Preliminary Analysis of Officer Productivity[1]

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Abstract: In 1986 the Georgia Department of Natural Resources, Law Enforcement Section (GDNR/LE) began developing a comprehensive 5 year plan. A major thrust of that plan was to infuse scientific research procedures into agency operations. One critical component of the plan was the critical review of select agency data collection methods and analysis related to officer productivity. This study found that officer characteristics and activity and productivity measures can serve to support agency management policy making. Suggestions for future data collection and analysis are proposed.

This study is concerned with developing and analyzing agency-generated data which can be used to monitor officer activity and productivity. The data for this report were supplied by the Georgia Department of Natural Resources Law Enforcement Section (GDNR/LE). Our analysis yields some data concerning the factors which influence officer productivity, and it also indicates the kinds of data the agency must gather in the future to provide more meaningful analysis. Successful agency resource management, personnel supervision, and personnel training require constant data collection and comprehensive critical interpretation of those data on an ongoing basis.

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Methods

The source of the data for this study is the "Individual Activity Information, Fiscal Year 1986" generated by the Georgia Department of Natural Resources Law Enforcement Section. The data contain 3 conceptually distinct kinds of information for the 215 officers: Officer Characteristics—e.g. rank, district, age, years with GDNR/LE, and education; Officer Activity Measures—e.g. miles driven, days worked, and hours worked; and Officer Productivity Measures—e.g., licenses checked, boats checked, warnings, cases, convictions, and fines. The GDNR/LE information also included vehicle operating costs.

Results

Officer Characteristics

Figure 1 presents the distribution of officer rank. Of the total officers ($N = 215$) there are more ($N = 110$) middle level officers—corporals and sergeants—than rangers ($N = 84$) with no rangers first class. It may be appropriate, then, to examine the job descriptions of ranger and ranger first class and to promote qualified rangers to ranger first class. Such promotions would not only recognize the contributions made by selected rangers but also would better utilize their respective talents for realizing the Department's mission.

Figure 2 presents the distribution of officer assignment to districts. Future analysis of district assignments should focus on district assignment as it relates to district needs issues. Individualized district issues might include officer productivity, fish and game species population sizes, fish and game species "value" and related protection issues, specialized education and training needs (e.g., forensic, terrain, observational, and arrest techniques), levels of "opportunistic" and "proactive" enforcement, and levels of illegal commercial activity. It would also be of value to examine differences across districts according to citizen complaints and agency re-
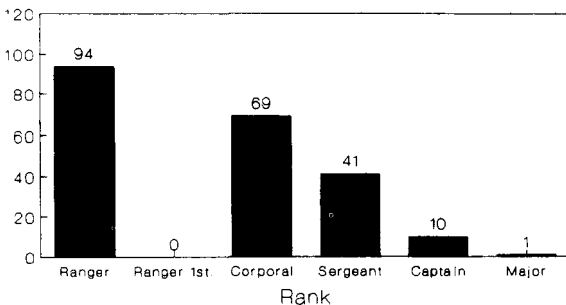

Figure 1. Distribution of officer rank in the Law Enforcement Section of the Georgia Department of Natural Resources.
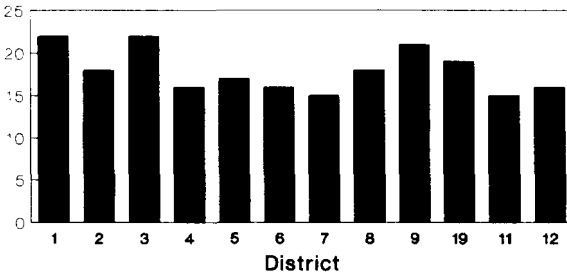
sponse. Additional information here could help refine estimates of the numbers of different violations that occur. More precise information on citizen complaints could allow the "tracking" of responses to complaints, which would be a very useful measure of officer productivity and resource allocation effectiveness.

Figure 3 presents the officer age information. Average age (as of 30 Jun 1987) of GDNR/LE officers was 38.6 years. The median and modal ages were 38 and 37, respectively. The overall range of ages was 23 to 59 with 48% of the officers ≤ 31 years old and 30% ≥ 42 years old.

Law Enforcement experience information gathered and reported by the GDNR/ LE included only law enforcement experience with GDNR/LE and did not report law enforcement experience with other law enforcement agencies and also did not include service by some officers with other Department of Natural Resources (DNR) sections. It may be beneficial from a recruiting perspective to keep data on officers who have law enforcement experience and/or other DNR experience.

The most important information contained in the education data (Fig. 4) is that nearly 30% ($N = 64$) of the officers in the Department began college but did not finish the requirements for a degree. Data summarized later in this study indicate that officer productivity shows some relationship with the amount of an officer's education, and it would therefore probably be of value for GDNR/LE to recruit more college educated applicants, and provide some departmental incentive for those without college degrees to begin pursuing a higher education. It would appear to be of long-term value from a professionalization and accreditation perspective to provide some incentive for those 64 officers who began college but did not finish to
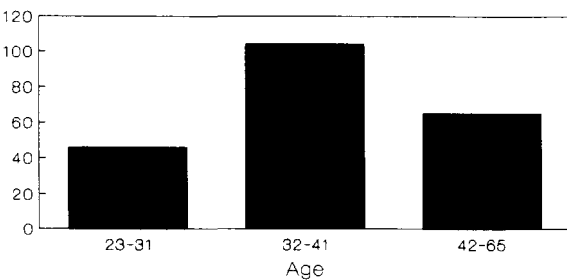

Figure 3. Age of the law enforcement officers in the Georgia Department of Natural Resources.
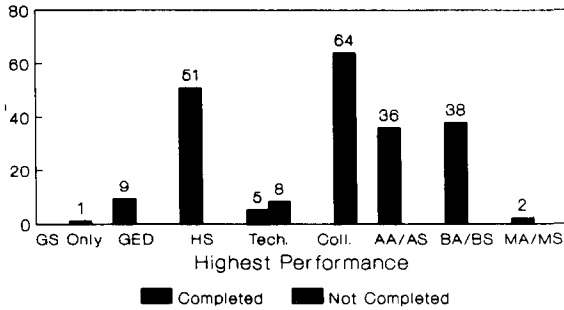
Figure 4. Educational background of law enforcement officers in the Georgia Department of Natural Resources.

continue on and complete their degrees. Similarly, those who hold an Associate Degree should be encouraged to pursue the Baccalaureate, and, current holders of the Baccalaureate would benefit from the supervisory/management skills offered by a Master's level degree (for example, in criminal justice or public administration).

Officer Activity Measures

The department data on officer activity measures included descriptive data on days worked, hours worked, and miles driven. Beyond being purely descriptive, none of these data yielded information of a causal nature. Until data on days worked, hours worked, and miles driven can be directly correlated with measures of productivity, they remain purely descriptive. In order for these data to be of importance from an associative or causal perspective, the GDNR/LE should gear data collection of specific days and hours with specific productivity data. By doing so, we might be able to determine the times and days which yield the most effective law enforcement activity for specific kinds of offenses and offenders.

Officer Productivity Measures

Two potential measures of officer productivity are licenses and boats checked. Officers checked a total of 217,961 licenses (or an average of 1,023 each, range 32 to 7,300. A total of 122,405 boats were checked (or an average of 597 each), range 4 to 8,640. Again, although these data may hold some value from a descriptive standpoint, it holds little value from a productivity perspective. The serious problem with the data as currently collected is that double counting exists—i.e. boats checked are checked for fishing licenses, operating and regulations documentation, and safety inspection. The fishing licenses checked through boat checks are counted on data for both licenses checked and boats checked. Although there are some limitations related to the present data, the activities of licenses checked and boats checked holds some potential from a deterrent standpoint, if it would be possible to examine the effects of boating and license checks on the incidence of such offenses as boating under the influence (BUI) and hunting/fishing without licenses. The number of such checks could even be publicized to make the potential offender believe that GDNR/LE is out in force looking for violators. Although there are some methodological problems associated with measuring increases and decreases in offenses

that come to law enforcement officers' attention primarily through their own efforts (pro-active enforcement)—such as with BUI or a fishing violation—examination of the effectiveness of checks on reducing offenses should be investigated.

Assessing Future Research Needs

In order to draw meaningful inferences about evaluating and improving officer productivity, modifications are needed in current record practices. For example, a content breakdown of officer performance variables should be provided. While gross totals of boats checked or licenses checked or warnings is interesting, we need information on the specific content and context of the activity. For example, do random boat checks as opposed to stopping boats for suspicious behavior or for a specific violation yield more cases and convictions? In another instance, under which circumstances do officers make the most cases on baited dove fields (random patrol, complaint)? Questions and data which yield associate or causal explanation are most useful.

While we believe that the individual officer is a necessary unit of analysis when assessing productivity, cogent research may also warrant redefinitions. Districts, or specialized officer teams, or various geophysical regions may be appropriate additional units for analyzing department productivity.

The critical end of the productivity chain, conviction and fine, may be more a function of prosecutors' and judicial discretion than officer effectiveness. Judicial data must be collected with an eye toward determining the respective roles of prosecutors', judges and officers in a final disposition. In addition, because judicial actions may partially be a product of community sentiment and attitude, attitudinal surveys of the public about wildlife violations and violators may be an important step toward understanding the punishment process involved with wildlife law enforcement.

The data on cases, convictions, and fines indicated that there was a total of 15,418 cases which led to 11,757 convictions. Fines for the 11,757 convictions totalled $956,149 or an average fine of $4,829 levied per officer. The minimum fine total for an officer was $132 while the maximum fine for an officer was $63,150. The average fine per case per officer was $77.82 while the average fine per conviction per officer was $90.40. We must point out that the raw numbers of checks, cases, convictions, and fines do not imply productivity. In particular, opportunities for performing checks or making cases or assists may vary according to, among other things, an officer's rank, a district's wildlife population, or the number of offenders in a district. In order to assess more meaningfully officer productivity, then, data on opportunity for productivity must be considered. Additionally, when we analyze officer productivity through the measure of cases, convictions, and fines, successful case performance is indicated by a case being cleared which is ranger dependent. Using convictions and fines as ranger performance measures requires noting that ranger performance at these levels is influenced by the performance of prosecution and the decisions of judges.

We have emphasized the importance of assessing officer productivity in relation to probability for productivity. To estimate individualized probabilities of exposure to violations and violators, there must be an interface between data on law enforcement and data on wildlife populations. Thus, data bases from both the Georgia Department of Natural Resources Law Enforcement Section and the Georgia Department of Natural Resources Game and Fish Management Section should be used in determining officer effectiveness. In the long term it may be most useful to associate law enforcement activity with data from game and fish management sections as it pertains to wildlife populations, etc. It is difficult to access the impact of law enforcement activity upon wildlife populations if population data are not available.