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EXPLORING INTERLOCAL
COOPERATION IN PUBLIC SAFETY:
AN ANNOTATED BIBLIOGRAPHY

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Annotated Bibliography- Interlocal Contracting in Fire and Police Services.

This bibliography summarizes fourteen studies of interlocal collaboration in fire and/or police services. It directs scholars to research materials that examine the patterns of cooperation and relative financial and other advantages (if any) of contracting out these services to other governments. It also includes studies related to the consolidation of police and fire services. Though not exhaustive, this collection of studies includes materials from different time periods and with diverse approaches.

1. Andrew, Simon, A. (2005) Interlocal Contractual Arrangements in the Provision of Public Safety- Paper prepared for the conference “Creating Collaborating Communities,” Wayne State University, Detroit, Michigan, Oct 31- Nov1, 2005.

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Relational contracts, which are formed as a result of the effort of the involved parties to reduce transaction costs and due to the state statutes that allow a diverse approach to contractual arrangements, are not as advantageous as are non-relational contracts when it comes to providing public-safety services that require specialized investments. Legally binding contracts that avoid disputes are recommended by this study. However, when measuring and monitoring outcomes become difficult, relational contracts are preferred. Another factor influencing the nature of the contract is the number of collaborators. The larger the number of partners, the greater the possibility of disputes and hence the likelihood of entering into a legally binding (relational) contract.

The author makes use of data compiled by the Florida Department of Community Affairs from Interlocal Service Delivery Reports prepared by 33 county governments with populations greater than 100,000. An immense variety (2,251 different types) of contractual arrangements in the area of providing public safety services has been identified. The reports also identify 14 specific types of services in the provision of public safety services. Andrew uses a logistic regression model to examine how boundary spanning, characteristics of goods and services, functional service area and the number of collaborators (independent variables) influence the type of contractual agreement (dependent variable).

2. Bish, Robert, L. (1999) Local Government Service Production in the Capital Region. ISBN 1-55058-192-9. Local Government Institute, University of Victoria.

Lower spending is characteristic of capital regions. Bish contends that lower spending in these areas is associated with the multiplicity of municipalities, competition among adjacent local governments, lower level units undertaking most of the spending in multi-tier systems and finally the easy entry for new governments. In this study, police services are analyzed along with fire services. He finds that basic activities such as police patrol, which have no economies of scale, are best performed by small departments, whereas specialized services like communications, homicide investigation, major crime laboratories and training are most efficiently performed by organizations serving larger populations. He shows that activities like fire suppression, fire prevention programs, open burning control and rescue and auto-extraction are typically

performed in-house, while activities such as, training, dispatching, communications, fire hall maintenance, equipment maintenance, hydrant maintenance, code compliance and investigation are typically contracted out or jointly produced with another local government

The author reviews 60 statistical studies of local government spending (the data for which was obtained from 1996 Municipal Statistics). Administrators of twelve capital region municipalities were interviewed to determine the way in which 238 activities which make up for the production of local government services are undertaken, with each category being further analyzed in terms of economies or diseconomies of scale in relation to the population served. For instance, the production of a large capital facility results in lower average cost the more persons it serves. Similarly, where there is a requirement for specialized equipment or personnel, governments serving small populations do not need the service often enough to efficiently provide it in-house, unless they sell the service to other governments also.

3. Brempong, Kwabena Gyimah (1987) Economies of Scale and Municipal Police Services: The Case of Florida. The Review of Economics and Statistics, 69 (2) 352-356.

This paper examines the existence of scale economies in police production, using data on expenditure from municipal police departments in the state of Florida covering 1982-1983. The study shows significant diseconomies of scale existed in the average police department in Florida. Large cities were the major source of the diseconomies that were observed in the sample. The major conclusion of the paper is that the findings should cause proponents of consolidation of municipal police departments to reconsider significant scale economies as a basis for consolidation.

A multi-product translog function is estimated and duality theorems are applied to derive economies of scale. Labor is disaggregated into sworn (police) and non-sworn (civilian) personnel and capital inputs are also included. There are six outputs and three inputs and prices are attached to both. Data regarding output and employment are obtained from the Florida Department of Law Enforcement. Information regarding stolen goods is taken from, unpublished data from the Florida Department of Law Enforcement. Average annual income of police officers is provided by the Annual Reports of the Florida Criminal Justice Standards and Training Commission and the data on expenditures is furnished by the Florida Department of Banking and Finance (for the years 1982 and 1983). The data study examines police departments in municipalities with populations greater than 5000 in the years 1982 and 1983. A total of 256

observations (of police departments in the 153 municipalities that met the population criteria) were made over the two year period.

4. Carr, Jered, B. & LeRoux, Kelly (2005). Which Local Governments Cooperate on Public Safety? Lessons from Michigan. Paper prepared for the conference “Creating Collaborative Communities,” Wayne State University, Detroit, Michigan, Oct 31- Nov1, 2005.

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The continued difficulty in collaborating to provide fire and police services (though they account for 25% of the workforce and 40% of total payroll in the typical local government) is examined here. Significant reductions in local spending without reducing spending on police and fire services are impossible. Doubts regarding loss of jobs, lower quality services and fear of providers attaching past rivalries and conflicts to service provision are said to create obstacles in contracting for police and fire services. Major factors that are identified as predictors of collaboration (despite these inherent difficulties) include the organization of the local governments in the county and variations in the administrative structure, community demographics, and the fiscal capacity of the unit. Governments that are minimalists and those jurisdictions that are less populated are highly unlikely to cooperate, as public safety services serve as the backbone of the government. A population with a higher proportion of racial minorities and lower per capita income and unit types that fall under townships and villages are more likely to cooperate. On the other hand, jurisdictions with a high proportion of elderly population and jurisdictions that receive higher shares of state revenue (does not hold true for villages) do not favor collaboration in public safety services.

The data used in this analysis was gathered by mail/web survey of city administrators, village managers/presidents and township supervisors of every local general-purpose government in 24 Michigan counties (which includes roughly 80% of the state population), in spring 2005. 670 units of government (159 municipalities, 430 townships and 80 villages) were surveyed and completed responses were obtained from 464 units. The authors present models based on unit types (city, village and township) and on four distinct functions (police street patrol, 911/dispatch, fire fighting and rescue, and fire inspection). The dependent variables are coded in a dichotomous fashion, with cooperation on a service represented by 1 and no cooperation with a 0. Logistic regression is employed to analyze the relation between the various factors influencing cooperation. A scale of 12 functions for police and 7 for fire representing the extent of

cooperation it developed and responses are evaluated using negative binomial regression.

5. Duncombe, William, D. (1992) Costs and Factor Substitution in the Provision of Local Fire Services. The Review of Economics and Statistics, 74 (1) 180-184.

This study presents evidence on costs and factor substitution for a sample of local fire departments in New York. Based on the findings, the author concludes that neither the CES (Constant Elasticity of Substitution), Cobb-Douglas nor Leontief production (and cost) functions fit the technology for fire production. He states that since costs are not homogeneous with respect to outputs, factor substitution falls between the restrictions imposed by Leontief and Cobb-Douglas technology. He also suggests that exogenous socio economic variables (poor building condition, high cost industrial property, population density) can significantly affect public sector costs and the estimates of factor price elasticities, and suggests that local governments have limited flexibility in adjusting their production of fire services to minimize the effect of rising factor prices.

The public production model presented here adopted the framework that was developed by Bradford, Malt and Oates (1969). The sample includes municipal fire departments in New York State from 1984-86 (n=197). To measure public expenditure, data is obtained from the Comptroller of New York. Property loss data is obtained from the New York Office of Fire Prevention and Control. Labor and Capital equipment and facilities are considered as major inputs. Utilizing this information, a translog cost model is generated.

6. Gyapong, Anthony, O. & Brempong, Kwabena Gyimah (1988) Factor Substitution, Price Elasticity of Factor Demand and Returns to Scale in Police Production: Evidence from Michigan. Southern Economic Journal, 54 (4) pp 863- (16 pgs).

This paper investigates the structure of police production in municipal police departments in Michigan. The production method does not belong to the Cobb-Douglas functional form and the elasticity of factor substitution is found to be significantly different from unity. Civilian labor and capital inputs are identified as complementary aspects. However, no significant scale economies are found and therefore consolidation of police production is not expected to produce economies. However, economies of scope are identified, implying that joint production of police outputs might result in cost reductions.

A multi-product translog function is used. Output of police departments is measured as the number of arrests in each of the eight FBI indexed crimes; murder and negligent

manslaughter, rape, aggravated assault, robbery, burglary, larceny, motor vehicle theft and arson. The non-arrest outputs are grouped together and the population of the city served is used as a proxy to measure the output of these activities. The study includes 130 municipal police departments serving cities with population of 5000 or more for the years 1984 and 1985. The data used in this study are obtained from the municipal police departments in Michigan and the Michigan Department of Commerce.

7. King, Donald. C, (1998). Joint Power Agreements: A Regional Delivery Option for Fire Rescue Service in Broward County, Florida. An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program.

<http://www.usfa.fema.gov/pdf/efop/efo29065.PDF>

Joint Power Agreements are interlocal agreements between two or more public bodies. The level of success attained by these agreements in fire rescue services in Broward county, Florida, is examined in this paper. These agreements are formed to achieve cost efficiency and improved service quality. Broward county, a predominantly urban community located in South Florida, encompasses an area of 1197 sq. miles and contains nearly 1,400,000 residents. A joint agreement facilitates the provision of fire rescue services in the county by 25 independent fire rescue agencies with 2500 personnel operating from 96 fire rescue stations with an annual expenditure of \$193 million for the year 1998. The author cites successful examples of similar joint power agreements, such as the Metro-Dade Fire Rescue, Florida, Seminole County EMS/Fire Rescue Division-Florida, Orange County Fire Department-Florida, (Facilitated by the Florida Interlocal Cooperation Act of 1969) Santa Clara County Fire Department-California, Central Pierce Fire and Rescue –Washington, Tualatin Valley Fire and Rescue –Oregon, Poudre Fire Authority-Colorado and Frankfort Fire Department-Illinois. The author also recommends the establishment of pilot sub-districts and the creation of fully-integrated cooperative fire services.

The author has extensively reviewed the available literature on this topic. Research papers at the Learning Resource Centre, National Emergency Training Centre, Emmitsburg, Maryland and Broward County Main Library, Fort Lauderdale, Florida, numerous annotated bibliographies, local government documents showing the current level of rescue service provided in Broward County and fire rescue assessment reports on each of the municipalities were evaluated. The municipality reports were compared to a typical Broward County Incident Response. The response levels of ALS Medical Incidents, Working Single-family Structural Fire, and Working Commercial Structural Fire are assessed using the Insurance Services Office's ratings, which gives the fairest assessment of fire service delivery. Further, current levels of

service and the impact of annexation on these services along with potential benefits in service delivery and ISO ratings are identified.

8. Lavery, Kevin. (1999) Smart Contracting for Local Government Service: Processes and Experience. ISBN-0-275-96428-0 Praeger, Connecticut.

The author argues that fiscal constraints on local governments increase the tendency to seek interlocal alliances. The study overviews several limitations in contracting out fire services, which are both labor and capital intensive. Risks of monopoly, heavy transaction and monitoring costs are cited as significant problem areas. Advantages in contracting out fire services to other governments are also discussed. Cross-training and cross-utilization of fire fighters and fire prevention officers is advocated.

Trends in fire district formation and patterns of fire-service delivery in the “contract” cities of Lakewood, Rosemead and Santa Clarita and in Los Angeles County are analyzed. A case study of fire service provision in the city of Scottsdale is also presented. Data on the patterns of fire service delivery in twelve local governments in the year 1994-95 is provided along with the ratios of contracting out fire services to other governments, non-government and private organizations for the years 1982 and 1992.

9. Morgan, David, R. Hirlinger, Michael, W. & England, Robert, E. (1988) The Decision to Contract Out City Services: A Further Explanation. The Western Political Quarterly, 41(2), 363-372

This study extends Ferris' (1986) Contracting Model, which examines how factors of supply (cost), fiscal pressures and political influences affect contracting decisions. Ferris failed to differentiate between for-profit, nonprofit and intergovernmental service providers. This study corrects this oversight and further, differentiates the applicability on the basis of functional area (e.g. public works, public safety and parks and recreation). The findings concur with the findings of Ferris. They state that whenever there is likely cost savings, constrained tax revenues and less powerful political forces, there is an increase in the use of external service providers. Availability of suppliers does not affect intergovernmental cooperation, nor does the size of cities or metro areas have much influence, though smaller sizes facilitate such agreements due to fewer private service providers. They also find that fiscally strained cities are less likely to enter into intergovernmental relationships. Further, when contracting decisions are disaggregated by

functional area, some variations are found. The levels of expected variance are quite low for three of the five equations (parks and recreation, public safety and human and health services). Also a difference from the general contracting model is found in the political category, where the presence of the city manager emerges as a significant predictor of public safety contracting. Ultimately, the authors suggest that Ferris' general contracting model conceals important variations by service vendor and functional area.

They employ the same 14 independent variables that Ferris had used in his earlier study. Contracting data is also taken from the same 1982 study of service delivery arrangement in cities over 25,000 in population conducted by the International City Management Association. Regression analysis was used in the study to estimate effects.

10. Ostrom, Elinor & Whitaker, Gordon P. (1973) Does Local Community Control of Police Make a Difference? Some Preliminary Findings. American Journal of Political Science, 17(1), 48-76.

This study examines about the variations in police output across jurisdictions of different sizes. According to the study there was a consistent pattern of higher levels of police output detected in eight out of the twelve indicators in the three independent communities when compared to the Indianapolis neighborhoods. The authors conclude that the police forces under community control (organizing neighborhood patrol functions on a small scale by local communities) are more effective than those under large, city wide control. This is especially true in meeting citizen demands for police protection. Both patterns of evaluation and experience with police forces indicate the same. This study is a forerunner to similar studies that were later carried out in Chicago, Grand Rapids and St.Louis metropolitan areas and much larger study of police services in over 200 urban areas by Ostrom and Roger Parks in 1973.

The sample was selected according to the most similar systems research design. Citizens of three small independent communities, (with populations from approximately 12,000 to 16,000 and predominantly with White middle income families with similar educational backgrounds, involved in similar range of occupations and living in owner occupied residences) and three matched neighborhoods located within the city of Indianapolis were questioned regarding their experience with police and their evaluation of police performance. All the six regions were equal distances from Indianapolis. Data was collected in April 1970 and includes 722 respondents, 373 from independent communities, and 349 from Indianapolis neighborhoods, from a total sample of 940 households, with a response rate of 76%. Seven experience variables

(victimization, willingness to report victimization, extent of police follow-up, assistance, promptness of response, quality of assistance, stopped as suspected offender) and five evaluation variables (evaluation of promptness, evaluation of crime trend, evaluation of potential bribe taking, evaluation of police citizen relations, general evaluation of job being done) were used in the survey questionnaire. The above mentioned twelve variables are the twelve indicators that were used to compare police outputs in the independent communities and the neighborhoods.

11. Ostrom, Elinor (1976) Size and Performance in a Federal System. The Journal of Federalism, 6(2), 33-73.

This study provides additional insight about the prospects of police consolidations. There is a lack of findings concerning the effects of the size of police departments upon the performance of neighborhood police service levels. This raises questions about conventional assumptions that large scales automatically lead to improved performance. The author asserts that there is no right size for all services. The author also states that there is no evidence regarding the relationship between size and service levels for certain services like traffic patrol on major metropolitan thoroughfares and the provision of crime laboratory services.

Bivariate and multivariate analyses were used to determine the relationship between size and performance levels of police services. The study encompasses studies that had been carried out in five metropolitan areas and also includes a nationwide study of 109 cities. Theoretical and operational models were used in the study, with the size of the police department taken as the independent variable and citizen experience, citizen evaluation and costs of equivalent service levels used as dependable variables. To control for socio economic variables, the most similar systems research design was used in the first four empirical studies. The first study was done in Indianapolis with three independent communities being compared to three Indianapolis neighborhoods. The second study was a replication and it was undertaken by Samir IsHak (Spring 1971) in the Grand Rapids, Michigan metropolitan area, where three neighborhoods in Grand Rapids were compared to adjacent independent communities. Another replication was undertaken in the Spring of 1973 in Nashville-Davidson County by D.Rogers and C.McCurdy Lipsey and a fourth was undertaken in Illinois, where two Black communities in the south suburban Cook County was compared to three similar Black neighborhoods. Data gathered by National Opinion Research Centre (NORC) for the President's Commission on Law Enforcement and Administration of Justice in 1966 were used in this study. The sample consisted of 2000 respondents residing in 109 cities with populations over 10,000 providing information on police

performance. Ten research questions were utilized to analyze the relationship that existed between the size of jurisdictions and police service levels.

12. Ostrom, Elinor, Parks, Roger & Whitaker, Gordon P. (1978). Patterns of Metropolitan Policing, Ballinger Publishing Company. Cambridge, Massachusetts. ISBN 0-88410-783-3.

This study examines three police services supplied directly to citizens: policing, traffic control, and criminal investigation. The authors also discuss auxiliary services used by police in the production of these direct services, such as entry level training, radio communications, crime laboratory analysis, and adult pretrial detention. The authors conclude that few private organizations (other than private colleges and universities) provide direct services. They also add that consolidation of small police departments might result in either reduced levels of coverage or increased number of offices, which means higher costs. They identify that the number of agencies that provide the auxiliary services are fewer in number and greater in variety than those that provide direct services. Also not all direct service producers supply the auxiliary services. Many rely on other agencies to provide them.

A 40% stratified sample of metropolitan areas from each of the ten regions used for administrative purposes by the US Department of Justice and other federal agencies, is used for this study. The sample consists of 80 SMSAs (standard metropolitan statistical areas from 31 different states) and includes metropolitan areas with different sizes, population densities and types. Three had a population that was more than 100,000, two had more than 500,000, and nine had populations between 100,000 and 250,000. Data were collected on the basis of six broad questions regarding the producers of direct and auxiliary services and those who received them. Data were collected from June 1974 to September 1975 from state sources and individual police agencies. 1827 producers were included in the study. Data were gathered through in-person and telephone interviews, and via mail surveys. Answers were coded in two standardized research instruments, namely, matrix coding form used to generate service delivery matrices and individual producer coding form (used for information about personnel and internal operations of each direct services producer).

13. Tubbs, Chris (2000) Public Safety Departments: A Second Evaluation of the Consolidation of the City of Mercer Island's Department of Public Safety. An applied research project submitted to the National Fire Academy as part of the Executive Fire

Officer Program. http://www.usfa.fema.gov/pdf/efop/tr_01ct.pdf (The United States Fire Administration has announced that five fire service executives have received the U.S. Fire Administration's National Fire Academy's (NFA) Annual Outstanding Research Award. The USFA is a part of the Federal Emergency Management Agency. Christian D. Tubbs, Francis J. McElroy, Joseph L. Lynch, III, Donald R. Adams, and Kenneth E. Wood.)

Tubbs concludes that consolidation of fire services has both positive and negative impacts on service delivery. Limited career opportunities for fire personnel and the allocation of higher percentage of municipal funds to non consolidated organizations compared to consolidated organizations are the other findings of the study. The author recommends the hiring of an independent consulting firm to analyze the department of public safety structure and operations. He also suggests that the Insurance Service Office conduct a review of the capabilities of the fire department of the City of Mercer Island and proposes that the city should reexamine the consolidated structure and identify inherent weaknesses.

Evaluation research was done using a survey and a questionnaire, and descriptive methods were used to answer questions regarding the results of consolidation, the positive and negative impacts of consolidation, and the success of consolidating efforts. The survey was distributed to fire agencies within the state of Washington. A total of 39 surveys were distributed, 19 were returned to the author, equating a 48% response rate. Extensive literature that analyzed the pros and cons of consolidation of fire services was reviewed. Some benefits were non-measurable.

14. Walzer, Norman (1972) Economies of Scale and Municipal Police Services: The Illinois Experience. The Review of Economics and Statistics, 54 (4) 431- 438.

Based on the activities performed, a service index was constructed for police departments. Using this scale, this study examines changes in average cost as size of operations increased. The author finds that there is no significant relationship existing between per capita expenditures and city population. He also concludes that as the scale variable plays a crucial role in accepting or rejecting the economies of scale hypothesis, more research is needed before consolidation can be dismissed as leading to cost reductions in the provision of municipal police protection.

The "index of service" used in this study is a composite of the number of offenses cleared, number of accidents investigated and miles traveled by police vehicles. The time spent on each of these activities was converted to twenty-minute units. The data included a sample of 31 Illinois cities, with a population range of 22,000 to 143,000. Information regarding miles

traveled was obtained from the police records of an Illinois city, with a population of approximately 50,000. Regression analysis is used to examine the economies of scale hypothesis.