, & Thurman (2002) focused on the effects of COPS Office grants that were awarded between 1994 and 1998 on crime rates in 6,100 cities between 1995 and 1999. According to the results, they argued that hiring grants and innovative grants had negative and significant effects on violent and property crimes. More specifically, Zhao et al. found a negative and significant effect of COPS grants (i.e., increased officers) on the crimes in the cities with more than 10,000 populations but did not find the similar effects in the cities with less than 10,000 populations. They speculated that in the smaller cities, additional officers may be involved in a wide variety of community policing, and this interaction with residents would result in more crime reporting due to increased trust in police. Therefore, the effects of increased police officers on reduced crime rates might be cancelled out by the increased crime reports.

4 Hiring grants are designed to directly assist local law enforcement in the deployment of additional community police officers and innovative grants fund specialized programs targeted at specific jurisdictions or categories of crime and social disorder.
Figure 8-1. Logic Model of Community Oriented Policing Services (COPS) Program

(Outcomes in Other CJAs)

(+) → Arrester

(-) → Crime

Community

Outcomes

Source: Roth (2000b, 3)

Abbreviations and symbols: FTEs: Full Time Equivalents, CJAs: Criminal Justice Agencies

(+) : Items listed in preceding box result in positive effect on, or increase in, items listed in the following box

(-) : Items listed in preceding box result in negative effect on, or decrease in, items listed in the following box
8.3 Traditional policing

Although some studies (e.g., Zhao et al, 2002) support the effect of increased number of police officer on crime control, there has been a debate for decades in response to the one simple question, “Does hiring more police officers reduce crime?” Traditional policing prizes deterrence theory and people who favor more police on the streets argue that the more visible the police presence is, the more likely it is that would-be criminals will be deterred from violating the law (Worrall, 2005). According to Ehrlich’s (1972) classic law enforcement study espousing deterrence theory, people can be discouraged from committing crime by the threat of either serious sanctions or apprehension. In this section, I review some major studies that investigated if traditional policing (i.e., increasing police level and expenditures) effectively suppresses crime rates.

The Kansas City Preventive Patrol Experiment (KCPPE), one of the most important policing studies relevant to police hiring, was conducted with three groups of patrol beats during 1972 and 1973. Each group consisted of five areas. The first group (it was called the proactive beats) received two to three times the normal level of patrol; the second group (it was called the reactive beats) received no patrol and only responded to calls for service; and the third group (it was called the control beats) kept police patrol levels to normal. In the results of the research, Kelling, Pate, Dieckman, & Brown (1974) found that the level of patrol had no effect on crimes that were suppressible by patrol. That is, the levels of public safety were almost the same in all of the three groups regardless of the police patrol endeavors.

\[5\text{Those crimes are burglaries, auto thefts, larcenies, robberies, and vandalism.}\]
While most citizens and government officials were shocked at this result, some researchers (e.g., Fienbert, Kinley, & Reiss, 1976; Larson, 1975) criticized the KCPPE because it had weak experimental design and small sample size that weakened the validation and reliability of the results. Larson (1975) reviewed the KCPPE and questioned the approach of the KCPPE mainly on the ground of small sample size (i.e., only 15 areas). Larson basically found two major problems. First of all, typical patrol intensities in Kansas City were not large enough to encompass the range of patrol intensities experienced in other cities. Even a doubling or tripling of patrol effort might not adequately reflect routine levels of patrol experienced in other cities. The second problem was that patrol visibility in the depleted areas (the reactive beats areas) was relatively quite large and it even equaled the pre-experimental levels during high workload periods. Consequently, Larson concluded that the KCPPE might have fallen short in its attempt to prove or disprove the general value of preventive patrol. According to Larson, however, the interesting result was the second problem that Larson called as an unexpected by-product to a patrol administrator. That is, patrol administrators can reduce the level of patrolling in one area and transfer those patrolling officers to other areas (i.e., redeploying) to increase the levels of patrolling without causing significant degradations in service if conditions warrant a change in the spatial deployment of units within a confined region.

Fienbert et al. (1976) focused on the problems of the KCPPE design. They pointed out that there was no actual difference in deploying manpower between the control beats group and the proactive beats group, although the manpower was doubled in the latter group. They also noted that the KCPPE only dealt with the manpower levels although manipulating what officers actually do on patrol (i.e.,
patrol strategy) might have great effects on the commission of crimes. Fienbert et al. criticized that in the KCPPE control was lacking not only in the administration of the treatments, but also in the handling of concomitant variables such as variables related to dispatch procedures\(^6\). With respect to the layout of the experimental area\(^7\), Fienbert et al. raised the question of whether randomization was used in assigning the treatments to each of the 15 areas to avoid the possibility that officers in the proactive beats group may help the adjacent reactive beats group.

In addition to the Kansas City Experiment, there are many studies that investigated the relationship between police level (or expenditures) and crime rate (e.g., Bahl & Wasylenko, 1978; Cornwell & Trumbell, 1994; Fox, 1979; Greenberg, Kessler, & Loftin, 1983; Huff & Stahura, 1980; Kovandzic & Sloan, 2002; Land & Felson, 1976; Levitt, 1997; Marvell & Moody, 1996). Indeed, whether a police level-crime relationship exists is actually one of the most significantly researched questions in criminal justice (Worrall, 2005). The findings of some studies that investigated a police level-crime rate relationship are summarized in table 8-1. As seen in the table, various studies were conducted using different data (i.e., cross-sectional, panel or time series data), and ended up with mixed results. While some studies (i.e., Chapman, 1976; Fujii & Mak, 1980; Greenberg et al., 1983; Greenwood & Wadychi, 1973; Hakim, Ovadia, & Weinblatt, 1978; Huff et al., 1980; Jacob & Rich, 1981; Levine, 1975) found a significantly positive effect of police on crime rates, others (i.e., Bahl et al., 1978; Corman & Joyce, 1990; Howsen & Jarrell, 1987; Land et al., 1976; Levitt, 1997; McPheters & Stronge, 1974; Swimmer, 1974a, b) found a significantly negative

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\(^6\) According to Fienbert et al. (1976), officers in one beat may feel compelled to help out their colleagues in adjacent reactive beats, and thus negate the intended effects of the experiment.

\(^7\) All five reactive beats area were adjacent to one or two proactive beats areas in the KCPPE.
effect of police on crime rates (i.e., as the number of police increases, crime rates tend to decrease)\(^1\). Although we are not sure whether a high level of the police leads to crime reduction based on the mixed results as seen in table 8-1, some recent studies (e.g., Marvell and Moody, 1996; Kovandzic and Sloan, 2002) revealed that as police level increases, crime rates tend to decrease.

Marvell and Moody (1996) reviewed 36 major empirical studies that investigated the relationship between police level (number of police or police expenditures) and crime rates, and found little evidence that supported the effects of police efforts on reducing crime. Rather, some studies even suggested that more crime leads to more police. Marvell and Moody (1996), however, pointed out that most studies suffered from omitted-variable bias and simultaneity problems. Since crime rates are usually affected by other factors in addition to police level, omitting those influencing variables may cause omitted-variable bias. According to Marvell and Moody, the simultaneity problem arises from the fact that crime rates may not only be influenced by police level and but also influence police level at the same time, as Cornwell and Trumbell (1994) showed in their study. Therefore, the positive effect of crime on police levels may counteract the negative effect of police on crime. In their study with the sample consisting of 49 states and 56 cities, Marvell and Moody found a simultaneous effect between police level and crime rates using the Granger causality test\(^8\), and explained that the magnitude of the effects of police level on crime rates was substantial whereas the size of the effect of crime rates on police level was slight. Kovandzic and Sloan (2002) partially replicated Marvell and Moody (1996) with

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\(^1\) These studies found significant results at 5 percent alpha level.

\(^8\) This is a standard econometric procedure for exploring causal direction (Granger, 1969. Investigating Causal Relations by Econometric Models and Cross-Spectral Methods, Econometrica 37: 424-438)
county-level data collected from Florida for the period 1980-1998, and found that there was a relationship between police levels and crime rates, such that increased level of crime caused small increases in police levels, while increased police levels caused substantial reductions in crime over time.

Table 8-1. Regression Results of Various Studies of Crime-Police Relationship

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Time</th>
<th>Effect of Police on Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahl &amp; Wasylenko (1978)</td>
<td>79 cities</td>
<td>1972</td>
<td>Total crime (-)*</td>
</tr>
<tr>
<td>Chapman (1976)</td>
<td>147 Calif. cities</td>
<td>1970</td>
<td>Violent crime (+), Property crime (+)*</td>
</tr>
<tr>
<td>Ehrlich (1973)</td>
<td>47 states</td>
<td>1960</td>
<td>Total crime (-)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Murder (-)</td>
</tr>
<tr>
<td>Greenwood &amp; Wadycki (1973)</td>
<td>199 SMSAs</td>
<td>1960, 1962</td>
<td>Violent crime (+)<em>, Property crime (+)</em></td>
</tr>
<tr>
<td>Hakim (1980)</td>
<td>94 New Jersey suburbs</td>
<td>1970</td>
<td>Property crime (+)</td>
</tr>
<tr>
<td>Hakim, Ovadia, &amp; Weinblatt (1978)</td>
<td>61 Philadelphia suburbs</td>
<td>1970</td>
<td>Robbery (+)*</td>
</tr>
<tr>
<td>Levine (1975)</td>
<td>26 cities</td>
<td>1971</td>
<td>Murder (+)<em>, Robbery (+)</em></td>
</tr>
<tr>
<td>Mikesell &amp; Pirg-Go0d (1990)</td>
<td>50 States</td>
<td>1970-1984</td>
<td>Property crime (+)*</td>
</tr>
<tr>
<td>Pogue (1975)</td>
<td>163 SMSAs</td>
<td>1962, 1967</td>
<td>Total crime (+)<em>, Rape (+)</em>, Assault (+)*</td>
</tr>
<tr>
<td>Swimmer (1974a)</td>
<td>118 cities</td>
<td>1960</td>
<td>Murder (-)*</td>
</tr>
<tr>
<td>Swimmer (1974b)</td>
<td>118 cities</td>
<td>1960</td>
<td>Violent crime (-)*</td>
</tr>
</tbody>
</table>

Source: Adapted from Marvell and Moody (1996)
Note: Asterisk (*) indicates that the coefficient of police number or police expenditure (per capita) is significant at five percent alpha level when crime types (e.g., violent, property, or total crimes) are dependent variable. The signs (+/-) indicate that police efforts (i.e., number of sworn officers or expenditures) have positive (+) or negative (-) effects on crime occurrences.

In this section, I reviewed how traditional policing worked in crime reduction.
While some studies found significant effects of police level on crime reduction, others found no significant cases probably due to weak research design, small sample size, omitting variables, and other reasons. Since a lot of influencing factors are involved in crime occurrence, we are less likely to find a right relationship between the police efforts and crime occurrences if some factors are omitted.

8.4 Crime clearance and crime rates

The deterrence theory of traditional policing has been also tested by some studies exploring the relationships between crime rates and clearance or arrest rates (this implies the certainty of punishment) (e.g., Brown, 1978; Chapman, 1976; D'Alessio & Stolzenberg, 1998; Greenburg, Kessler, & Logan, 1979; Logan, 1975; Phillips & Votey, 1972; Tittle & Rowe, 1974b; Wilson & Boland, 1976, 1978; Yu & Liska, 1993). Those studies investigated the effects of police activities (the outputs of those activities can be arrest or crime clearance) on crime control rather than simply looking at the effect of increased police level.

Since police departments do not have complete control over the prevention of crime, we believe many uncontrollable factors, such as economic conditions, employment, household income, population size, and so on, are correlated with crime. Therefore, clearance rate can be used as a measure of police performance to avoid the influence of those uncontrollable factors. Crime clearance rate is defined as the number (or percentage) of crimes that have been “solved” by arrest or “exceptional” means (Drebin and Brannon, 1992: 22). According to the FBI’s Uniform Crime Reports, an offense is “cleared by arrest” or solved for crime reporting purposes when at least one person is (1) arrested, (2) charged with the commission of the offense; and
(3) turned over to the court for prosecution. Of course, as Drebin and Brannon noted, this definition also has problems because crimes are considered to be cleared even when only one of the several persons who are involved in the crime is arrested. An “exceptional” clearance is another variation of a clearance, and the death of the offender can be regarded as an exceptional clearance.

Table 8-2 shows some examples of the studies that investigated the effect of police activities such as arrest and crime clearance on crime rates. In the table, four of the five studies found that arrest rates have negative and significant effects on crime occurrence, whereas police levels have relatively more mixed effects on crime rates as reviewed in the previous section. As seen in the table, however, among the four studies that supported the negative and significant effect of clearance rate on crime, three studies (i.e., D’Alessio and Stolzenberg, 1998; Logan, 1975; and Wilson and Boland, 1978) tested their hypotheses with only one type (or category) of crime (e.g., total crime, major felony, and robbery, respectively), and found negative and significant effects on those crimes. In addition, Yu and Liska (1993) pointed out that while the predicted negative relationship between the certainty of punishment and crime rates was observed, the causal direction of the relationship was rarely evident and the relationship may be different depending on the type of crime or some other variables.

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9 According to Uniform Crime Reports, in certain situations, law enforcement is not able to follow the three outlined steps under “clearance by arrest” to clear offenses known to them. Many times all leads have been exhausted and everything possible has been done in order to clear a case.
Table 8-2. The Effect of Crime Clearance Rate (or Arrest Rate) on Crime

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample/Data</th>
<th>Method</th>
<th>Effect of Crime Clearance on Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapman (1976)</td>
<td>147 California cities with population between 20,000 and 100,000 in 1960 and 1970</td>
<td>Regression</td>
<td>Property crime (-)*</td>
</tr>
<tr>
<td>D’Alessio and Stolzenberg (1998)</td>
<td>Orange County in Florida for 184 days in 1991</td>
<td>Time series with daily collected data</td>
<td>Total crime (-)*</td>
</tr>
<tr>
<td>Greenberg et al. (1979)</td>
<td>98 U.S. cities from 1964 to 1970</td>
<td>Regression</td>
<td>None</td>
</tr>
<tr>
<td>Logan (1975)</td>
<td>FBI’s crime clearance by arrest data for about 3,000 cities form 1964 to 1968</td>
<td>Correlation, Path analysis</td>
<td>Major Felony (-)*a</td>
</tr>
<tr>
<td>Wilson and Boland (1978)</td>
<td>35 largest cities in the U.S. in 1975</td>
<td>Regression</td>
<td>Robbery (-)*</td>
</tr>
</tbody>
</table>

Note:
a: According to the path analysis results, the causality (i.e., deterrence interpretation) is questionable.
- Asterisk (*) indicates that the coefficient of crime clearance by arrest is significant at five percent alpha level when crime types (e.g., violent, property, or total crimes) are dependent variable.
- The signs (+/-) indicate that the coefficients of police activity variable (i.e., crime clearance rate) have positive (+) or negative (-) sign.

With respect to the effect of punishment, Tittle and Rowe (1974a) found interesting results in Florida’s cities and counties that a high level of certainty of punishment\(^{10}\) (30 percent in their study) must be reached before a substantial decrease in crime rates occurs (it is referred to as tipping effect). Brown (1978) noted that Tittle and Rowe’s (1974) study of crime rates (reported UCR crimes) and certainty of punishment (crimes cleared by arrest/crimes reported) added a potentially significant proposition to deterrence theory and the tipping effect\(^{11}\) of sanction certainty reported by them is of considerable theoretical import. In fact, Brown (1978) attempted to determine whether the tipping effect is peculiar to their data with California and

\(^{10}\) Clearance rates are used as a certainty of punishment index in their study.

\(^{11}\) That is, under a certain level, sanction certainty does not seem to work for deterring crimes. However when sanction certainty reaches that level, crime rates decrease substantially.
Florida cities and counties. Brown found the tipping effect only in cities and counties with small populations and rejected the more general form of the tipping effect proposed by Tittle and Rowe (1974). Chamlin (1991) also investigated this relationship and reported a negative effect of punishment certainty on crime rates at about 40 percent for only small cities. Why do we observe tipping effect in small cities? Brown explained that one of main reasons is more social cohesion in the small communities. That is, face-to-face contacts, and accompanying information links are greater in the smaller cities (or counties) than in big cities (or counties). In addition, arrest may be perceived as severer in smaller cities than in larger cities where even high probabilities of arrest may have little effect on individuals’ decisions about whether to engage in criminal behavior.

Yu and Liska (1993) extended tipping effect studies such as Tittle and Rowe (1974), Brown (1978), and Chamlin (1991) by disaggregating the analysis by crime and race because Yu and Liska observed that few large cities achieve tipping point for most crimes. Yu and Liska tested the hypotheses for three major crimes (rape, robbery, and assault) using the Uniform Crime Reports data and the National Crime Survey data, and found that the punishment certainty rate\textsuperscript{12} is higher for racial minorities than for racial majorities and the effect of race-specific punishment certainty is non-linear including a tipping point, a ceiling point\textsuperscript{13}, or both. Therefore, Yu and Liska’s (1993) study suggested that racial minorities may experience the certainty of punishment above the tipping point although most citizens (i.e., racial majorities) do not experience such level of punishment certainty.

\textsuperscript{12} Once a person commits crimes, he or she may be concerned about the possibility of being arrested.

\textsuperscript{13} After a certain level of punishment certainty, crime rates are not influenced any more.
Phillips and Votey (1972) explained the relationship between crime clearance rates and crime occurrence rates from a different perspective. Their argument shows how crime occurrence (i.e., offense rate in figure 8-2) is influenced by other socioeconomic conditions in addition to crime control efforts that the police make. They argued that the level of crime occurrence can be set through the interaction between crime generation function (CGF), mainly influenced by socioeconomic conditions such as unemployment rate and poverty level and law enforcement production function (LEPF) (i.e., crime control by arresting). When law enforcement expenditures rise or the state of technology improves, the LEPF curve in the figure moves upward and to the right (LEPF\textsubscript{1}), which moves an equilibrium (A\textsubscript{0}) with higher level of offence rate (O\textsubscript{0}) to a new equilibrium (A\textsubscript{1}) with higher level of clearance and lower level of offense rate (O\textsubscript{1}). Likewise, given law enforcement expenditures do not change, when economic conditions worsen, the CGF curve in the figure will move in the same manner (CGF\textsubscript{1}), which leads to a new equilibrium (A\textsubscript{2}) with lower level of clearance and higher offense rate (O\textsubscript{2}). Therefore, they argued that if economic conditions worsen, law enforcement expenditures should increase in order to maintain the effectiveness of law enforcement (i.e., clearance rate).

Given that new equilibrium point is A\textsubscript{2} where economic conditions become worse LEPE does not change, even when law enforcement expenditures are increased to maintain the same level of crime clearance rate at the new equilibrium (A\textsubscript{3}), the offense rate will be a new offense rate (O\textsubscript{3}) that is bigger than a original offense rate (O\textsubscript{0}) as seen in the figure. Therefore, they argued that more expenditure on law enforcement (i.e., LEPF\textsubscript{1} would move further to the right and upward) should be necessary when economic conditions are worse if the police want to maintain the
same level of crime rates based on auto theft data in their study.

In sum, Phillips and Votey (1972) showed the mutual interaction between law enforcement production function and crime generation function, seeing the crime clearance rate as an effectiveness measure of law enforcement agencies. Since crime rates and crime clearance rates are set after Enforcement Production Function (LEPF) and Crime Generation Function (CGF) interact with each other, Phillips and Votey argued that a heavy emphasis on law enforcement to the neglect of economic conditions could have the effect of worsening social attitudes in the form of a resentment of law enforcement and a general attitude of antagonism between levels of society. Therefore, Phillips and Votey concluded that the solution to crime is largely one of society’s willingness to pay both the costs of law and order and the costs of maintaining healthy economic conditions and social attitudes.
8.5 The Service Efforts and Accomplishments (SEA) indicators for crime control

According to the Governmental Accounting Standards Board (GASB) (1987), in establishing objectives of financial reporting, governmental financial reporting should provide information to assist users in (a) assessing accountability and (b) making economic, social, and political decisions. That is, financial reporting should provide information to assist users in assessing the service efforts and accomplishments (SEA) of a governmental entity. After completing and issuing its Concepts Statement No. 1, Objectives of Financial Reporting, the GASB initiated research into ways to improve the ability of public-entity financial reports to present information useful in monitoring and assessing the results of operations of governmental entities (Drebin et al., 1992). Police service is one of the twelve service areas\(^\text{14}\) of the GASB’s SEA research.

Police departments are often called on to provide a wide range of public services, but their most visible function relates to crime prevention and suppression of crime; and the apprehension of criminal offenders (Drebin et al., 1992). Table 8-3 shows SEA indicators of different categories for police department’s crime control recommended by the GASB’s SEA research. In the bottom row of the table, explanatory variables are suggested to provide information on factors that are likely to affect the incidence and effects of criminal activity so that measures of output, outcome, and efficiency may be viewed in proper context if explanatory variables are included in the analysis. In addition, those explanatory variables can be helpful in

\(^{14}\) The service areas included in the research are police, fire, public health, hospitals, public assistance, mass transit, road maintenance, economic development, elementary and secondary education, sanitation collection and disposal, water and wastewater treatment, and colleges and universities.
developing ratios to place different jurisdictions on a comparable basis.

Table 8-3. Recommended Police Department SEA Indicators

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
</tr>
</thead>
</table>
| **Inputs**     | • Budget expenditures  
• Equipment, facilities, vehicles  
• Number of personnel, hours expended |
| **Outputs**    | • Hours of patrol  
• Responses to calls for service  
• Crime investigated  
• Number of arrests  
• Persons participating in crime-prevention activities |
| **Outcomes**   | • Deaths and bodily injury resulting from crime  
• Value of property lost due to crime  
• Crimes committed per 100,000  
• Percentage of crimes cleared  
• Response time  
• Citizen satisfaction |
| **Efficiency** | • Cost per case assigned to a sworn officer  
• Cost per crime cleared  
• Personnel hours per crime cleared |
| **Explanatory variables** | • Population by age group  
• Unemployment rate  
• Number of households; number of business firms  
• Land area  
• Demand: calls for service, cases assigned |

Source: Drebin and Brannon (1992)

Although the relationships between inputs and outputs or outcomes are not suggested, Drebin and Brannon (1992) emphasized that any outputs or outcomes must be viewed in relation to the resource commitment involved. The most important input to the police function is human resources, and personnel-related input data that have been reported include personnel hours, training hours, total personnel, and number of sworn personnel. Although reporting the number of officers per thousand population might seem to lend itself to comparisons among cities, Hatry et al. (1992) pointed out
the caveats that the number of businesses in and visitors to the community are not taken into account; the make-up of the populations may be quite divergent, and the expanse of area to cover for the same size population may vary greatly. Due to the lack of empirical evidence linking police activities to crime reduction, it is very difficult to infer causal relationships between them. Therefore, Drebin and Brannon (1992) concluded that what we need is more empirical research that demonstrates the relationships between police efforts and crime reduction.

8.6 Crime control comparison among municipalities

In order to draw an appropriate comparison of police service between municipal police departments, Ammons (1996) suggested several performance indicators of police for crime control rather than using the Federal Bureau of Investigation’s Uniform Crime Reports (UCR) data. Ammons pointed out that using the UCR data are problematic because of the following reasons. First of all, the UCR data includes statistics only on reported crimes. Secondly, crime statistics can only be as accurate as the data provided to the FBI by individual police departments. If they intentionally misrepresent their performance statistics, the quality of the UCR is thereby diminished. Finally, a host of community factors that are uncontrollable other than police performance also contribute to a community’s rate of crime.

Although the employment\textsuperscript{15} of police officers and support personnel is not an end itself, since it is one of the input factors, Ammons explained that public officials are interested in staffing levels and frequently are buffeted at budget time by claims of inadequate staffing. If a police department consistently ranks below its counterparts on various performance indicators, the possibility of understaffing is one potential

\textsuperscript{15} FBI reports municipal police staffing levels per 1,000 population, whereas Bureau of Justice reports them per 10,000 population.
factor worth exploring – that is, staffing information does have diagnostic value. Ammons also noted that patrol availability (or police management proficiency) is the other important factor that shows us, combined with staffing level, how many officers are “on the street.” League of California Cities (1994) suggested that officers in high-service-level departments are able to devote at least 45% of their time to patrolling the field uncommitted.

Ammons observed that crime rates (crime occurrence per 100,000 populations) are influenced not only by police efforts and economic factors but also by whether a community is rural or urban, population size, and the state or region in which it is located. For example, crime rates tend to be lower in cities lying outside metropolitan statistical areas and lower in rural counties, whereas crime rates tend to be higher in big cities and in the South and West. To adjust the influence of city size and locale before making comparison between cities, Ammons (1996, p197) suggested projected norm as below.

\[
\text{Projected norm} = \frac{\text{Statistic for population cluster}}{\text{Statistics for state or region}} \times \text{National average}
\]

For example, when a city in the South region is interested in the safety level in that city by comparing crime rates with those of other cities, Ammons suggested the comparison among cities with similar population size and similar location (i.e., region) rather than the comparison with national average or with any other city. As seen in the formula for the projected norm, we first need to check an average crime rate for that population cluster of cities and we also need to check an average crime
rate for that region to see if the region that a city is located has relatively higher or lower crime rates compared to national average.

With respect to the crime clearance rates, Ammons observed that clearance rates tend to be higher in small cities than in big cities, but did not observe a difference between states or regions, unlike with crime rates. Response time can be also a performance measurement since municipalities often judge their police departments in part on the promptness with which they respond to emergencies. According to the League of California Cities (1994), high-service-level departments should respond to emergencies within five minutes. However, when non-emergency calls are included in response statistics, the average response times are often in excess of 10 minutes (Ammons, 1996).

8.7 Summary and a suggested crime control model

Before suggesting a crime control model, I review what ecological (i.e., macro-level) factors are involved in crime occurrence, based on Pratt and Cullen’s (2005) meta-analysis. As we know, crime reduction cannot be easily achieved due to many uncontrollable factors that need to be also considered when we investigate if police efforts lead to crime reduction.

According to Pratt and Cullen (2005), although scholars pay more attentions to the predictors of individual criminality (i.e., micro-level question of why individuals break the law) and to formulating theories of individual criminality, the macro-level approach reemerged as a salient criminological paradigm in the late 1970s and 1980s. Broadly speaking, there are three domains of predictors (i.e., factors to predict
crimes): social-structural predictors, socioeconomic predictors, and criminal justice system-related predictors. Rather than defining each predictor of crimes, I summarize what factors belong to those predictors as follows. First of all, the social-structural predictors include racial heterogeneity, non-economic institutions (e.g., religious, family, and political institutions), residential mobility, family structure or disruption, region, urbanism, sex ratio, education, religion, and firearms ownership. Secondly, socioeconomic predictors include percent below the poverty line, inequality, and unemployment. Finally, criminal justice system-related predictors include incarceration, police force size, arrest ratio, police expenditures, police per capita, and get-tough policies (e.g., sentencing policy, firearms policy, and the death penalty). As seen in table 8-4 that summarizes rank-ordered macro-level predictors of crime, law enforcement-related factors are ranked after 20th among 31 predictors of crime, whereas social-structural and socioeconomic factors appear to be more influential determinants of crimes.

At the beginning of this chapter, I reviewed the logic model of the Community Oriented Policing Services (COPS) program. Zhao et al. (2002) found that the hiring grants and the innovative grants under COPS program have significant, negative effects on controlling crimes, especially when the city sizes are more than 10,000 populations. I then reviewed one of the most debatable issues in traditional policing, the effects of police level on crimes. The Kansas City Preventive Patrol Experiment (KCPPE), as one of the most important policing studies relevant to police patrolling efforts, was conducted in 1972 and 1973, and Kelling et al. (1974) reported that the level of police patrol had no effect on crimes that were suppressible by patrol.

16 From the 31 different macro-level predictors of crime across all 214 empirical studies, and 509 statistical models, the rank ordering is based on the relative magnitude of the mean effect size estimates.
However, Larson (1975) and Fienbert et al. (1976) argued that the results of the KCPPE might not be valid because it had a weak experimental design and the sample size was small. Although some recent studies (e.g., Marvell and Moody, 1996; Kovandzie and Sloan, 2002) supported the significant and negative effects of the police level on crime, there have been mixed results about the effects of police level on crime.

Table 8-4. Rank-Ordered Effect Size Estimates of Macro-Level Predictors of Crime

<table>
<thead>
<tr>
<th>Rank</th>
<th>Macro-Level Predictor</th>
<th>Rank</th>
<th>Macro-Level Predictor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strength of noneconomic institutions</td>
<td>17</td>
<td>Residential mobility</td>
</tr>
<tr>
<td>2</td>
<td>Unemployment (length considered)</td>
<td>18</td>
<td>Unemployment (with age restriction)</td>
</tr>
<tr>
<td>3</td>
<td>Firearms ownership</td>
<td>19</td>
<td>Age effects</td>
</tr>
<tr>
<td>4</td>
<td>Percent nonwhite</td>
<td>20</td>
<td>Southern effect</td>
</tr>
<tr>
<td>5</td>
<td>Incarceration effect</td>
<td>21</td>
<td>Unemployment (no length considered)</td>
</tr>
<tr>
<td>6</td>
<td>Social interaction or social tie</td>
<td>22</td>
<td>Socio economic status</td>
</tr>
<tr>
<td>7</td>
<td>Percent black</td>
<td>23</td>
<td>Arrest ratio</td>
</tr>
<tr>
<td>8</td>
<td>Religion effect</td>
<td>24</td>
<td>Unemployment (no age restriction)</td>
</tr>
<tr>
<td>9</td>
<td>Family disruption</td>
<td>25</td>
<td>Sex ratio</td>
</tr>
<tr>
<td>10</td>
<td>Poverty</td>
<td>26</td>
<td>Structural density</td>
</tr>
<tr>
<td>11</td>
<td>Unsupervised local peer group</td>
<td>27</td>
<td>Police expenditures</td>
</tr>
<tr>
<td>12</td>
<td>Household activity ration</td>
<td>28</td>
<td>Get-tough policy</td>
</tr>
<tr>
<td>13</td>
<td>Social support/altruism</td>
<td>29</td>
<td>Education effects</td>
</tr>
<tr>
<td>14</td>
<td>Inequality</td>
<td>30</td>
<td>Police per capita</td>
</tr>
<tr>
<td>15</td>
<td>Racial heterogeneity index</td>
<td>31</td>
<td>Police size</td>
</tr>
<tr>
<td>16</td>
<td>Urbanism</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Pratt and Cullen (2005)

I also reviewed the studies that investigated the relationship between crime clearance rates (i.e., as a result of police activity) and crime rates. Unlike the studies examining the effects of the police level on crime, researchers found relatively consistent and significant effects that the police efforts (e.g., clearance rates) had on crime. Since crime clearance rates are directly related to the certainty of punishment, I
reviewed tipping effect studies (e.g., Tittle and Rowe, 1974; Brown, 1978; Chamlin, 1991; Yu and Liska, 1993), which showed that above a certain level of punishment certainty, crime decreases substantially. Phillips and Votey’s (1972) study showed that crime occurrence is associated not only with police efforts to reduce crime (i.e., crime clearance rates in their study) but also with socioeconomic conditions (the Crime Generation Function in their study). Phillips and Votey’s study indicated crime rates are the result of the interaction between the Crime Generation Function and the Law Enforcement Production Function (i.e., police efforts to reduce crimes).

In order to provide information to assist users of financial report in assessing accountability and making decisions (e.g., economic, social, and political decisions), the Governmental Accounting Standards Board (GASB) recommended several indicators of the Service Efforts and Accomplishments (SEA) for crime control, and categorized them into inputs, outputs, outcomes, and efficiency. The GASB also suggested that we also need to consider some explanatory variables such as population, unemployment, and workload of the police when we examine the SEA for crime control. According to Ammons (1996), when we need to make a comparison among municipalities to know how well we are doing in controlling crimes, it is desirable to use a projected norm for crime control measures such as crime rates and crime clearance rates rather than to use a national average of crime control measures in order to draw a fair comparison. Ammons noted that crime control measures are different, depending on the populations of the cities and the region.

In figure 8-3, I suggest a Crime Control Model, based on the literature I reviewed in this chapter. As seen in the figure, crime control outcomes (i.e., crime
reduction and safety feeling in the model) are more likely to be affected by social-structural and socioeconomic factors than the crime control outputs (i.e., crime clearance in the model) are affected by them. We also see that the crime control outputs are more directly influenced by criminal justice system-related factors including the police level. As seen in the model, the crime control outcomes are likely affected by exterior environments such as social-structural factors and socioeconomic factors, whereas the crime control outputs are likely affected by interior environments such as HRM practices, leadership, motivations, and others.
Figure 8-3. Suggested Crime Control Model

**INPUT**
- Criminal Justice System
  - Police Expenditures
  - Number of Personnel (Police Level)
  - Response Time
  - Policing strategies (e.g., patrolling)
  - Get-tough policy (e.g., sentencing policy)

**INTERIOR ENVIRONMENTS**
- HRM Characteristics
  - Leadership
  - Motivation
- Others

**OUTPUT**
- Crime Clearance
- Crime Reduction Safety Feeling
- Turnover

**OUTCOME**
- Social-structural Factors
  - Racial Heterogeneity
  - Family Disruption
  - Urbanism
  - Sex ratio
- Socioeconomic Factors
  - Unemployment Rate
  - Income Level
  - Poverty Level
  - Inequality

**EXTERIOR ENVIRONMENTS**
In the model, I assume that employee turnover negatively affects the relationship between criminal justice system-related factors and crime clearance, based on the human capital theory. I also hypothesize that the effects of turnover are also moderated by HRM characteristics of the police department among some interior environmental factors. Since I predict that the influence of the HRM characteristics will be different, depending on the type of HRM characteristics (e.g., control HRM and commitment HRM characteristics), I put +/- signs on the influence of HRM characteristics on the effects of turnover. Based on the literature that shows relatively consistent effects of law enforcement-related factors on crime clearance, I expect the positive effects of police expenditure and the number of police personnel, and the negative effects of response time of the police on crime clearance. For example, I expect that the more police officers per population, the more crimes are cleared. I also expect that the faster police respond to the citizen’s request (i.e., the shorter time), the more likely crimes will be cleared. In the model, I also noted that crime clearance rates are influenced by a crime occurrence level. As Drebin and Brannon (1992) pointed out, if more cases are assigned to a sworn officer, workload will go up, and crime clearance rates will decrease, consequently. It is obvious that a sworn officer needs to take care of more cases if more crimes occur. Therefore, the relationship between crime occurrence and crime clearance will be negative. As I reviewed in the literature, I predicted a positive relationship between crime clearance level and safety feeling or crime reduction, based on the certainty of punishment theory. In other words, the more crimes are cleared, the less crimes would occur.
According to Pratt and Cullen’s (2005) meta-analysis of crime control literature, criminal justice system-related factors are the least influential to the crime reduction among the three categories of crime predictors such as criminal justice system-related factors, social-structural factors, and socioeconomic factors. The inconsistent (i.e., positive, negative, and none) effects of the police level on crime reduction in the literature (see table 8-1 of Marvell and Moody’s (1996) review) also supported the results of Pratt and Cullen’s (2005) meta-analysis. However, it seems inevitable for governments at any level to depend more on the criminal justice system-related factors (e.g., increasing police level) because they are much more controllable than social structural and socioeconomic factors that are more influential but hard-to-control.

In this study, I investigate if HRM characteristics have effects on crime control performance of municipal police departments, if turnover influences crime control performance, and if HRM characteristics moderate the effects of turnover on crime control performance. The goal of crime control is not to achieve outputs, but to reduce crimes and increase safety feeling. However, those ultimate outcomes can be achieved by achieving outputs such as high crime clearance rates, as seen in the model, although other crime predictors such as social-structural factors and socioeconomic factors are also involved. If we focus on the effects of turnover and HRM characteristics on crime control outcomes rather than on crime control outputs, we are less likely to detect the significant relationship due to more uncontrollable factors involved. From the management perspective, if we examine the influence of employee turnover or specific HRM characteristics on crime control performance, we are more likely to find meaningful relationships when we focus on crime control.
outputs rather than crime control outcomes because the latter is much more associated with uncontrollable factors as seen in the model. In sum, I focus on the relationships between police efforts and crime clearance rates as a crime control output in this study and examine the effects of turnover and HRM characteristics on those relationships.
IX. Methodology

9.1 Survey and data sources

To collect the data about turnover and HRM characteristics of the municipal police departments, in May 2006 I sent surveys to 205 police departments of U. S. cities whose population range was between 100,000 and 500,000. While I collected the data such as HRM characteristics, turnover, the budget for salary and benefits through surveying, the data such as the number of sworn officers, crime occurrence, and crime clearance data came from the Federal Bureau of Investigation (FBI).

Before initiating the main survey, pilot questionnaires were sent to 12 cities of a wide population range to see if the questionnaires were appropriate for collecting the data I wanted and to decide target cities to which main surveys would be sent. The pilot survey results indicated that police departments did not seem to keep turnover records over time in the small cities, especially when their populations were less than 100,000. In addition, responses are less likely from big cities especially when their populations are more than 500,000. According to the respondents, there are usually too many survey requests from anywhere. This would make big cities too selective in responding to surveys. Based on the pilot survey results, I decided to survey in-between size cities of which the population range was between 100,000 and 500,000. Among the cities with that population range, I excluded some cities in which sheriff offices (e.g., Lancaster, CA; Augusta-Richmond, GA) are in charge of crime control rather than police departments, based

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1 The population range of the 12 cities was as follows. More than 500,000 - one city; 100,000 ~ 500,000 - four cities; 10,000 ~ 100,000 - four cities; and less than 10,000 - three cities.
on the assumption that their organizational structures and characteristics are different from those of police departments.

When I determined the survey target police departments, I tried to get endorsement for my research from police organizations\(^2\) to increase a response rate, but I failed to get their endorsement. Two months after sending the first surveys to the target cities, the response rate was about 10 percent. So, I contacted non-responding police departments and found that majority of the police departments seemed to ignore the survey\(^3\). I sent the surveys again to the non-responding cities and this time the response increased to about 20 percent when one and half months had passed. Finally, I sent reminder postcards to non-responding cities and I could increase the response rate up to 32 percent (i.e., 65 cities participated as seen in table 9-1).

As seen in the actual survey (appendix 9-1), before asking the survey questions, I made it clear that the survey was only regarding full time employees (FTE). That is, I asked them not to include any data about trainees, part-time employees, and temporary job employees because there may be different HRM characteristics for non-FTE and the organizational performance will be differently calculated if non-FET is included, based on the turnover literature (e.g., Shaw et al. 2005). For example, we imagine that trainees are more likely to quit than FTE and there may be more control-oriented HRM characteristics for temporary employees rather than more discretion allowed.

\(^2\) I send the letters to International Association of Chiefs of Police, Police Executive Research Forum, and Kentucky State Police Commissioner, asking endorsement for my research.

\(^3\) Generally, staffs in charge of responding to surveys kept them in their drawers and did not do anything. In other cases, the survey seemed to be missing.
Table 9-1. Survey Participants List

<table>
<thead>
<tr>
<th>No</th>
<th>City</th>
<th>State</th>
<th>Population</th>
<th>No</th>
<th>City</th>
<th>State</th>
<th>Population</th>
</tr>
</thead>
<tbody>
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<td>211299</td>
<td>23</td>
<td>Miami</td>
<td>FL</td>
<td>376815</td>
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<tr>
<td>2</td>
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<td>AZ</td>
<td>432376</td>
<td>24</td>
<td>Port St. Lucie</td>
<td>FL</td>
<td>105507</td>
</tr>
<tr>
<td>3</td>
<td>Tempe</td>
<td>AZ</td>
<td>158880</td>
<td>25</td>
<td>St. Petersburg</td>
<td>FL</td>
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<td>271035</td>
<td>26</td>
<td>Tallahassee</td>
<td>FL</td>
<td>153938</td>
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<td>5</td>
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<td>CA</td>
<td>100819</td>
<td>27</td>
<td>Tampa</td>
<td>FL</td>
<td>317647</td>
</tr>
<tr>
<td>6</td>
<td>Fresno</td>
<td>CA</td>
<td>451455</td>
<td>28</td>
<td>Columbus</td>
<td>GA</td>
<td>185702</td>
</tr>
<tr>
<td>7</td>
<td>Glendale</td>
<td>CA</td>
<td>200499</td>
<td>29</td>
<td>Savannah</td>
<td>GA</td>
<td>127573</td>
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<td>8</td>
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<td>CA</td>
<td>475460</td>
<td>30</td>
<td>Boise City</td>
<td>ID</td>
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<td>Springfield</td>
<td>IL</td>
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<td>167402</td>
<td>32</td>
<td>Fort Wayne</td>
<td>IN</td>
<td>219495</td>
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<tr>
<td>11</td>
<td>Rancho Cucamonga</td>
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<td>33</td>
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<td>KS</td>
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<td>34</td>
<td>Lexington</td>
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<td>LA</td>
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<td>36</td>
<td>Shreveport</td>
<td>LA</td>
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<td>15</td>
<td>West Covina</td>
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<td>108251</td>
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<td>Ann Arbor</td>
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<td>290418</td>
<td>38</td>
<td>Warren</td>
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<td>Colorado Springs</td>
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<td>Pueblo</td>
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<td>103648</td>
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<td>Fayetteville</td>
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<td>124372</td>
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<tr>
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<td>FL</td>
<td>162917</td>
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<td>Greensboro</td>
<td>NC</td>
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<td>FL</td>
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<td>Raleigh</td>
<td>NC</td>
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<tr>
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<td>Hollywood</td>
<td>FL</td>
<td>143408</td>
<td>44</td>
<td>Jersey City</td>
<td>NJ</td>
<td>239097</td>
</tr>
</tbody>
</table>

Note: Populations are as of July 1, 2003 (source: http://www.citypopulation.de/USA.html)

In panel (a) of table 9-2, I summarize the descriptive statistics of population for all 205 surveyed cities, 65 participating cities, and 140 non-participating cities. As seen in the table, it seems that there is no difference of populations between participating cities and non-participating cities although participants have a little more populations.
than non-participants. To test if there is a relationship between participation in the survey and city’s population, I ran analysis of variance and the result is in panel (b) of table 9-2. As seen in panel (b) of the table, the participation of the survey is not associated with city population.

Table 9-2. Descriptive statistics and analysis of variance (ANOVA) results

(a) Comparing descriptive statistics between participants and non-participants

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cities (205)</td>
<td>187,219</td>
<td>92,154</td>
<td>100,138</td>
<td>475,460</td>
</tr>
<tr>
<td>Participants (65)</td>
<td>214,057</td>
<td>107,927</td>
<td>100,819</td>
<td>475,460</td>
</tr>
<tr>
<td>Non-participants (140)</td>
<td>175,408</td>
<td>82,004</td>
<td>100,138</td>
<td>469,032</td>
</tr>
</tbody>
</table>

(b) ANOVA results

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of square</th>
<th>Degree of freedom</th>
<th>Mean Square</th>
<th>F</th>
<th>Prob &gt; F</th>
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</thead>
<tbody>
<tr>
<td>Between groups*</td>
<td>43.39024</td>
<td>202</td>
<td>0.214803</td>
<td>0.43</td>
<td>0.8999</td>
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<tr>
<td>Within groups</td>
<td>1</td>
<td>2</td>
<td>0.5</td>
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<tr>
<td>Total</td>
<td>44.39024</td>
<td>204</td>
<td>0.217599</td>
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</tr>
</tbody>
</table>

*: It means between participating cities and non-participating cities

In the survey, I asked the questions about HRM characteristics such as job design (Q1 ~ Q3), unionization (Q4 ~ Q6), employee voice policy (Q7 ~ Q10), compensation (Q11), and staffing (Q12) (see appendix 9-1 for the actual survey questionnaires) based on Arthur (1992, 1994) and Walton (1985), who investigated the effects of control and commitment HRM characteristics in the private sector. I also asked police departments to provide three years’ (2002 ~ 2004) voluntary and involuntary turnover data for sworn officers and civilian employees. To collect the data about control variables that I use for this study, I asked questions about response time (the first column of Q14), number of sworn officers on patrol service (the
second column of Q14), sick leave absence (Q15), salary and benefit budgets for sworn officers and civilian employees (Q16), and caseload per sworn officers (Q17). Although most survey participants answered the questions about HRM characteristics, turnover data were provided by only about 40 percent of the participants. Most police departments also had a problem providing the data such as sick leave absence and caseload per sworn officers, so I could not use those data as control variables.

9.2 Factor analysis with HRM characteristics

As mentioned in the previous chapters, this study examines if HRM characteristics (both individually and systematically) have an influence on crime control performance of the municipal police, and if HRM characteristics moderate turnover effects on crime control performance such that the negative effects of turnover would be severer in an organization with commitment HRM characteristics than with control HRM characteristics. In order to extract underlying factors of HRM characteristics that police departments might have, I ran factor analysis using principal component factor method and varimax rotation option (see StataCorp, 2003).

4 Turnover studies usually include sick leave absence in the regression analysis as a control variable because it may mask the effects of turnover. In this study, I asked participants to provide total sick leave days except pregnancy and maternity leaves according to the literature (Glebbeek and Bax, 2005).

5 Some cities provided three years’ turnover data, other cities provided only one or two year’s turnover data among 40 percent participants.
Table 9-3. Expected Results for the Underlying Factors of HRM Characteristics

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Contents of the questions</th>
<th>Control HRM system</th>
<th>Commitment HRM system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1-a</td>
<td>Number of job classification for sworn officers</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Q1-b</td>
<td>Number of job classification for civilians</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Q2</td>
<td>Job description for sworn officers (1-3)</td>
<td>Discretion not allowed</td>
<td>Discretion allowed</td>
</tr>
<tr>
<td></td>
<td>1: Discretion not allowed</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td></td>
<td>3: Discretion allowed</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Q3</td>
<td>Job description for civilians (1-3)</td>
<td>Discretion not allowed</td>
<td>Discretion allowed</td>
</tr>
<tr>
<td></td>
<td>1: Discretion not allowed</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td></td>
<td>3: Discretion allowed</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Q4-a</td>
<td>The number of registered unions for sworn officers</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Q4-b</td>
<td>The number of registered unions for civilians</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Q5,6-a</td>
<td>Percent of sworn officers who are eligible and join one of the unions</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Q5,6-b</td>
<td>Percent of civilians who are eligible and join one of the unions</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Q7</td>
<td>Do you have formal employee complaint/grievance resolution mechanism</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Q8</td>
<td>Do you have information-sharing-policy(^6)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Q9</td>
<td>Employees’ participation in a wide range of issues or in a limited range of issues</td>
<td>In a limited range of issues</td>
<td>In a wide range of issues</td>
</tr>
<tr>
<td>Q11</td>
<td>Do you have incentive or bonus system</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Q12-a</td>
<td>How long does it usually take to recruit sworn officers</td>
<td>It doesn’t take long</td>
<td>It takes long</td>
</tr>
<tr>
<td>Q12-b</td>
<td>How long does it usually take to recruit civilians</td>
<td>It doesn’t take long</td>
<td>It takes long</td>
</tr>
</tbody>
</table>

According to Arthur (1992, 1994) and Walton (1985), the expected results of the HRM questions in the survey for each control and commitment HRM systems are as in table 9-3. That is, based on the literature, we expect that an organization with control HRM system would have more number of job classifications for both

\(^6\) If a department has an information-sharing-policy, most information is usually shared among employees regardless whether or not the information is directly necessary to them.
sworn officers and civilians, more detailed job description that does not allow discretion for both sworn officers and civilians, less number of unions for both sworn officers and civilians, lower percentage of employees’ joining unions for both sworn officers and civilians, and bonus or incentive system. But we also expect that organization with control HRM characteristics would neither have formal employee complaint/grievance resolution mechanism nor information-sharing-policy. In addition, employees are expected to participate in a limited range of issues, and it would not take long to recruits sworn officers or civilians for an organization with control HRM characteristics.

9.3 Independent Variables

**Turnover rates.** As reviewed in the previous chapter, turnover is defined as the cessation of membership in an organization by an individual who received monetary compensation from the organization (Mobley, 1982, p10). Among a variety of different turnover measures, such as accession rate, separation rate, stability rate, and survival rate, I adopted the most commonly used measure, the separation rate as follows.

\[
\text{Separation rate} = \frac{\text{(# of quit) or (# of total separation)}}{\text{Average # of members on payrolls during the period}}
\]

\footnote{The definitions of these turnover measures were reviewed in the previous chapter, based on Price (1977) and Mobley (1982).}
Although the combination of two or three turnover measures is suggested for better understanding turnover (e.g., Mobley 1982; Price 1977), only separation rates could be used for voluntary, involuntary, and total (i.e., voluntary and involuntary turnover) turnovers in the current study because most municipal police departments do not keep the detailed turnover records that are necessary to calculate other turnover measures. Furthermore, even the number of employee separations is not well kept over a few years in many police departments, especially when the city size is relatively small. In this study, I differentiated voluntary turnover (i.e., initiated by employees) from involuntary turnover (i.e., initiated by organizations, death, and mandatory retirement) following the suggestions that voluntary turnover and involuntary turnover should be dealt with differently because their etiologies and effects are different from each other (e.g., McElroy et al., 2001; Shaw et al., 1998). I also separated sworn officer’s turnover from civilian employees’ turnover because their functions are different and sworn officers are more directly involved in crime control. In addition, I combined sworn officer’s turnover and civilian’s turnover to investigate if there is another effect of all employees’ turnover that may be different from each group’s (i.e., sworn officers and civilians) separate turnover effect. In sum, this study used nine kinds of turnover rates as follows. For sworn officers, I collected the data of voluntary turnover, involuntary turnover, and total (i.e., voluntary and involuntary) turnover. For civilian employees, I collected the data of voluntary turnover, involuntary turnover, and total turnover. And for all employees (i.e., sworn officers and civilians), I collected the data of voluntary turnover, involuntary turnover, and total turnover.

**Turnover rate differences.** I also used turnover rate differences between year
2003 turnover and year 2004 turnover (i.e., deducting 2003 turnover rate from 2004 turnover rate) as an independent variable. When I found no significant relationships in the regression analysis that used different kinds of turnover rates as an independent variable, I adopted different kinds of turnover rate differences as an independent variable to examine if changes of turnover rates have influences on crime control performance. Again, I used the same nine kinds of turnover rate differences as in turnover rates.

9.4 Dependent Variables

**Police performance.** Performance is generally defined as effective and efficient use of resources to achieve outcomes (Berman, 1998; Morley, 1986; Rosen, 1993). Unlike for-profit organizations with a clear goal of profit maximization, governments at any level are generally forced to pursue several objectives at the same time to meet citizens’ various needs. Municipal police departments are not the exception. For example, as Skogan (1976, 278-279) noted, the police are expected to facilitate the smooth flow of traffic through the city, to intercede in family disputes, and often to perform mundane tasks of city management such as checking tavern washrooms for the presence of soap and escorting children across busy streets, in addition to their traditional role (i.e., crime control). However, the organization of police departments and the self-image of their officers are rooted in crime fighting, despite the multiplicity of their tasks (Reiss & Bordua, 1967), and crime control still comprises a major part of the police service (Bratton, 1998; Moore & Braga, 2004). Therefore, rather than measuring the whole performance of the various police functions, which is not practical due to data availability, I focus on crime control
Performance in this study, as Skogan (1976) suggested.

**Performance indicators of crime control.** Probably the best way to see how well crimes are being controlled is to measure the level of crime occurrence. For example, if a small number of crimes occurred in a city, we may say that crimes are well controlled in that area and, therefore, a good level of safety is provided to its citizens. As we know in the suggested crime control model in the previous chapter, however, crime occurrence is likely to be influenced by various uncontrollable factors such as social-structural factors (e.g., racial heterogeneity) and socioeconomic factors (e.g., unemployment rate, poverty level) in addition to police efforts (e.g., Pratt et al., 2005). Therefore, even when the police make serious efforts to control crimes, it is not likely to observe significant crime reduction if other uncontrollable factors work unfavorably in reducing crimes. Likewise, we may observe crime reduction even when the police do not make serious efforts to reduce crimes if other uncontrollable factors work favorably.

While the positive effects of the police level (e.g., the number of sworn officers and expenditure level) on reducing crimes have been debatable, the deterrence theory of traditional policing has been supported by studies that investigated if high crime clearance rates lead to crime reduction (e.g., Chapman, 1976; D'Alessio et al., 1998; Wilson et al., 1978). According to the results of those studies, crimes are likely to be reduced by increasing the certainty of punishment (i.e., a high level of crime clearance). In fact, I found a significant and negative relationship ($r = -0.5 \sim -0.7$) between crime clearance rates and crime occurrence rates in the current study. As the logic model of the Community Oriented Policing
Services Program (Roth et al., 2000b, 3) indicated, police efforts such as police level, police expenditures, and quick responses to citizen requests are more directly related to crime clearance rather than to crime occurrence. In addition, crime clearance is less likely to be affected by the uncontrollable variables, as we reviewed in the previous chapter. Since I am more interested in examining the effects of turnover and the effect of HRM characteristics on crime control performance of the police, we are more likely to find the effects when we focus on crime control output such as crime clearance rates rather than focusing on crime control outcomes such as crime reduction and safety feeling because the latter is more associated with uncontrollable factors that may screen the effects of turnover and HRM characteristics.

In sum, as a crime control performance measure for the police, the crime clearance rate has more advantages than the crime occurrence rates in the current study. The Uniform Crime Reports (UCR) data are the most widely used criminal statistics in the U.S. and have been maintained by FBI. In the current study, I only used crime clearance rates for UCR part I crimes as dependent variables and did not count crime clearance rates for UCR part II crimes because part II crimes are less severe than part I crimes and get less attention from the police accordingly. As we reviewed in the previous chapter, clearance rate is usually defined as the number (or percentage) of crimes that have been “solved” by arrest or “exceptional” means (Drebin and Brannon, 1992, p22). An offense is “cleared by arrest” or solved for crime reporting purposes when at least one person is (1) arrested, (2) charged with the commission of the offense; and (3) turned over to the court for prosecution. An “exceptional” clearance is another variation of a clearance, and the death of the offender can be regarded as an exceptional clearance. In this study, I did not adopt
crime clearance rates for each individual crime. Rather, total violent crimes (hereafter, violent crimes) and total property crimes (hereafter, property crimes) are used as dependent variables. Based on the classification of the UCR Part I, in the study, violent crimes consist of murder, rape, robbery, and aggravated assault; and property crimes consist of burglary, larceny, and motor theft. Since violent crimes are usually more urgent, thus have higher priority than property crimes when the police assign their efforts to clear them, and it is reasonable to treat them separately.

9.5 Control Variables

Based on the crime control literature, I included three factors that are normally expected to influence the crime clearance rates: police level (i.e., the number of patrol police officer per 10,000 populations), police expenditure level (i.e., budget for salary and benefits per employee), and crime occurrence rate (i.e., crime occurrence per 10,000 populations). As seen in the suggested crime control model, there may be other factors involved in producing crime clearance rates, such as response time, police strategies (e.g., patrolling), and get-tough policy. However, I could not include them as control variables due to data unavailability. Although I tried to collect the data such as response time and patrolling efforts by asking questions in the survey, few police departments could provide those data. Social-structural factors and socioeconomic factors are also included in the crime control model I suggested, but those factors are more likely to have influences not on crime clearance rates but on crime occurrence (or crime reduction) as seen in the model.

Although crime occurrence rates are negatively influenced by crime
clearance rates as seen in the crime control model, we also see that crime occurrence rates have negative influence on crime clearance rates at the same time (i.e., simultaneous relationship). For example, a higher level of crime occurrence may lead to higher workloads for the police departments, and this, in turn, will lower the level of crime clearance rates. However, no cancel-out effects are expected in this simultaneous relationship because the correlation sign of each relationship is commonly negative. That is, we expect that high clearance rates will lead to low crime occurrence rates, and low crime occurrence rates will lead to high clearance rates. In this study I did not include organization age as a control variable, unlike other turnover effect studies (e.g., Arthur, 1994; Guthrie, 2001; Shaw et al. 2005), because most cities were founded a long time ago, unlike for-profit organizations.
X. Results and Discussion

10.1 Descriptive statistics and correlations

Table 10-1 summarizes means and standard deviations for the dependent variables, the independent variables, and the control variables, and the correlations between them. In table 10-1 we observe that there are negative relationships between crime clearance rate and crime occurrence rates for both violent (r = -0.51, p < 0.01) and property (r = -0.69, p < 0.01) crimes, as expected.

No significant correlations were found between traditional policing (number of police level and level of police expenditure) and crime clearance rates. That is, we only observe suggestive, positive relationships between the number of patrol police officers per 10,000 population and crime clearance rates (r = 0.27 for the violent crime clearance rate; r = 0.10 for the property crime clearance rate) and between the salary and benefits budget per employee and the crime clearance rates (r = 0.28 for the violent crime clearance rate; r = 0.14 for the property crime clearance rate). We also generally observe negative correlations between turnover rates and crime clearance rates and between turnover rate differences and crime clearance rates, indicating the importance of human resources in crime controlling. Since we do not observe high correlations between any variables in the table, we need not be concerned about multicollinearity in the regression analysis.

1 Although high correlations exist between some independent variables (e.g., variables 7 and 10; variables 8 and 10; variables 9 and 10), they do not cause multicollinearity in the regression analysis because different independent variables are not included in the regression equation at the same time.
10.2 HRM characteristics of municipal police departments

Although I asked various questions about HRM characteristics in the survey, it turned out that some questions were not appropriate in the context of municipal police departments. For example, according to the results, recruiting time for sworn officers is not much related with cautiousness in selecting employees unlike in the

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crime clearance rate for total violent crimes</td>
<td>60</td>
<td>45.08</td>
<td>14.51</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Crime clearance rate for total property crimes</td>
<td>60</td>
<td>17.30</td>
<td>7.90</td>
<td>.77</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Violent crime occurrence per 10000 populations</td>
<td>62</td>
<td>66</td>
<td>39</td>
<td>-.51</td>
<td>-.48</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Property crime occurrence per 10000 populations</td>
<td>63</td>
<td>482</td>
<td>192</td>
<td>-.70</td>
<td>-.69</td>
<td>.81</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Number of patrol police officers per 10000 populations</td>
<td>42</td>
<td>11</td>
<td>6</td>
<td>.27</td>
<td>.10</td>
<td>-.06</td>
<td>-.10</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Salary and benefits per employee</td>
<td>51</td>
<td>82974</td>
<td>63025</td>
<td>-.28</td>
<td>-.19</td>
<td>-.49</td>
<td>-.25</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Voluntary turnover per 100 sworn officers</td>
<td>45</td>
<td>5.66</td>
<td>2.84</td>
<td>-.22</td>
<td>-.24</td>
<td>.26</td>
<td>-.01</td>
<td>-.26</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Voluntary and involuntary turnover per 100 sworn officers</td>
<td>42</td>
<td>6.39</td>
<td>3.29</td>
<td>-.19</td>
<td>-.23</td>
<td>.26</td>
<td>.20</td>
<td>-.82</td>
<td>.99</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Voluntary turnover per 100 employees (sworn and civilian)</td>
<td>48</td>
<td>6.62</td>
<td>3.50</td>
<td>-.17</td>
<td>-.20</td>
<td>.09</td>
<td>.10</td>
<td>-.06</td>
<td>-.32</td>
<td>.91</td>
<td>.90</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Voluntary and involuntary turnover per 100 employees (sworn and civilian)</td>
<td>45</td>
<td>7.25</td>
<td>3.58</td>
<td>-.14</td>
<td>-.19</td>
<td>.10</td>
<td>.11</td>
<td>-.04</td>
<td>-.35</td>
<td>.88</td>
<td>.90</td>
<td>.98</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Voluntary turnover rate difference per 100 sworn officers</td>
<td>44</td>
<td>1.72</td>
<td>2.78</td>
<td>-.24</td>
<td>-.26</td>
<td>-.12</td>
<td>-.11</td>
<td>.08</td>
<td>-.08</td>
<td>.31</td>
<td>.25</td>
<td>.17</td>
<td>.17</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Voluntary and involuntary turnover rate difference per 100 sworn officers</td>
<td>41</td>
<td>-.04</td>
<td>3.01</td>
<td>-.23</td>
<td>-.34</td>
<td>-.09</td>
<td>-.09</td>
<td>.12</td>
<td>-.04</td>
<td>.26</td>
<td>.47</td>
<td>.33</td>
<td>.25</td>
<td>.11</td>
<td>.82</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>13. Voluntary turnover rate difference per 100 employees (sworn and civilian)</td>
<td>46</td>
<td>.19</td>
<td>2.55</td>
<td>-.13</td>
<td>-.28</td>
<td>-.24</td>
<td>-.17</td>
<td>.15</td>
<td>-.20</td>
<td>.30</td>
<td>.28</td>
<td>.36</td>
<td>.35</td>
<td>.86</td>
<td>.76</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>14. Voluntary and involuntary turnover rate difference per 100 employees (sworn and civilian)</td>
<td>43</td>
<td>-.11</td>
<td>2.50</td>
<td>-.14</td>
<td>-.32</td>
<td>-.17</td>
<td>-.21</td>
<td>.23</td>
<td>-.09</td>
<td>.25</td>
<td>.23</td>
<td>.31</td>
<td>.32</td>
<td>.81</td>
<td>.72</td>
<td>.95</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: year 2004 data
private sector, rather it is more related with how often municipal governments recruit new employees. Therefore, if a city government does not recruit new employees frequently, it will take longer to fill in vacancies than a city government with a frequent recruiting. Unionization is another example. Most employees seem to join at least one of the unions as long as their government allows unionizations for sworn officers and civilian employees at the police department. Therefore, I could not tell the difference in the degree of unionization among police departments except when unions are not allowed for the police employees. In this study, I tried to include a variety of HRM characteristic variable as long as they showed an acceptable level of internal consistency reliability.

I checked internal consistency reliability of different sets of HRM characteristic variables by using Cronbach’s alpha. Since a widely-accepted social science cut-off is 0.7 (Nunnally, 1978), I chose one set that included relatively more HRM characteristic variables and had over 0.7 Cronbach’s alpha. As seen in table 10-2, the chosen HRM variable set included different HRM characteristics such as job classifications for sworn officers and civilian employees, job descriptions for sworn officers and civilian employees, information sharing policy, employee’s participation in a wide range of issues, and performance-related incentive system. Although the chosen HRM variable set include the mix of continuous variables (i.e., job classification numbers for sworn officers and civilian employees), dichotomous variables (i.e., information sharing policy, employee’s participation in a wide range of issue, and performance-related incentive system), and trichotomous variables (i.e., job descriptions for sworn officers and civilian employees), I ran factor analysis with
them. The chosen HRM variable set, however, did not include recruiting time for sworn officers and civilians and unionization-related variables due to the reasons I explained previously.

Table 10-2. Cronbach’s Alpha for the Chosen Set of HRM Characteristic Variables

<table>
<thead>
<tr>
<th>Item</th>
<th>Obs</th>
<th>Avg. inter-item correlation</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td># of job classification for sworn officers</td>
<td>51</td>
<td>0.3269</td>
<td></td>
</tr>
<tr>
<td># of job classification for civilian employees</td>
<td>50</td>
<td>0.3425</td>
<td></td>
</tr>
<tr>
<td>Job task description for sworn officers (1: most details 3: discretion allowed)</td>
<td>65</td>
<td>0.2155</td>
<td></td>
</tr>
<tr>
<td>Job task description for civilian employees (1: most details 3: discretion allowed)</td>
<td>65</td>
<td>0.401</td>
<td></td>
</tr>
<tr>
<td>Information sharing policy (1: yes 0: no)</td>
<td>62</td>
<td>0.2544</td>
<td>0.7436</td>
</tr>
<tr>
<td>Employee’s participation in a wide range of issues (1: yes 0: no)</td>
<td>62</td>
<td>0.2452</td>
<td></td>
</tr>
<tr>
<td>Performance-related incentive system (1: yes 0: no)</td>
<td>63</td>
<td>0.2605</td>
<td></td>
</tr>
<tr>
<td>Test scale</td>
<td></td>
<td>0.2929</td>
<td></td>
</tr>
</tbody>
</table>

When the variable set of HRM characteristics was determined, I ran factor analysis using principal components factor method, and rotated the results with varimax option in order to extract underlying factors with the expectation that commitment HRM characteristics and control HRM characteristics are separately identified. I obtained two factors, both of which had more than one eigenvalue. As seen in table 10-3, uniqueness is not very high except civilian employees’ job classification number (v2) and Job task description for civilian employees (v4).

---

2 Although factor analysis with mixed variables of continuous and dichotomous variable may result in clustering around variables, I ran factor analysis with those mixed variables because at least those dichotomous and trichotomous variables are ordinal level of measurements, so that we can do factor analysis (e.g., UCLA website information about the factor analysis with non-continuous variables, http://www.gseis.ucla.edu/courses/ed231a1/notes2/morefa.html).

3 I assumed that commitment HRM factor and control HRM factor were not related.

4 The eigenvalue for a given factor measures the variance in all the variables that is accounted for by that factor. As a rule of thumb, when eigenvalue is more than one, we can retain as an extracted factor.

5 It is the percentage of variance for the variable that is not explained by the factors.

169
According to Walton (1985) and Arthur (1992, 1994), we expect that an organization with commitment HRM characteristics is likely to have smaller number of job classification, more discretion-allowed job description than an organization with control HRM characteristics. We also expect that an organization with commitment HRM characteristics is likely to have information-sharing policy, and encourage their employees to participate in a wide range of issues, whereas an organization with control HRM characteristics is likely to have a performance-related incentive system. Table 10-3 shows that factor 1 and factor 2 have consistent HRM characteristics according to the definitions of control HRM characteristics and commitment HRM characteristics except job task description for civilian employees. Therefore, I can conclude that factor 1 represents commitment HRM characteristics and factor 2 represents control HRM characteristics.

Table 10-3. Obtained Factors of HRM Characteristics

<table>
<thead>
<tr>
<th>Variable/ Question No.</th>
<th>Factor 1 Loading</th>
<th>Factor 2 Loading</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td># of job classification for sworn officers (v1) / Q1a</td>
<td>0.19831</td>
<td>0.69098</td>
<td>0.48321</td>
</tr>
<tr>
<td># of job classification for civilian employees (v2) / Q1b</td>
<td>0.1286</td>
<td>0.68322</td>
<td>0.51668</td>
</tr>
<tr>
<td>Job task description for sworn officers (v3) / Q2 (1: most detailed 2: middle 3: discretion allowed)</td>
<td>0.93074</td>
<td>0.12085</td>
<td>0.11912</td>
</tr>
<tr>
<td>Job task description for civilian employees (v4) / Q3 (1: most detailed 2: middle 3: discretion allowed)</td>
<td>-0.08762</td>
<td>0.54984</td>
<td>0.68999</td>
</tr>
<tr>
<td>Information sharing policy (v5) / Q8 (1: yes 0: no)</td>
<td>0.93788</td>
<td>-0.0042</td>
<td>0.12036</td>
</tr>
<tr>
<td>Employee’s participation in a wide range of issues (v6) (1: yes 0: no) / Q9</td>
<td>0.88571</td>
<td>0.08528</td>
<td>0.20824</td>
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<tr>
<td>Performance-related incentive system (v7) (1: yes 0: no) / Q11</td>
<td>-0.82435</td>
<td>-0.11769</td>
<td>0.30659</td>
</tr>
</tbody>
</table>
10.3 The effects of HRM characteristics on crime control performance

In the previous chapters, I hypothesized that a certain kind of HRM characteristics would have positive effects on crime control performance from the universalistic perspective. Based on the literature, I expected that commitment HRM system and its individual HRM practices both have positive effects on crime control performance as below.

**H1. Municipal police departments that have individual practices of commitment HRM system are more likely to have better crime control performance respectively.**

1. Broad job classification,
2. More discretion allowed
3. Formal complaint/grievance resolution mechanism
4. Information-sharing-policy
5. Employees’ participation encouraged in a wide range of issues,
6. No bonus or incentive system for individuals, and
7. More selective staffing

**H2. Municipal police departments that have commitment HRM systems are more likely to have better crime control performance.**

In order to test these hypotheses, I ran regression with independent variables such as each individual practice of commitment HRM – from broad job classification to more selective staffing as seen in hypothesis 1 – and the extracted HRM factors that
seem to represent commitment (factor 1) and control (factor 2) HRM characteristics as seen in the previous section. Clearance rates for violent crimes and property crimes are used as dependent variables as I explained in the previous section of this chapter. I also included three control variables that are normally expected to influence the crime clearance rates: police level (i.e., the number of patrol police officer per 10,000 populations), police expenditure level (i.e., budget for salary and benefits per employee), and crime occurrence rate (i.e., crime occurrence per 10,000 populations). Although other factors may be involved in producing crime clearance rates, such as response time, police strategies (e.g., patrolling), and get-tough policy as seen in the suggested crime control model in the previous chapter, I could not include them as control variables due to data unavailability. In order to examine how each HRM practice and extracted HRM factors contribute to explaining the variance of crime control performance – checking adjusted $R^2$ in table 10-4 – in addition to exploring the effect of those HRM practices and factors, I conducted stepwise regression. As in the table, first, I ran regression with only three control variables (model C) and added different individual HRM practices and HRM factors. The regression results are summarized in table 10-4 and table 10-5. As seen in table 10-4, neither individual HRM practices (M1 ~ M7) nor HRM systems (M8 and M9) have significant effects on violent crime control performance. In sum, I failed to show meaningful effects of individual HRM practices and extracted HRM factors on violent crime control performance. Some possible reasons are as follows. Violent crime clearance rates (i.e., dependent variable) are more likely affected by public attentions than policing resources and human resource management practices. For example, if a violent crime gets more public attention, we imagine that the police tend to make efforts to clear that crime. Small number of observations might be
another reason. Even among 65 participating cities, they usually answered some questions that do not require much time for answering.

Table 10-4. Effects of HRM Practices on Violent Crime Control Performance

| Variables                                      | Models      | C   | M1   | M2   | M3   | M4   | M5   | M6   | M7   | M8   | M9   |
|-----------------------------------------------|-------------|-----|------|------|------|------|------|------|------|------|------|------|
| Violent crime occurrence per 10000 populations (C1) |             | -.13| -.20†| -.16 | -.14†| -.14 | -.15†| -.13 | -.23*| -.19†|      |
| Salary and benefit per employee (C2)         |             | -.00| -.00 | -.00 | -.00 | -.00 | -.00 | -.00 | -.00 | -.00 | -.00 |      |
| Number of patrol police officers per 10000 populations (C3) |             | -.13|      | .40  | 1.33 | 1.56 | .02  | .70  | .52  | .28  | .59  | 1.81 |
| Number of job classification for sworn officers (M1) |             | -.54|      |      |      |      |      |      |      |      |      |      |
| Number of job classification for civilian employees (M2) |             | -.14|      |      |      |      |      |      |      |      |      |      |
| Job task descriptions for sworn officers (1: detailed 3: discretion) (M3) |             |      |      |      |      |      |      |      |      |      |      |      |
| Job task descriptions for civilian employees (1: detailed 3: discretion) (M4) |             |      |      |      |      |      |      |      |      |      |      |      |
| Information sharing policy (1: yes, 0: no) (M5) |             |      |      |      |      |      |      |      |      |      |      |      |
| Employees' participation in a wide range of issues (1: yes, 0: no) (M6) |             |      |      |      |      |      |      |      |      |      | -15.7|      |
| Incentive or bonus system, based on performance? (1: yes, 0: no) (M7) |             |      |      |      |      |      |      |      |      |      |      |      |
| Commitment HRM factor (M8)                    |             |      |      |      |      |      |      |      |      |      |      |      |
| Control HRM factor (M9)                       |             |      |      |      |      |      |      |      |      |      |      |      |

| F                                             | 1.00        | 1.37 | 1.62 | 1.12 | 1.04 | .81  | 2.01 | 0.83 | 2.45†| 1.56 |
| Adjusted R²                                    | .01         | .06  | .10  | .02  | .00  | .00  | .13  | .00  | .22  | .10  |

Note: - Dependent variables are violent crime clearance rates
- Unstandardized coefficients are reported
- Number of observations: 21-31

†p < .10
* p < .05
** p < .01
Table 10-5. Effects of HRM Practices on Property Crime Control Performance

<table>
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<th>Models</th>
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</thead>
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</tr>
<tr>
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<td>M1</td>
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<td>M8</td>
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<tr>
<td></td>
<td>M9</td>
</tr>
<tr>
<td>Salary and benefit per employee (C2)</td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of patrol police officers per 10000 populations (C3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of job classification for sworn officers (M1)</td>
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<td></td>
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</tr>
<tr>
<td>Number of job classification for civilian employees (M2)</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Job task descriptions for sworn officers (1: detailed 3: discretion) (M3)</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Job task descriptions for civilian employees (1: detailed 3: discretion) (M4)</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Information sharing policy (1: yes, 0: no) (M5)</td>
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<tr>
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<tr>
<td>Employees' participation in a wide range of issues (1: yes, 0: no) (M6)</td>
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<tr>
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<tr>
<td>Incentive or bonus system, based on performance? (1: yes, 0: no) (M7)</td>
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<tr>
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</tr>
<tr>
<td>Commitment HRM factor (M8)</td>
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<td>Control HRM factor (M9)</td>
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<table>
<thead>
<tr>
<th>F</th>
<th>4.32*</th>
<th>3.09*</th>
<th>3.03*</th>
<th>5.44**</th>
<th>3.80*</th>
<th>4.24*</th>
<th>5.12**</th>
<th>3.14*</th>
<th>3.67*</th>
<th>2.88†</th>
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</thead>
<tbody>
<tr>
<td>Adjusted R²</td>
<td>.25</td>
<td>.27</td>
<td>.27</td>
<td>.37</td>
<td>.27</td>
<td>.32</td>
<td>.37</td>
<td>.23</td>
<td>.35</td>
<td>.27</td>
</tr>
</tbody>
</table>

Note: - Dependent variables are property crime clearance rates
- Unstandardized coefficients are reported
- Number of observations: 21-31

†p < .10
* p < .05
** p < .01
Unlike violent crime cases, however, we observe bigger adjusted $R^2$ for the property crime cases. Basically the variance of property crime control performance (i.e., clearance rates in this study) was well explained with traditional policing efforts and most individual HRM practices, and HRM systems also contributed to explaining the variance of property crime control performance (see adjusted $R^2$ in table 10-5) although most of them did not have significant effect on property crime clearance. As in violent crime cases, we do not observe significant influences of traditional policing efforts on crime control performance. Rather, we observe that crime occurrence rates are the most significant factor for both violent and property crime cases. That is, the more crimes occurred, the fewer crimes are cleared.

When we look at the effects of individual HRM practices and HRM characteristics (i.e., commitment and control HRM), two kinds of individual HRM practices, job task descriptions for sworn officers (M3) and employees' participation in a wide range of issues (M6), show significant effects on crime control performance ($p < 0.5$). Unlike my prediction, however, there are negative relationships between those individual HRM practices of commitment HRM characteristics (i.e., M3 and M6) and property crime control performance. With respect to the effects of HRM characteristics, we do not observe any significant cases. Therefore, no hypotheses (H1 and H2) about the effect of commitment HRM practices and HRM characteristics (i.e., commitment and control HRM characteristics) were supported.
**Interpretation of the results.** Why did we not observe significant effects of individual HRM practices or HRM characteristics on crime control performance? Are there not significant correlations between those individual HRM practices or HRM characteristics and crime control performance in the municipal police departments? We may not answer those questions in this study. Probably, we may find the answers in the relationship between HRM practices/systems and organizational strategies/directions in the context of municipal police departments, as we reviewed in chapter four. Although I found two underlying factors of various HRM characteristics that municipal police departments might have, it is less likely that those HRM practices and characteristics are formed in consistency with organizational strategies, unlike for-profit organizations. Likewise, each individual HRM practice is also less likely to be determined from the viewpoint of organizational strategy. That is, commitment HRM practices and characteristics may not be the proper option to improve organizational performance in the municipal police departments, even though we need to more investigate this research topic in order to confirm this speculation. According to organizational characteristics such as defender, prospector, analyzer, and reactor suggested by Miles and Snow (1984), police organizations, like most public organizations, may belong to reactors who do not have consistency between strategy and environment and between strategy and process.

Among different competitive strategies such as innovation, quality enhancement, cost reduction suggested by Schuler and Jackson (1987), it appears that police organizations may have cost reduction strategy when we consider the expected role behaviors of each strategy (see section 4.5). Especially when the police
need to show that safety environment is being provided to the citizens, the police
tend to pay attention to quantity and results (e.g., crime clearance rate, crime
occurrence rate) rather than to quality (e.g., citizen’s satisfaction, due process when
crime is controlled). If the police are usually under the pressure to show their cities
are safer than other cities, we can imagine that they are more likely to adopt cost
reduction strategy, based on Shuler and Jackson (1987), and therefore control HRM
practices may be more appropriate to have a better crime control performance.

As explained in chapter four, Wright and McMahan (1992) argued that in the
private sector HRM practices and activities are likely to be determined by proactive,
strategically intended decisions, whereas non-strategic models (i.e., resource
dependence and institutional model) may be more persuasive to explain the HRM
practices and activities in the public sector. According to the interview with a sworn
officer at the local police department, major parts of the HRM characteristics are
more likely to be determined by the personal preferences of police chiefs. For
example, if a police chief likes subordinates to participate in a wide range of issues,
employees are encouraged to do so. The problem in this situation is that those HRM
practices are not proactive, strategically intended decisions. Even when a police
department has HRM practices that really contribute to improving organizational
performance, a new police chief may change them, simply according to his or her
preference. As Lengnick-Hall and Lengnick-Hall (1988) argued, achieving
competitive advantage through human resources requires that theses activities should
be managed from a strategic perspective because integration provides a broader
range of solutions for solving complex organizational problems, and reciprocity in
integrating human resource and strategic concerns limits the neglect of human
resources as a vital source of organizational competence and competitive advantage.

### 10.4 Turnover effects on crime control performance

In order to investigate if turnover has significant effects on crime control performance, I conducted stepwise regression analyses separately with two different dependent variables: the violent crime clearance rate and the property crime clearance rate. Firstly, I ran regression with only three control variables, and then I added different types of turnover rates respectively (i.e., voluntary, involuntary, and total turnover rates for both sworn officers and civilians) as an independent variable. Finally, I added a quadratic term of each turnover rate variable in each regression equation, following the conventional way to check whether the relation shapes are linear or curvilinear (Glebbeek and Bax 2004, 284). No significant cases were found when I used turnover rates as independent variables and the results are not shown in this paper.

*Stepwise regression.* After finding no significant relationships in the regression results using the turnover rate as an independent variable, I ran regression with different kinds of turnover rate differences as independent variables to examine if turnover changes have effects on crime control performance. Table 10-6 (a & b) shows the regression results when violent crime clearance rate was used as a dependent variable and table 10-7 (a & b) shows the results when property crime clearance rate was used as a dependent variable. Like the regression analysis with turnover rate itself, I added turnover rate difference variables respectively after running regression with only three control variables. That is, I added different kinds of turnover rate differences such as sworn officer’s voluntary turnover rate
difference (in model A-1), sworn officer’s total (i.e., voluntary and involuntary turnovers) turnover rate difference (in model B-1), all employee’s (i.e., sworn officers and civilians) voluntary turnover rate difference (in model C-1), and all employee’s total turnover rate difference (in model D-1). Although I checked the effects of civilian employee’s turnover rate difference (voluntary and involuntary) on the crime control performance, I found no significant results and omitted the results in the table. As in table 10-6 (a & b) and table 10-7 (a & b), I only included the regression results of sworn officer’s turnover rate differences and total employee’s (i.e., sworn officers and civilian employees) turnover rate differences. After adding each turnover rate difference separately, I added a quadratic term of each turnover rate difference (i.e., in model A-2, B-2, C-2, and D-2) to check whether the shape of relationship is linear or curvilinear. Finally, I added commitment HRM factor and its interaction term (i.e., in model A-3, B-3, C-3, and D-3) and control HRM factor and its interaction term (i.e., in model A-4, B-4, C-4, and D-4) to examine if HRM characteristics moderate the effects of turnover on crime control performance.
### Table 10-6-a. Turnover Effects on Violent Crime Control Performance and Moderating Effects of HRM Factors

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>A-1</th>
<th>A-2</th>
<th>A-3</th>
<th>A-4</th>
<th>B-1</th>
<th>B-2</th>
<th>B-3</th>
<th>B-4</th>
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</thead>
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<tr>
<td></td>
<td>Violent crime occurrence per 10000 populations</td>
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<td>-.14</td>
<td>-.11</td>
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<td>-.19</td>
<td>-.13</td>
<td>-.11</td>
<td>-.27</td>
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<td>.01</td>
<td>.01</td>
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<td>0.00</td>
<td>.01</td>
<td>.01</td>
<td>0.00</td>
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<tr>
<td></td>
<td>Number of patrol police officers per 10000 populations</td>
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<td>1.68</td>
<td>3.05</td>
<td>4.77*</td>
<td>1.38</td>
<td>1.36</td>
<td>2.95</td>
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<tr>
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<td>Voluntary TRD per 100 sworn officers (A)</td>
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<td>-3.36</td>
<td>-2.12</td>
<td>-2.24</td>
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<tr>
<td></td>
<td>Quadratic term (A²)</td>
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<td>Voluntary and involuntary TRD per 100 sworn officers (B)</td>
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<td></td>
<td></td>
<td>-2.07</td>
<td>-2.34</td>
<td>-1.38</td>
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Note:
- TRD is the acronym of turnover rate difference
- Turnover rate difference = 2004 turnover rate – 2003 turnover rate
- Unstandardized coefficients are reported
- Number of observations: 21-31

*p < .05
**p < .01
***p < .001
Table 10-6-b. Turnover Effects on Violent Crime Control Performance and Moderating Effects of HRM Factors

<table>
<thead>
<tr>
<th>Variable</th>
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<th>C-2</th>
<th>C-3</th>
<th>C-4</th>
<th>D-1</th>
<th>D-2</th>
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<td>-4.12*</td>
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<tr>
<td>F2 * TRD*</td>
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<td>4.15*</td>
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<td>.09</td>
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Note:  
- TRD is the acronym of turnover rate difference  
- Turnover rate difference = 2004 turnover rate – 2003 turnover rate  
- Unstandardized coefficients are reported  
- Number of observations: 21-31  

†p < .10  
* p < .05  
** p < .01  
***p < .001
### Table 10-7-a. Turnover Effects on Property Crime Control Performance and Moderating Effects of HRM Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>A-1</th>
<th>A-2</th>
<th>A-3</th>
<th>A-4</th>
<th>B-1</th>
<th>B-2</th>
<th>B-3</th>
<th>B-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property crime occurrence per 10000 populations</td>
<td>-.03***</td>
<td>-.04***</td>
<td>-.03***</td>
<td>-.03</td>
<td>-.04**</td>
<td>-.04***</td>
<td>-.03***</td>
<td>-.02***</td>
</tr>
<tr>
<td>Salary and benefit per employee</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.00</td>
<td>.00*</td>
<td>.01</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Number of patrol police officers per 10000 populations</td>
<td>-1.3</td>
<td>-1.3</td>
<td>-0.2</td>
<td>0.82</td>
<td>1.10</td>
<td>-0.04</td>
<td>.01</td>
<td>0.70</td>
</tr>
<tr>
<td>Voluntary TRD per 100 sworn officers (A)</td>
<td>-1.87*</td>
<td>-2.47**</td>
<td>-1.81</td>
<td>-2.23**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadratic term (A²)</td>
<td>.57**</td>
<td>.65*</td>
<td>.74**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary and involuntary TRD per 100 sworn officers (B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.94*</td>
<td>-2.17**</td>
<td>-1.50</td>
<td>-1.59*</td>
</tr>
<tr>
<td>Quadratic term (B²)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.50**</td>
<td>.57</td>
<td>.67**</td>
<td></td>
</tr>
<tr>
<td>Commitment HRM factor (F1)</td>
<td>-3.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control HRM factor (F2)</td>
<td>-2.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1 * TRD</td>
<td>1.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2 * TRD</td>
<td></td>
<td>-1.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>4.32*</td>
<td>5.62**</td>
<td>8.69***</td>
<td>6.66**</td>
<td>8.33**</td>
<td>6.15**</td>
<td>9.99***</td>
<td>7.4**</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.25</td>
<td>.47</td>
<td>.65</td>
<td>.73</td>
<td>.77</td>
<td>.51</td>
<td>.69</td>
<td>.75</td>
</tr>
</tbody>
</table>

* TRD is the acronym of turnover rate difference

* p < .05

** p < .01

*** p < .001

Note:
- Turnover rate difference = 2004 turnover rate – 2003 turnover rate
- Unstandardized coefficients are reported
- Number of observations: 21-31
Table 10-7-b. Turnover Effects on Property Crime Control Performance and Moderating Effects of HRM Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model</th>
<th>C-1</th>
<th>C-2</th>
<th>C-3</th>
<th>C-4</th>
<th>D-1</th>
<th>D-2</th>
<th>D-3</th>
<th>D-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property crime occurrence per 10000 populations</td>
<td></td>
<td>-.03***</td>
<td>-.05***</td>
<td>-.04***</td>
<td>-.03</td>
<td>-.04*</td>
<td>-.05***</td>
<td>-.04***</td>
<td>-.03**</td>
</tr>
<tr>
<td>Salary and benefit per employee</td>
<td></td>
<td>.01*</td>
<td>.01**</td>
<td>.01*</td>
<td>.00</td>
<td>0.00</td>
<td>.01**</td>
<td>.01*</td>
<td>0.00*</td>
</tr>
<tr>
<td>Number of patrol police officers per 10000 populations</td>
<td></td>
<td>-.13</td>
<td>-.16</td>
<td>-.04</td>
<td>.00</td>
<td>-.03</td>
<td>-.47</td>
<td>.08</td>
<td>-.04</td>
</tr>
<tr>
<td>Voluntary TRD per 100 employees (officer and civilian) (C)</td>
<td></td>
<td>-.28**</td>
<td>-.24**</td>
<td>-.31*</td>
<td>-.29*</td>
<td>-.29**</td>
<td>-.24**</td>
<td>-.18*</td>
<td>-.28*</td>
</tr>
<tr>
<td>Quadratic term (C(^2))</td>
<td></td>
<td>.60*</td>
<td>0.54</td>
<td>0.91*</td>
<td>0.54</td>
<td>0.91*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary and involuntary TRD per 100 employees (officer and civilian) (D)</td>
<td></td>
<td>-2.49**</td>
<td>-2.84**</td>
<td>-1.81*</td>
<td>-2.85*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadratic term (D(^2))</td>
<td></td>
<td>.45*</td>
<td>-0.04</td>
<td>0.51</td>
<td>-0.04</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment HRM factor (F1)</td>
<td></td>
<td>-2.95</td>
<td>-7.65*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control HRM factor (F2)</td>
<td></td>
<td>0.00</td>
<td>0.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1 * TRD</td>
<td></td>
<td>0.88</td>
<td>2.00*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2 * TRD</td>
<td></td>
<td>-1.51</td>
<td>-0.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>4.32*</td>
<td>8.46***</td>
<td>10.7***</td>
<td>6.52**</td>
<td>6.87**</td>
<td>10.7***</td>
<td>11.1***</td>
<td>15.53***</td>
</tr>
<tr>
<td>Adjusted R(^2)</td>
<td></td>
<td>.25</td>
<td>.58</td>
<td>.69</td>
<td>.72</td>
<td>.73</td>
<td>.64</td>
<td>.70</td>
<td>.93</td>
</tr>
</tbody>
</table>

Note:
- TRD is the acronym of turnover rate difference
- Turnover rate difference = 2004 turnover rate - 2003 turnover rate
- Unstandardized coefficients are reported
- Number of observations: 21-31

* p < .05
** p < .01
*** p < .001
Turnover effects on crime control performance. In the previous chapter, I hypothesized that police performance would be influenced by employee turnover such that there might be an inverted-U shape relationship between turnover and crime control performance as below, based on the turnover literature:

H3. Turnover initially has a positive effect on police performance until a certain level of turnover and has a negative effect on police performance after that point. (i.e., the relationship between turnover and police performance is inverted-U shape).

Above all, the results showed that crime control performance is significantly influenced by turnover change, although turnover change influences crime control performance in a different way from the prediction in the hypothesis 3. That is, there is a U-shape relationship between the turnover rate differences and the crime clearance rates\(^6\). In the violent crime cases (i.e., table 10-6), models C-2 and D-2 have positive and significant coefficients of the quadratic terms, and in the property crime cases (i.e., table 10-7), models A-2, B-2, C-2, and D-2 have positive and significant coefficients of the quadratic terms. In sum, the hypothesis 3 in which I predicted an inverted-U shape relationship between employee turnover and crime control performance was not supported although the results confirmed significant effects of turnover on crime control performance.

Practical interpretation of turnover effects and turning points. Since the relationships between the turnover rate differences and the crime clearance rates are U-shaped, there are turning points where the slope is zero. In this study, I calculated

\[ \text{In the quadratic equation, } ax^2 + bx + c = 0, \text{ we know that the graph is U-shaped when the coefficient of } x^2 \text{(i.e., } a) \text{ is positive and inverted U-shaped when it is negative.} \]
the predicted turning points by taking derivative of the quadratic expressions (Q: \(ax^2 + bx + c = 0\)) as other turnover studies did (e.g., Shaw et al. 2005). Since the equation Q’s derivative is \(2ax + b = 0\), \(x = -b/2a\). For example, in model A-2 of the property crime cases, the predicted turning point can be calculated by inserting \(a\) and \(b\) values into the formula, \(x = -b/2a\). Therefore, the turning point is 2.17 [i.e., \((-2.47)/2(0.57)\)] standard deviations from the mean or 6.14 percent of the sworn officer’s voluntary turnover rate difference\(^7\) between 2004 and 2003. Likewise, in models B-2, C-2, and D-2 of the property crime cases, \(Z\) values are 2.17, 2.45, and 3.16 standard deviations from the mean and their actual turnover rate differences are 6.49, 6.44, and 7.79 percent, respectively. In the violent crime cases, \(Z\) values are 1.27 in model C-2 and 1.14 in model D-2, and their actual turnover rate differences are 3.17 percent and 2.74 percent, respectively.

As seen in figure 10-1, the relationships between the turnover rate differences and the crime clearance rates are curvilinear. Therefore, if we think the relationship is linear and negative, in the part between point A and point B, the negative effects of turnover change will be underestimated, and the part before point A or after point B, the negative effects of turnover will be overestimated. Theoretically, crime clearance rates will increase after passing turning points as seen in figure 10-1, but according to the standard normal distribution probability table (Wonnacott & Wonnacott, 1990, 672), the possibility that the \(Z\) value is more than 2.17 (i.e., the \(Z\) value in figure 1) is less than 1.5 percent, which means it is very rare to find observations after the turning point if the \(Z\) value of the turning point is 2.17.

\(^7\) To convert \(Z\) value to actual turnover rate difference, the formula \(x = (Z\text{-mean})/\text{standard deviation}\) is used. Therefore, \(x = Z \times (\text{standard deviation}) + \text{mean}\). When inserting \(Z\), standard deviation, and mean (check table 3 for standard deviation and mean of sworn officer’s voluntary turnover), \(x = (2.17)(2.78) + 0.11 = 6.14\).
Therefore, as Shaw et al. (2005) suggested, we may interpret the shape of the relationship as attenuated, negative instead of U-shaped especially for the property crime cases. In the current study, only one out of 44 observations has more than 6.14 percent turnover rate difference (i.e., \( Z = 2.17 \)) in the sworn officer’s voluntary turnover cases.

![Figure 10-1. The Relationship Between the Sworn Officer’s Voluntary Turnover Rate Difference (TRD) and Crime Clearance Rates](image)

When we see the violent crime cases, only two models (C-2 and D-2) have the significant coefficients of the turnover-related terms, whereas all models have the significant coefficients of the turnover-related terms in the property crime cases. This
may mean that the violent crime clearance rates are less influenced by turnover changes than the property crime clearance rates. The predicted turning points are also smaller in the violent crime cases than those in the property crime cases. That is, as the turnover change increases, the turning points of the negative effects are earlier reached in the violent crime cases than in the property crime cases. Since violent crimes are usually more urgent, more police officers are likely to be assigned even when the police experience the lack of human resources. Therefore, for the violent crime cases, negative effects of turnover change would cease at some point of turnover rate difference and positive effects may begin\(^8\) (see the dotted curve in figure 10-1). But we need to be careful to interpret this because police departments may not assign more police officers to clear violent crime cases when they really suffer from lack of human resources at their departments.

When we compare the negative effects of turnover rate differences between the sworn officers (model A-2 and B-2) and the civilian employees, we observe that the civilian employee’s turnover rate difference does not have significant effects on neither violent crime clearance rate nor property crime clearance rate as expected (the results are omitted). Interestingly, however, all employees’ (i.e., sworn officers and civilians) turnover rate differences have significant and negative effects on the crime control performance as seen in models C-2 and D-2 of table 10-6 and table 10-7\(^9\). Therefore, we may need to pay attention to all employees’ turnover rate changes.

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\(^8\) Since Z-values of turning points for the violent crime cases are relatively small than those for the property crime cases, it is practically possible to observe police departments who experience increased crime control performance after the turning point unlike the property crime cases.

\(^9\) More sworn officers might be the reason. That is, in most cases police departments have more than two times as many sworn officers as civilian employees. Therefore, in property crime clearing cases although civilian employee’s turnover change does not have significant effects on the crime clearance rates, all employees’ turnover change may show significant effects simply because the effect of sworn officers is much bigger than that of civilian employees.
differences as well as the sworn officer’s turnover rate differences. When we look at
the correlation coefficients of the control variables, we observe that the property
crime occurrence rate has more negative effects on the property crime clearance rate
than the violent crime occurrence rate does on the violent crime clearance rate as
expected. Since violent crimes tend to get more public attention, the police may
focus more on clearing violent crimes regardless of workloads each sworn officer
has due to increased crime occurrence.

10.5 The moderating effects of HRM factors on turnover effects

With respect to the moderating effects of HRM characteristics, I predicted that the
negative effects of turnover might be bigger when municipal police departments
have commitment HRM characteristics, based on human capital theory.

\[ H4. \text{ Negative effects of turnover on police performance are greater in an organization with more commitment-oriented human resource management (HRM) characteristics than in an organization with more control-oriented HRM characteristics.} \]

As in table 10-6 (a & b) and table 10-7 (a & b), in most cases, we do not
observe significant moderating effects of HRM characteristics on turnover
consequences although adjusted $R^2$ was increased in most violent and property crime
clearance cases\(^\text{10}\). Only one significant case [model D-3 in table 10-7 (b)] indicates

\(^{10}\) For violent crime clearance cases - i.e., table 10-6 (a) and (b), adjusted $R^2$ was increased in A-4, B-4, C-3, C-4, D-3, and D-4. For property crime clearance cases - i.e., table 10-7 (a) and (b), adjusted $R^2$ was increased in A-3, A-4, B-3, B-4, C-3, C-4, D-3 and D-4. Adjusted $R^2$ decreases if irrelevant variables are added in the regression equation.
that when a police organization has commitment HRM characteristics, the relationship between turnover change and crime control performance will be linear rather than curvilinear. In most cases, however, there still existed attenuated, negative relationships between the turnover rate differences and the crime clearance rates after adding HRM factors and interaction terms to the regression equations.
XI. Summary and Conclusion

11.1 HRM characteristics and crime control performance

From the universalistic perspective, I predicted that municipal police departments with individual commitment HRM practices or commitment HRM system are likely to have better crime control performance. In this study, however, no significant relationships were found between HRM practices or system and crime control performance. Therefore, my predictions about the influence of individual commitment HRM practices and commitment HRM characteristics (i.e., $H1$ and $H2$) were not supported.

From the strategic perspective, the results might be interpreted such that there is inconsistency between commitment HRM practices or system and organizational strategies that the police departments might have. Based on the literature (e.g., Lengnick-Hall and Lengnick-Hall, 1988; Schuler and Jackson, 1987; Miles and Snow, 1984), integration between HRM practices and organizational strategies or organizational characteristics is necessary to have a better organizational performance. Maybe control HRM practices and control HRM characteristics are more fitted to the municipal police organizations although the study showed only suggestive results. As an alternative explanation, municipal police organizations may be less likely to have consistency between strategies and environments. Police organizations may be one of the “reactors” who do not have good alignment among

\[1\] As seen in table 10-4 and 10-5, the narrower job take description for sworn officers a municipal police a police department has or the narrower range of issues employees are encouraged to participate in, the higher clearance rate for property crimes the police department has ($p < .5$). In addition, the commitment HRM factor seems to have more negative effects on crime control performance than the control HRM factor for both violent and property crimes although those effects are not significant.
strategy, structure, and process (Miles and Snow, 1984).

According to Wright and McMahan (1992), the formation of HRM practices in an organization can be explained by strategic and non-strategic models, and the latter models such as institutional and political forces models seem to better explain the dysfunctional determinants of HRM practices in the municipal police departments. The determinants of HRM practices in the public organizations are not likely to be the results of rational strategic decision-making processes, but rather likely to be derived from institutional and political forces, so it is hard to expect the positive relationship between HRM practices or characteristics and organizational performance in the municipal police departments.

11.2 Turnover effects on organizational performance & HRM moderating effects

Since I found attenuated negative relationships between turnover rate differences and crime clearance rates, the human capital theory was also supported in the public sector. As reviewed in the previous chapter, however, the results did not support the prediction about the relationships between turnover and crime control performance (i.e., $H_3$ was not supported). Unlike my prediction that the relationship would be an inverted-U shaped between turnover and crime control performance, the results showed an attenuated, negative relationship between turnover change and crime control performance.

According to the results, the crime control performance was not influenced
by turnover itself; rather it was influenced by turnover changes (i.e., turnover rate difference) unlike extant turnover studies, mostly conducted in the private sector. The possible interpretation of the difference between the current study and the other turnover studies is as follows. Probably most police organizations might be already used to their usual levels of turnover – in fact the police departments need to get used to a certain level of turnover due to a long recruiting time\textsuperscript{2}. Therefore, their organizational performance is not less likely to be affected by the turnover itself if their turnover rates are within the usual ranges they have usually experienced. However, when the turnover level becomes higher than a usual level, the police organizations might need extra time to adjust themselves to this change and this might lead to organizational performance reduction. For example, some police organizations may have higher turnover levels than others, but this does not necessarily lead to reduced crime control performance if those turnover levels are within normal ranges they usually experience. Likewise, even when a police department has a lower turnover rate than others, their crime control performance might be worse than others if their current turnover level is much higher than a usual turnover level - that is, if they experience a big turnover change between the current and the past years.

As mentioned before, the attenuated, negative relationships were found in this study. As reviewed in chapter seven, Shaw et al. (2005) and Newell and Rosenbloom (1981) provided hints about why the relationship was attenuated and negative. From the organizational control perspective, Shaw et al. (2005, 52) explained, “As skill levels are reduced by turnover, input-throughput-output

\textsuperscript{2} According to the survey, the average length of recruiting and filling vacancies for sworn officers is 195 days.
processes are disrupted and energy and resources are redirected from safety concerns in order to maintain operations.” When turnover is very high, Shaw et al. argued that turnover is less likely to be disruptive because the organization is already geared toward continual work force replacement. The learning curve theory also helps us understand the attenuation of the relationship. Newell and Rosenbloom (1981) argued that the time taken to perform a task (i.e., short time means a high level of performance) decreases as a learning rate increases. In the context of police organizations, we can imagine that if a municipal police department experiences a positive\(^3\), bigger turnover rate difference than other police departments, they will come to better know how to handle turnover in a proper manner than others, and this will lead to smaller negative effects of the turnover change on organizational performance.

According to the results, turnover effects on the crime control performance were not moderated by the HRM characteristics (i.e. \(H4\) was not supported). Although I could extract two underlying HRM characteristic factors\(^4\) as HRM characteristics that police departments might have, I only found suggestive results that indicated moderating effects of HRM characteristics. That is, I found that in an organization with control HRM characteristics it took a little bit longer to reach the bottom level of crime control performance when turnover changes. Why did we not observe significant moderating effects of HRM characteristics? One of the reasons might come from that the survey questions were mainly based on the extant studies (e.g., Arthur, 1994; Guthrie, 2001) that examined HRM factor’s moderating role in

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\(^3\) Positive turnover change means the turnover rate in the current is bigger than the previous year in this study.

\(^4\) Both extracted HRM factors had more than 0.7 Cronbach’s alpha
the private sector, instead of developing the questions that would be more proper to identify the HRM characteristics of the municipal police departments. Another reason might be due to the different organizational characteristics between private and public organizations. Since there are relatively more rules and guidelines for the public employees than employees in the private sector, newcomers may not have much difficulty in catching up the performance level former employees might have reached even when a police department has more commitment HRM characteristics. Therefore, we may not find the difference in turnover effects between organizations with different HRM characteristics.

11.3 Implications and limitations

This study may be one of the first studies that not only empirically confirmed the importance of human resources (i.e., human capital theory) in effective delivery of public services, but also investigated the consequences of employee turnover in the public sector. In this study, I investigated if best HRM characteristics and commitment HRM system have significant effects on crime control performance from the universalistic viewpoint. Although we need more studies to reach a conclusion about the effects of HRM characteristics, the contingency perspective might be more persuasive to explain the relationships between HRM characteristics and organizational performance than the universalistic perspective, at least in the municipal police departments. That is, in the context of municipal police departments that seem to have military organizational characteristics, universalistic HRM practices or commitment HRM characteristics are less likely lead to a high level of organizational performance due to inconsistency between HRM practices and organizational strategies.
Since we found significant effects of turnover change on crime control performance unlike other turnover studies in the private sector, we may need to understand that the way human resources influence organizational performance is different from that in the private sector due to the different characteristics of environments that surround organizations. As reviewed in the previous chapter, recruiting process in the governments is different from that in the private sector. That is, police departments usually have to wait longer until the openings are filled than for-profit organizations because recruiting activities are less frequent in the police departments.

Since we found attenuated, negative relationships between turnover change and crime control performance, cautions are required in predicting the negative effects of turnover in the police departments. That is, we may overestimate or underestimate the negative effects of turnover depending on the range of turnover change if we think the relationship between turnover change and crime control performance linear and negative. Although we only found suggestive evidence that indicated the moderating role of HRM characteristics on turnover effects, control HRM characteristics are more likely to alleviate the negative effects of turnover change on crime control performance. Of course, we need more studies to generalize the finding of this research about the effects of HRM characteristics and turnover effects on organizational performance to other public organizations. However, the findings in this study may help set up HRM policies especially when quality employees tend to quit (i.e., we suffer from “brain drain” phenomenon) especially at the federal government level.
Due to limitations of this study, we need to be careful to interpret the findings as follows. First, I explored the effects of the turnover change (i.e., turnover rate difference) only on the crime control performance. Although we may say that crime control has comprised a major part of the police mission, the results might be different if the study focused on other aspects of police functions such as traffic control, increasing safety feeling, and community problem solving. Second, the results of this study may be only applicable to the cities whose population ranges are between 100,000 and 500,000. As some police turnover studies pointed out (e.g., Hoffman, 1993; Warrell, 2000b), even low level of turnover can be detrimental to crime control functions especially in small cities. Therefore, unlike the results of this study, turnover itself may have significant, negative effects on crime control performance in those small cities. Third, maybe we might have found significant effects of HRM characteristics on turnover effects and on crime control performance if the survey was conducted with different HRM questions to identify more specific HRM characteristics of municipal police departments. Finally, needless to say, we need more empirical studies before the results of this study can be generalized even at the municipal police departments.
APPENDIX

Appendix 2-1. Typical mission statements of municipal police departments

Dayton, OH
“We, the members of the Dayton Police Department, are committed to providing the highest quality of professional police service. We strive in all that we do to protect life, enforce the law, preserve order, protect property and arrest violators. In cooperation with the citizens and with reverence for the law, we commit ourselves to improving the safety and quality of life.”

Indianapolis, IN
“We are dedicated to upholding the highest professional standards while serving the community in which we work and live. We are committed to the enforcement of laws to protect life and property, while also respecting individual rights, human dignity, and community values. We are committed to creating and maintaining active police/community partnerships and assisting citizens in identifying and solving problems to improve the quality of life in their neighborhoods.”

Jacksonville, FL
“The mission of the Jacksonville Sheriff's Office is to protect the lives and property of the citizens of this community, to preserve the peace and to prevent crime and disorder while constantly guarding personal liberties as prescribed by law.”

Atlanta, GA
“The mission of the Atlanta Police Department is to reduce crime and promote the quality of life, in partnership with our community.”

Austin, TX
“Our mission is to protect and serve Austin's diverse community so that residents and visitors feel, and are, safe.”

Phoenix, AZ
"Our mission is to ensure the safety and security for each person in our community."
Appendix 9-1. Actual survey sheet with a cover Letter

May, 2006

To whom it may concern:

We are investigating human resource issues and characteristics of police departments that can affect their performance. We are particularly interested in the effect of employee turnover on police departments. The relationships among employee turnover, human resource management (HRM) system policies and practices, and organizational performance have been studied in the private sector, but remain unexamined in the public sector.

Since this research will help identify factors that affect police department performance, your participation in this survey is very important. The findings of the research will help establish proper human resource management policy to enhance the performance of police organizations.

We hope that this study will yield important findings that may help police departments improve their operations.

Sincerely,

Edward T. Jennings, Jr. Yongbeom Hur
Professor and Director Ph.D. Candidate
Please provide contact information below.

Name:______________________________________

Title/Position:____________________________________

Department:____________________________________

E-mail address:______________________________

Phone Number:____________________________________

If you have questions, please contact Yongbeom Hur (Ph.D. candidate), research associate. (E-mail: yhur2@uky.edu; phone: 859-523-8149)

Martin School of Public Policy and Administration
University of Kentucky
415 Patterson Office Tower
Lexington, KY 40502

Please return this survey as soon as possible. If you need to ask other sections or departments to answer some questions, please do so, although it may take additional time. Thank you very much in advance for your participation.
All questions in this survey are only regarding full time employees (FTE). Please do not include any data about trainees, part-time employees, and temporary job employees.

Q1. How many job classifications are there in your department?
   a. For sworn FTE:
   b. For civilian FTE:

Q2. Which of the following best describes sworn FTE’s job tasks in your department?
   a. Job tasks are described in detail, and sworn FTEs are expected to strictly follow them. That is, discretion is not allowed in most situations. ( )
   b. Although job tasks are described in detail, sworn FTEs are allowed to use discretion in many situations. ( )
   c. Job tasks are described generally, and sworn FTEs are expected to use discretion in many situations. ( )

Q3. Which of the following best describes civilian FTE’s job tasks in your department?
   a. Job tasks are described in detail, and civilian FTEs are expected to strictly follow them. That is, discretion is not allowed in most situations. ( )
   b. Job tasks are described in detail, but civilian FTEs are allowed to use discretion in many situations. ( )
   c. Job tasks are described generally, and civilian FTEs are expected to use discretion in many situations. ( )

Q4. How many unions are registered in your department?
   a. For sworn FTE:
   b. For civilian FTE:

Q5. How many FTEs at your department are eligible to join unions?
   a. Sworn FTE:
   b. Civilian FTE:

Q6. How many FTEs at your department are members of unions?

200
a. Sworn FTE:

b. Civilian FTE:

Q7. Does your department have a formal employee complaint/grievance resolution mechanism?

   Yes     No

Q8. If a department has an information-sharing-policy, most information is usually shared among employees regardless whether or not the information is directly necessary to them. Does your department have a similar information-sharing-policy?

   Yes     No

Q9. Which of the following best describes your department.

   A. Employees are encouraged to participate in a wide range of issues. (  )
   B. Employees are encouraged to participate in a limited range of issues. (  )

Q10. If you check “A” at question 9, please indicate the issues that employees are encouraged to participate in.

   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

Q11. Does your department have any kind of incentive or bonus system, based on performance?

   Yes     No

Q12. How long does it usually take to recruit new employees?

   - Sworn FTE:
   - Civilian FTE:
Q13. Please provide the following information about turnover. Voluntary turnover means quitting and voluntary retirement (i.e., termination initiated by employees). Involuntary turnover means all other types of turnover (e.g., mandatory retirements, death, layoffs). If data are not available for sworn and civilian FTEs separately, please provide data for total police FTEs in the bottom row.

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>Number of Voluntary Turnovers</td>
<td>Number of Involuntary Turnovers</td>
<td>Number of FTE*</td>
</tr>
<tr>
<td>Sworn FTE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civilian FTE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Police FTE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: Number of FTEs on the payroll at the end of each year.

Q14. Please provide the following information about response time and patrol service. A top priority call includes immediate threat to life, violent criminal act in progress, suspect pursuing citizen, imminent critical danger, or the possibility of major property loss.

<table>
<thead>
<tr>
<th>Year</th>
<th>Average time From receipt of top priority call To arrival</th>
<th>Number of Sworn FTEs On patrol service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q15. Please provide the following information about absenteeism due to sickness. If data are not available for sworn and civilian FTEs separately, please provide absenteeism data for total police FTE.

<table>
<thead>
<tr>
<th>Year</th>
<th>Classification</th>
<th>Number of absenteeism*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Sworn FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Civilian FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total police FTE</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Sworn FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Civilian FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total police FTE</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>Sworn FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Civilian FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total police FTE</td>
<td></td>
</tr>
</tbody>
</table>

*: Total sick leave days except pregnancy and maternity leaves.

Q16. Please provide the following information about salary and benefit budgets of your department? If data are not available for sworn and civilian FTEs separately, please provide budget data for total police FTE.

<table>
<thead>
<tr>
<th>Year</th>
<th>Classification</th>
<th>Salary and benefit budget (unit: $1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For sworn FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For civilian FTE</td>
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<tr>
<td></td>
<td>For total FTE</td>
<td></td>
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<tr>
<td>2003</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>For sworn FTE</td>
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<tr>
<td></td>
<td>For civilian FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For total FTE</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For sworn FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For civilian FTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For total FTE</td>
<td></td>
</tr>
</tbody>
</table>
Q17. Please provide the following information about caseload and crime clearance. When you calculate caseload, count all number of crimes assigned (i.e., regardless of UCR part I or part II crimes)

<table>
<thead>
<tr>
<th></th>
<th>Caseload per Sworn FTE Assigned to investigate Violent crimes</th>
<th>Caseload per Sworn FTE Assigned to investigate Property crimes</th>
<th>Caseload per sworn FTE Assigned to investigate UCR part I violent &amp; property crimes</th>
<th>Number of Violent crimes Cleared per Sworn FTE assigned</th>
<th>Number of Property crimes Cleared per Sworn FTE assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
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</tr>
<tr>
<td>2004</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you very much!!!


Baron, J. N., Hannan, M. T., & Burton, M. D. 2001. Labor Pains: Change in Organizational Models and Employee Turnover in Young High-Tech Firms.
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Organizational Performance: Progress and Prospects. Academy of
Political Economy, 70(5): 9-49.
Bernstein, M. 1955. Regulating Business by Independent Commission. Princeton,
York: Wiley.
Publishing Co.


DC: Georgetown University Press.


YONGBEOM HUR  
Date of birth: January 17, 1963  
Place of birth: Taejon, South Korea

EDUCATION

OHIO STATE UNIVERSITY (2000-2002)   Columbus, OH  
M.A. in Public Administration

SEOUL NATIONAL UNIVERSITY (1982-1989)  Seoul, South Korea  
B.S. in Food Science and Technology

RESEARCH & TEACHING INTERESTS

PUBLIC MANAGEMENT   HUMAN RESOURCE MANAGEMENT

Organizational performance   Strategic human resource management
Managing-for-results   Human resource management system
Network Management   Human resource control
Crime control performance of the police   Turnover and its effect on performance
Management capacity and performance   Human resource practices and performance

QUANTITATIVE METHODOLOGY   CRIMINAL JUSTICE

AFFILIATIONS

Member of American Society for Public Administration  
(Section on Public Performance and Management)

Member of Academy of Management  
(Divisions on Public Non-Profit & Human Resources)

Member of International City/County Management Association
RESEARCH EXPERIENCE

The MARTIN SCHOOL, UNIVERSITY OF KENTUCKY
Research Assistant to Dr. Merl Hackbart Aug 2005
Conduct research on public affairs education
Responsible for data collection and management through surveying and data analysis
Aug 2005
Research Assistant to Dr. Seok-Woo Kwon Aug 2003
Provided assistance to research on hospital management practices
Responsible for data management
Jun 2005
Provided assistance to graduate class preparing
Graduate Assistant to Dr. James Marton Aug 2002
Provided general research assistance
Jun 2003
Provided assistance to graduate class preparing

KENTUCKY TRANSPORTATION CENTER, UNIV. OF KENTUCKY
Research Associate Aug 2003
Conducted research on transportation finance (debt limit)
Responsible for data collection through survey and data analysis Dec 2003

TEACHING EXPERIENCE

POLITICAL SCIENCE DEPARTMENT, UNIVERSITY OF KENTUCKY
Quantitative research method course for undergraduate students Jan 2007
May 2007

PROFESSIONAL EXPERIENCE

KOREA RAILROAD ADMINISTRATION, SOUTH KOREA
Assistant general manager Mar 1998
Planned human resource training system for bullet-train operation Jun 2002
Manager
Responsible for budgeting and settlement for the local headquarter (Approx. $ 100 mil.) Mar 1995
Feb 1998

SK INTERNATIONAL CO., SOUTH KOREA
Manager and assistant manager Feb 1989
Importing raw hide from Australia, palm oil from Malaysia, etc Feb 1995
Exporting seafood to Japan, ginseng to several Europe countries
PAPERS AND PRESENTATIONS

SELECTED PRESENTATIONS

Reducing Negative Effects of Turnover: Can We Do It with Human Resource Management?
Conference on American Society of Public Administration
Washington, D.C., Mar 2007

How Do Human Resources Matter in the Public Sector?
Exploring the Consequences of Turnover for Municipal Police Performance
Southeastern Conference on Public Administration
Athens, GA, Sep 2006

Turnover, Performance, and Human Resource Management in the Public Sector:
Focusing on Municipal Police Service
Conference on Academy of Management
Atlanta, GA, Aug 2006

Does Turnover Matter in the Public Sector?
Conference on Midwest Political Science Association
Chicago, IL, Apr 2006

PUBLISHED TECHNICAL PAPER

Debt Capacity and Debt Limits: A State Road Fund Perspective. 2004. Kentucky Transportation Center, University of Kentucky, with Merl Hackbart and Suzanne Sapp

SERVICE

LEXINGTON KOREAN UNITED METHODIST CHURCH
Chair, Parish-Pastors Relations Committee, 2006
Chair, Administration Board, 2005