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INCENTIVE CONTRACTING: AN ANNOTATED AND CLASSIFIED MODERN BIBLIOGRAPHY

Stanley Fong and Raymond G. Hunt

State University of New York at Buffalo

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ABSTRACT

A listing of references concerning matters related to incentive contracting is presented with brief annotations and content codes.

Introduction

This bibliography includes a variety of treatments of incentive contracts and contracting phenomena that range from the normative to the empirical. It emphasizes work that has appeared since 1961, but does include references to significant earlier works. Some citations of work not concerned explicitly with incentive contracts or contracting are included because of their broad relevance to certain general problems involved in the use of incentives.

The items included in the bibliography are not necessarily warranted as exhaustive. However, the list undoubtedly approches completeness, at least for the period covered. At any rate, it very probably includes the most significant pertinent works and, at a minimum, constitutes a useful guide to the modern literature.

In addition to brief annotation for the convenience of the reader, each item in the bibliography is classified in two ways: First grossly according to its principal content into one of six categories, expressed as section headings, and, secondly, according to a bibliographic key, into one or more finer categories reflecting the particulars of its contents. Following each bibliographic entry is a series of index numbers that refer to the array of descriptors used for this purpose. These have been grouped into 12 general categories and reference to the key displayed in Table 1 will permit decoding of the numerical index numbers. Thus, in addition to information about an item's contents conveyed by the annotation, further information is communicated by the numerical index code.

Table 1

Bibliographic Key

I. Motivation

11 General
12 Incentives - General
13 Incentives - Monetary
14 Business - General
15 Profit

II. Social Processes

21 General
22 Cooperation, competition & conflict
23 Power & exchange
24 Risk-taking & decision-making
25 Bargaining & negotiation
26 Utility theory

III. Organizational Processes & Management

31 Theory & general
32 Communication processes
33 Control & reward systems
34 Performance & appraisal

IV. Marketing

41 General
42 Sales -- market planning & development
43 Advertising

V. Research & Development

51 Uses and problems - general
52 Government sponsorship
53 Commercial
54 Spin-off

VI. Procurement

61 Government policies & procedure
62 Problems
63 Government/industry relations
64 Politics of
65 Private

VII. Contracts

71 General problems & issues
72 Types and methods
73 Incentive contracts
74 Contract negotiation
75 Estimating & pricing

VIII. Business Trends & Conditions

81 Trends & conditions

IX. General Background

91 General background

X. Research Method Used

100 Laboratory experiment
101 Survey
102 Other field study
103 Public data, available documents, content analysis
104 Simulation (computer)
105 Simulation (experimental)
106 Math. model
107 Case studies
108 Non-empirical
109 Other

XI. Type of Article

111 Descriptive, non-empirical
112 Descriptive, empirical
113 Normative or prescriptive
114 Describes methodology
115 Theoretical
116 Misc.

XII. Economics

121 Finance in General
122 R&D investments
123 Investment in personnel
124 Corporate profitability & growth
125 Accounting
126 Welfare economics & comparable economic systems
127 Economics of the firm

Incentive Contracts: General and Legal

Arinc Research Corporation. System effectiveness management course. Annapolis, Md.: ARC, 1966. (Defense Documentation Center, AD 661-819).

Series of 7 lectures dealing with system effectiveness concept for weapon acquisition. A very elementary discussion of basic contract types is presented in lecture 4. (34, 61,72,73,108,113).

Assistant Secretary of Defense. Department of Defense guide to the evaluation of the performance of major development contractors. Washington: DoD, August 1965. (Defense Documentation Center, AD 623-258).

A description of the Defense program of contractor performance evaluation. Program intended to provide a long-term incentive to contractors by creating within the government a "memory" of their performance and a means for considering their record in future actions relating to source selection. (34,63,71,72,73,108,111).

Boston College Industrial & Commercial Law Review. Defense procurement -- a complex of conflicts and tensions. 1963, 5 (No. 1), 1-212.

A series of articles on defense procurement. Includes papers on contract types, negotiated contracts, defaults, governmental termination. (61,71,72,108,111).

Braemer, R. J. Recent developments in government contract law. Business Lawyer, 1967, 22, 1057-1073.

Brief survey of some recent changes in government contract law. Includes: "certificate of current pricing," and new procurement package (TPPC). (61,62,63,71,72,73,75,108,111).

Contract Management Institute. Incentive contracting in the aerospace industry. Washington: Contract Management Institute, 1965.

Basically a textbook for course in contracting, but includes a more than usually thorough review of the history and theory of incentive contracting, pointing up underlying assumptions. Also reviews problems associated with CPFF contracts and attempts some comparisons of outcomes among contract types. (13,61,73,108,111).

Department of Defense. Incentive contracting guide 1965. January 19, 1965. (Mimeo).

Policies and procedures regarding incentive contracting. Parallels NASA incentive contracting guide. (Washington: U.S. Government Printing Office, 1965). New combined DoD/NASA revision scheduled for early publication. (73,108,111).

Department of Defense. Logistics research conference. Vol. 2 Washington: DoD, 1965 (Defense Documentation Center, AD 623-226).

Papers prepared for presentation to panel on procurement practices. Content includes: flexible incentives; discussion of cost-plus-award-fee contracts; proposed research on incentive contracting. (61,62,71,72,73,108,111,113).

Donnelly, J. R. Renegotiation and incentive profits in government contracts. New York State Bar Journal, 1965, 37, 29-37.

A discussion of some of the pitfalls in the use of incentive provisions. (71,73,103,113,125).

Durbin, E. P. The contingent pricing problem: some considerations in formulating quality incentives. Santa Monica, Calif.: Rand Corporation, 1965.

Some of the factors involved in formulating incentive price schedules were discussed. The primary point is that government negotiators must allow for sampling variation and the fact that contractors will consider expected results as well as explicit payment schedules. Also points out that large profits needed to have incentive effect. Develops linear programming model to find optimal price function. (13,24,

Enzer, H., & Dellinger, D. C. On some economic concepts of multiple incentive contracting. Naval Research Logistics Quarterly, 1968, 15, 477-489.

Urges government to include long run profits and opportunity costs in incentive arrangements. Multiple incentive contracts should be also optimized in classes rather than individually. (23,25,26,61,62,63,71,72,73,74,106,108,113,115, 124).

Farmer, W. A. Multiple incentive contracts: an analytical technique. N.A.A. Management Accounting, 1968 (May), 49, 18-24.

An analytical model for evaluating multiple incentive contracts. Essentially, to evaluate likely performance, probability of achievement data must be added to basic cost-performance-schedule incentive model, and the relationships between that probability and incentive fees evaluated. (71,72,73,114).

Federal Bar Journal. Symposium on government contracts. 1968, 28, 159-286.

A series of articles dealing with: administrative resolution of breaches; service contract developments; incentive contract changes; application of Freedom of Information Act to procurement. (34,51,61,62,71,73,108,113).

Fray, L. L., Briggs, W. G., Russell, J. R. Cost/effectiveness and utility functions for incentive structures. Unpublished paper MS-3745, Harbridge House, 1966. (Defense Documentation Center, AD 485-572).

Describes PIIM model as used for Gemini spacecraft. Gives a method to make fee proportional to the government's utility for schedule, performance, and cost combinations. (13,33, 72,73,108,113).

Gravallese, A. J. An evaluation of the total package procurement concept as exemplified by three Air Force weapon system contracts. Unpublished master's thesis, Massachusetts Institute of Technology, 1968.

This study evaluates the TPPC by comparing its intended objectives with the actual experiences of contractors and Air Force procurement officers. (15,24,33,51,52,61,62,71,72,73,

Harbridge House Inc. Incentive Contracting. Boston: Harbridge House, 1967.

Primarily an introduction to methods of structuring incentive contracts. (73,108,111).

Harbridge House Inc. Basic graphics for incentive contracting. Prepared for the Director of Procurement, National Aeronautics and Space Administration.

Methods for structuring incentive contracts and incentive relations. (73,108,111).

Herman, S. How to select the right government contract. Business Management, 1962 (July), 22, 54-57.

Provides 11 criteria for making contract selection. Suggestions on how to size up the job and the capabilities of the company, and choose the contract that delivers the greatest reward. (14,71,73,108,113,121).

Jones, T. H., Jr. Centralized incentive teams for pre-award review and analysis of incentive structure. Paper submitted to Panel 9, Incentive Contracting DoD-Wide Procurement Pricing Conference, Hershey, Pennsylvania.

Includes analyses of trade-off theory, complexity of incentive formats, cost vs. performance incentives, tivation, utilities of differing contract forms -- with especially useful review of assumptions involved. (11,61,71,72,73, 74,75,108,111,113,121).

Law and Contemporary Problems. Government contracts: Part I. 1964, 29 (No. 1), 1-274.

A series of articles on government contracts. Include papers on defense procurement, the government contracting process, contract disputes, conflict of interests in federal procurement. (61,71,72,73,107,112).

Law and Contemporary Problems. Government contracts: Part II. 1964, 29 (No. 2), 275-646.

A series of articles on government contracts. Include papers on government contracts; pricing policies; economy in government contracting; exchange of technical data in government R&D contracts, and independent R&D expenditures. (51,71, 72,73,75,107,112,122).

Logistics Management Institute. Value engineering -- final report. Washington: LMI, May 1963. (Defense Documentation Center, AD 659-511).

An evaluation of value engineering, covering methodology, criteria, change procedures, level of effort, organization, selection and incentives. (63,71,73,107,112).

Logistics Management Institute. Tabular model and procedure for structuring multiple incentive contracts. January 1964 (Defense Documentation Center, AD 472-966).

It has been found necessary to devise a method for creating a greater degree of interdependence among the incentive elements (cost, time and performance) than has heretofore existed. This has been accomplished through the tabular model by the use of tables which incorporate multipliers less than one and greater than zero. (34,62,73,104).

Logistics Management Institute. Total package procurement concept, synthesis of findings. Washington: LMI, June 1967. (Defense Documentation Center, AD 655-814).

A review of the advantages and disadvantages of the total package method of procurement. There is a greater need for an integrated management information for TPP programs than there is for development-only programs. On balance, the influential factors of cost, schedule, and system performance in the TPP programs studied tend to support rather than constrain technical innovation. (33,61,71,72,73,107,113).

Logistics Management Institute. Incentives for achieving component standardization in ship construction. Washington: LMI, December 1967 (Defense Documentation Center, AD 665-680).

Suggests improvements, including increasing the amount of incentives, in the Navy system of giving profit incentives to contractors who favor components for which spare parts support already exists. (13,61,62,73,107,113).

Logistics Management Institute. Information package on progress to date, ASPR Special Sub-Committee on Case No. 67-253 "Modication of weighted guidelines to give greater recognition to invested capital" Revised June 15, 1968.

Paper describes "Weighted Guidelines" for allocating contract profitability among capital equipment and working capital. An Air Force task group is to empirically establish specific weights subsequently. The distinction based on differences in risk. (73,106,103,113,124).

Logistics Management Institute. An examination of the foundations of incentive contracting. 1968 (Mimeo).

This report focuses on the effect that contractual incentive arrangements may reasonably be expected to have in reducing the cost, increasing the timeliness, and improving the performance of DoD programs. (12,13,61,62,71,73,101, 107,113).

McDonald, P. R. Government prime contracts and subcontracts. Glendora, Calif.: Procurement Associates, 1963.

A voluminous, regularly revised, practical how-to-do-it guide to government procurement policies and procedures and regulations. A thoroughly comprehensive compendium covering all aspects of contracting and procurement, plus marketing background information. An excellent history of procurement statutes and issues, government procurement organization and description of distinctive NASA approaches. (31,41,61,71, 108,111).

Marcus, S. Studies of defense contracting. Harvard Business Review, 1964, (May-June), 42, 20-22ff.

Three recent in-depth reports, designed to inform both the businessman and policy makers about the defense contracting process and how it operates in practice, are reviewed. They are: Arthur D. Little, Inc., How Sick is the Defense Industry?; Stanford Research Institute, The Industry-Government Aerospace Relationship; M. J. Peck & F. M. Scherer, The Weapons Acquisition Process. (61,62,63,64,71,72,73,74,75,103, 107,112,113,121,122,124,127).

Miller, R. E. A method for selecting contract cost incentives. Defense Documentation Center, 1967.

Presents an empirical method for evaluating the effect of cost incentives on contractor efficiency, and determining appropriate sharing proportions. (13,24,25,26,73,102,114).

Minsky, B. I. What effect will the incentive contracts have on industry profit? Unpublished master's thesis. Boston: Boston College, 1965.

Master's thesis outlining various contract types and trends in government procurements. The paper attempts to answer the title question posed, but never does. However, a valuable section on the history of profits (reckoned by sales, assets, and investments) in the defense industry is included. (13,14,15,52,61,63,65,72,73,81,103,112,124).

Moss, R. S. Government contracts: nature, scope and types. Boston College Industrial and Commercial Law Review, 1963, 5, 21-42.

A discussion of the basic contract types, with a brief review of the Armed Services Procurement Act and the Federal Procurement Act. (71,72,73,108,111).

Nash, R. C. Incentive contracting. Government Contracts Monograph No. 7. Government Contracts Program, George Washington University, 1963.

Comprehensive review of background, concepts, applications, terms and methods of incentive contracting. Includes brief treatments of value engineering, CPAF formats and performance rating systems. Advocates incentive methods. (34, 73,108,111,113).

Nash, R. C. Pricing policies in government contracts. Law and Contemporary Problems, 1964, 29, 361-379.

An analysis of the techniques that are being used in the pricing of goods and services, the changes that have been made in this area, and some of the possible results of current pricing policies. Effects of incentive contracts in lieu of CPFF contracts. (61,62,71,72,73,103,111,121).

Nash, R. C., Jr. Incentive contracting. Federal Bar Journal, 1962, 22, 195-216.

Analyzes some of the incentive provisions most commonly in use; isolates some of the problems involved in their use; suggests some future possibilities for other types of incentive techniques. (71,72,73,108,111).

National Aeronautics and Space Administration. NASA incentive contracting guide. (2nd Ed.) Washington: U.S. Government Printing Office, 1965.

Policies and procedures regarding incentive contracting. Parallels Department of Defense Incentive contracting guide (Office of Assistant Secretary of Defense, I&L, 1965). New combined DoD/NASA revision scheduled for early publication. (73,108,111).

National Aeronautics and Space Administration. Procurement Office operating procedure. No. 51-6. Washington: NASA Headquarters, June 28, 1967.

The operating procedure of the Procurement Office is presented. Primary policy and procedural responsibilities are listed. The listing is arranged by topical headings for parts, subparts, and paragraphs of the NASA PR (NPC 400). (31,42,61,62,63,71,72,73,74,108,111).

Parry, E. F. The changes clause in incentive contracting. Federal Bar Journal, 1968, 28, 256-270.

A "down to earth" review of the problems of changes associated with the CPIF contract. A discussion of: some of the limitations of existing clauses in handling the dynamics of CPIF contracts; the fact that the present clause language falls considerably short of giving the government the changes flexibility it realistically needs in a CPIF contract enviornment; fee adjustment approaches. (71,72,73,108,111).

Peat, Marwick, Livingston & Co. A report on contract definition. A report prepared for Office of the Director of Defense Research and Engineering. Boston: Peat, Marwick, Livingston & Co., January 2, 1967. (Defense Documentation Center, AD 646-240).

This report provides a better understanding of the intent of DoD policy in DoD directive 3200.9, "Initiation of Engineering and Operational Systems Development." Covers the rationale for the policy; some of the major problems that have occurred during the implementation of the directive; and possible means of alleviating these problems. (61,71, 72,73,107).

Pontone, J. J. Present incentive contract guidelines -- some clarifying remarks. Paper presented at the 1966 Management Conference Course, sponsored by the North Alabama Chapter, American Institute of Industrial Engineers, Huntsville, Alabama, October 19, 1966.

A clarification of some present incentive contract guidelines. (71,73,108,111).

Reaph, J. V., Jr. Developments in government contract law. Business Lawyer, 1964, 19, 831-843.

A description of some recent developments in government contract law. Includes a section on "weighted guidelines on profit." (15,71,72,108,111,124).

Rowlands, J. J. Formula elements of incentive contracts. N.A.A. Management Accounting, 1967 (April), 48, 30-37.

A discussion of two basic types of incentive contracts -- FPI and CPIF contracts. Examples and graphs are used to illustrate the mechanisms of the sharing agreement. (71,73,108,111).

Scherer, F. M. The theory of contractual incentives for cost reduction. Quarterly Journal of Economics, 1964, 78, 257-280.

Presents a theory relating contractor behavior to cost sharing arrangements. The contractor is considered to maximize profits that include the long range effects, called user costs, that occur as a consequence of cost reduction efforts. (13,71,72,73,108,115,127).

Smith, N. H. Procurement: Multiple incentive contracting, scientific contracting with accent on trade-off. St. Louis, Mo.: Army Aviation Material Command, May 1967. (Defense Documentation Center, AD 653-643).

Incentive contracts, in which the seller is rewarded (or penalized) according to performance achieved, can work to the advantage of the seller or the buyer, to both, or to neither. The report emphasizes the need for a method of analysis of incentive arrangements so that the true influence on fee earned may be known in advance of negotiation or signing of a contract. (61,71,73,74,108,113,121).

Thrall, R. M. A note on incentive fee contracting. Santa Monica, Calif.: Rand Corporation, 1965.

This note indicates some of the difficulties which arise when the incentive fee concept is applied to subcontractors. (73, 108,112).

Trueger, P. M. Profit guidelines on defense contracts. Journal of Accountancy, (January, 1964), pp. 44-48.

A discussion of the changes in DoD policies and procedures on contract profits. (15,71,108,111,125).

Turpin, C. C. Government contracts: A study of methods of contracting. Modern Law Review, 1968, 31, 241-256.

An examination of the principal types of contracts used by the British and U.S. governments in the procurement of goods and services. Discusses the emergence of special devices and techniques in contracting, of which the function is to safeguard the public interest while assuring adequate reward for the contractor. (34,51,61,71,72,73,108,111).

Vecchietti, G. J. The contractual effect of the unexpected. Remarks made at the Electronic Industries Association Annual Meeting, Government Procurement Relations Department, Santa Barbara, California, November 16, 1967.

Concerned with matters of choosing contract formats, contract definition and change, and risk and sharing thereof. (24, 71,72,73,74,108,111,121).

Weiner, N. S. Multiple incentive fee maximization: An economic model. Quarterly Journal of Economics, 1963, 77, 603-616.

Post negotiation tradeoffs by the contractor are only partly affected by fee parameters of the contract. Other contracts, future profits, and renegotiation may be more important. (13,61,71,73,108,111,115,127).

Organizational Processes: Management, Negotiation, Administration

Bickner, R. E. A review of The Weapons Acquisition Process: Economic Incentives, by Frederic M. Scherer. Santa Monica, Calif.: Rand Corporation, 1964.

A review of Scherer's book. (13,61).

Carlisle, H. M. Incentive contracts: Management strategy of the Department of Defense. Public Administration Review, 1964, 24, 21-28.

Argues for improved measures of program performance and costs. Unless these improvements are developed, the relations between aerospace firms and the federal agencies will deteriorate and the potential cost-effectiveness program gains offered by incentive contracts will be lost. (34,63,71,73,108,111).

Cravens, J. E. Whether a single, high level professional group should assume responsibility for negotiation of significant, complex systems contracts. Paper presented at the DoD-Wide 1967 Procurement Pricing Conference, Hershey, Pennsylvania, October 30, 1967.

How to make government negotiation more effective, bolstering government's position; discussion of power; discussion of performance evaluation and processes of negotiation. (23,25, 34,108,111).

Cravens, J. E. A reexamination of profit and incentive procedures. Paper presented at the Aerospace Industries Association Material Management Committee, Cape Kennedy, Florida, June 6, 1968.

Reviews problems of risk and profitability in relation to procurement and contracting policies and methods. Considers problems of definition and computation of profit, especially in reference to return on investment and CPAF contracts. (13,15,61,72,73,108,113,124).

Danhof, C. H. Government contracting and technological change. Washington, D. C.: Brookings Institution, 1968.

This study covers: the growth of the contractual system in the scientific and technological areas; the government's organization and procedures for managing the contractual system; the impact of the government's system upon the participating private institutions; the broader implications of the system. The chief criticisms of the system are considered and continuing problems are identified. (31,32, 33,34,51,52,61,62,63,71,72,73,74,81,91,127).

Garretson, R. C. The contract as a management tool. Paper presented at the XV International Meeting of the Institute of Management Sciences, Cleveland, Ohio. September 13, 1968.

In order for procurement officials to reduce their participation in the internal management of a contractor, and yet be able to meet or adjust the needs of the total defense program, a system of continual performance measurement is needed. It is suggested that it is a wasteful duplication to have the contractor use one measurement system for his management, and PERT for the government. (33,61,63,71,108,113).

George Washington Law Review. Administration by contract: An examination of governmental contracting-out. 1963, 31 (No. 4), 685-880.

A series of articles on governmental contracting out. Includes papers on the expanding role of contract in the administration of R&D programs, and contractual problems in contracting out. (51,61,62,63,71,72,108,111).

Glennan, T. K. Some suggested changes in R&D strategy and their implications for contracting. Santa Monica, Calif.: Rand Corporation, 1963.

Some suggestions for possible changes in the R&D process, based on a number of studies of Air Force development projects. The necessary changes in military contracting procedures are covered, with special attention to prototype developments. (51,52,61,71,108,113).

Gubin, E. K. Financing defense contracts. Law and Contemporary Problems, 1964, 29, 438-452.

The article places in perspective, for the newcomer, the position of the federal government in the financing of defense contracts. Largely based on the Armed Services Procurement Regulation (ASPR), titled Appendix E, "Defense Contract Financing Regulations." (33,71,108,111,122).

Hall, G. R. Defense procurement and public utility regulation. Santa Monica, Calif.: Rand Corporation, 1967.

Instead of seeking procurement systems improvements through increased regulation, it is preferable to seek more opportunities to obtain market generated information. (13,61, 62,65,71,72,73,74,75,108,113,115).

Hall, G. R., & Johnson, R. E. A review of Air Force procurement, 1962-1964. 1965 (Defense Documentation Center, AD 615-655).

A study of Air Force procurement. There are three goals to the study: to develop a framework for a quantitative description of procurement, to describe recent trends in Air Force procurement, and to describe what the Air Force purchased, using what kinds of contracts. (61,71,72,73,103, 107,112).

Heyman, V. K. Contractual problems in contracting out. George Washington Law Review, 1963, 31, 768-783.

Focuses on the major problems associated with CPFF contracting. Problems include: incentives; overhead and reimbursable costs; salary and fringe benefit limitations; proprietary information and patents; fees; and subcontracting rights. (71,72,73,108,111).

Hunt, R. G. Innovation and invention: Research and development, social utility and public policy. Address, University of Montana, December 11, 1968.

Reviews private and federal R&D expenditures and their results. Discusses need for policy-based redirection of national resource allocation and proposes extensive employment of administrative contracts to achieve productive government-industry collaboration. (51,52,54,61,63,64,108,113,122,126).

John, D. B. Some problems of cost-plus contracts. Public Administration Review, 1959, 19, 219-226.

An analysis of many of the problems of cost-type contracting -- some not easily anticipated by the novice -- as well as some conclusions about its efficiency. (34,71,108,111, 121).

Johnson, J. A. The expanding role of contract in the administration of research and development programs. George Washington Law Review, 1963, 31, 747-767.

A historical view of the contracting process by the government in the conduct of large-scale R&D programs. (51,52, 71,107,112).

Johnson, R. E. Research in procurement. Santa Monica, Calif.: Rand Corporation. (Mimeo).

Covers importance of R&D, competition, justifications of negotiated procurement, "fair" pricing-incentives. (22,51, 61,62,73,75,81,108,111).

Kennedy, J. J. Description and analysis of the organization of the firm in the defense weapon contract industry. Ann Arbor, Mich.: University of Microfilms, 1962. No. 63-4673.

A study of the organization of the defense weapon contract industry. Some hypotheses pertaining to the basic organizational functions and subfunctions were developed through workshops with experienced defense personnel, on-site analysis of twelve defense weapon contractors, and interviews with key department of defense and industry personnel. Data pertaining to these hypotheses were gathered by a questionnaire submitted to the defense weapon contract industry. (31,61, 101,102,112).

Keyes, W. N. The responsibility of a government cost-type contractor. Federal Bar Journal, 1962, 22, 68-91.

An examination of a cost-type contractor's legal responsibility, which is affected by written and unwritten provisions applicable to cost-type contracts. (71,108,111).

Kornreich, D. B. & Schwartz, R. S. The new "law" of government service contracts. Federal Bar Journal, 1968, 28, 239-255.

An in-depth treatment of the elements which the "Goddard Opinion" states will be used in determining whether service contracts are violating federal personnel laws. Critiques this aspect of the Goddard Opinion regarding government contract law. (71,108,111).

Logistics Management Institute. Weighted guidelines changes and other proposals for incentives for contractor acquisition of facilities. September, 1967 (Defense Documentation Center, AD 660-388).

Includes statement of DoD position regarding profit motivation, review of policy and previous studies regarding incentives for capital investment (with extensive bibliography), some discussion of general motivations of profit in investment and determinations of profit (competitive vs. negotiation). (13,61,73,108,113,121,122,124,125,127).

Logistics Management Institute. Defense industry profit review: LMI Task 66-25, Vols. 1 & 2. Washington, D. C.: Logistics Management Institute, November 1967.

The study endeavors to measure profit trends by size of company and type of contract and to compare trends on both defense and commercial business. The 1st volume concentrates primarily on findings and conclusions resulting from the LMI's study, and the 2nd volume is a supplement to this document, containing supporting data. (15,71,101,103,112,121, 122,124).

Marks, L., Jr. Industry versus DoD control of programs and the impact on management prerogatives. Paper presented at the National Security Industrial Association Procurement Symposium, Washington, D. C., September 27, 1967. (Mimeo).

Covers matters of: Management systems and cost control; competition and DoD-contractor relations; performance evaluation. (33,34,63,71,81,108,111).

McCall, J. J. An analysis of military procurement policies. Santa Monica, Calif.: Rand Corporation, 1964.

Economic analysis of 3 contract types: fixed price, fixed-price incentive, and cost-plus-fixed-fee. Presents an economic model of the procurement process. Suggests that contractors bias cost estimates to maximize profits, making it difficult to distinguish between high and low cost firms on the basis of bias or target costs. (61,106,113).

Miles, M. Defense profits: are they declining or rising? New Republic, 1968, 159, 19-21.

Reviews controversial figures concerning defense industry profits and problems of negotiated procurement and the "contract state." (15,61,64,71,74,108,111).

Military Law Review. Symposium on procurement law. October, 1962.

A series of articles on procurement law. Includes papers on judicial and non-judicial remedies of a government contractor, government contracts, bid guarantees, defense subcontracting programs, and the new defense programming concept. (61,62,71,72,108,111).

Moore, F. T. Military procurement and contracting: an economic analysis. Santa Monica, Calif.: Rand Corporation, 1962.

A survey of problems of economic efficiency in military procurement and contracting. Background material on contracts presented. The increasing share of procurement by cost-plus-fixed-fee contracts is noted and a reclassification of contract types proposed. (61,71,108,111,121).

Moore, R. O. Efficiency and public policy in defense procurement. Law and Contemporary Problems, 1964, 29, 3-18.

A discussion of the relative efficiency of the procurement process and means for improving it. Considers: the structural characteristics of the market and competition; firm behavior and market results; some implications of these factors for changes in public policy in defense procurement. Compares CPFF and CPIF contracts. (22,34,41,63,72,73,108,113,127).

Nash, R. C., Jr., & Cibinic J., Jr. Government contract administration. Government Contracts Program. George Washington University, 1965.

A discussion of the various types of modifications that take place during contract performance. Deals with claims by contractors against the Government arising out of orders or acts of the Government which alter the contractor's work or method of accomplishing the work and hence increase his costs. Provides a thorough understanding of the rights of the parties when such actions of the Government occur. (71,108,111).

National Aeronautics and Space Administration. Management -- A continuing literature survey, with indexes, 1962-1967. Washington, D. C. May 1968 (NASA-SP-7500/02/).

A literature survey dealing with the following topics: Bibliographies, management, abstracts, contracts, economics, indexes (documentation), personnel, research. (31,51,71, 81,108,111,121,125,127).

Nieburg, H. L. In the name of science. Chicago: Quadrangle, 1966.

A controversial, provocative discussion of government contracting and science policy focused on relations within the "scientific-military-industrial complex" and centering on issues relating to R&D contracting, the evolution of the "contract state" and broad implications for American society. (11,31,51,71,91,103,113,124).

Office of the White House Press Secretary. Report to the President on government contracting for research and development, April 30, 1962.

A review of the use of government contracts with private institutions and enterprises to obtain scientific and technical work needed for public purposes. The topics include: criteria for deciding whether to contract out research and development work; improving policies and practices applying to R&D contracting; avoiding possible conflicts of interest by contractors; and improving the government's ability to carry out R&D work directly. (51,71,73,108,113).

Orkand, D. S. Some techniques for the statistical management of incentive contracts. (Doctoral dissertation, New York University) Ann Arbor, Mich.: University of Microfilms, 1963, No. 65-23.

The paper attempts to explain the nature and scope of incentive contracting, and to define the problems of statistical management. It summarizes some techniques previously developed for network planning and analysis. It indicates the utility of these techniques and some applications to the formulation and management of incentive contracts. (33,73,75,106,113,125).

Peck, M. J., & Scherer, F. M. The weapons acquisition process: an economic analysis. Boston: Harvard University, 1962.

An economic analysis is presented of the weapons acquisition process. It includes a discussion of the nonmarket character of the process, the structure of the industry, and the economic criteria and relationships in the execution of weapons programs. The core of the research material for this volume was a series of case studies, seven involving advanced commercial products and twelve involving advanced weapons -- aircraft and missiles. (61,81,91,102,103,107,112,122,127).

Ramey, J. T. Economy in government contracting -- Atomic Energy Commission. Law and Contemporary Problems, 1964, 29, 380-389.

An examination of the experience of the AEC with regard to economy in contracting, especially with regard to the use of the various forms and methods of contracting. (71,72,73,103, 112,125).

Scherer, F. M. The weapons acquisition process: economic incentives. Boston: Harvard University, 1964.

This major volume focuses on contractual and competitive incentives in the development and production of major weapon systems. (13,61,71,102,103,107,112,113,122,127).

Seagle, J. P. Risk aversion in contract negotiation. Bulletin of the Institute of Management Science, 1968, 14, 147-148 (Abstract).

Studies the phenomenon of risk aversion in contract negotiation between government agencies and private firms. The study proposes to measure the cost to the buyer of passing risk to a contractor. (24,71,73,106,112).

Seagle, J. P. A method for the study of risk aversion from incentive contract negotiations. Technical report No. 1, October 1968 (Mimeo).

A study of the risk taking characteristics of negotiators and business organizations. Data were obtained from several contract negotiations, between government agencies and private firms, during which both sharing arrangements and expected profits varied among the offers and counteroffers reported. Estimates of a measure of risk aversion were made from these data. (13,24,26,61,62,74,75,103,106,112,113, 114).

Seamans, R. C. Untitled. Speech given at G.W.U./F.B.A. Institute on Government Contracts, Washington. D. C., May 5. 1967.

Covers: technological change and need to develop suitable management techniques; function of contracts (contracts as relationship definers); dynamic nature (incentives and affects of incentive contracts); project planning and outline of procurement process. (61,31,71,72,73,108,111).

Speck, W. H. Assuring government contract performance. George Washington Law Review, 1966, 34, 666-692.

Focuses on the means available of assuring to the government full contract performance. Deals with fixed price contracts awarded competitively -- what weapon the contracting officer has available in his arsenal to assure performance, how effective these will be, and what defenses he must anticipate. (34,71,72,108,113).

Steele, E. R. A recipe for the development of complex systems. Johnsville, Pa.: Naval Air Development Center, June 1959. (Defense Documentation Center, AD 653-710).

The engineering report technique is clearly applicalbe to military cost-plus-fixed-fee contracts, and most of the features are pertinent to any development contract. (71,72, 73,108,113).

Whelan, J. W., & Phillips, J. T. Government contracts: Emphasis on government. Law and Contemporary Problems, 1964, 29, 315-346.

Suggests that in studying the contracts of the federal government, we are really studying government, government institutions, and public policies as much as agreement and contracts. (22,31,41,51,61,71,108,111).

Whittaker, P. N. Remarks by Philip N. Whittaker at Defense Weapon Systems Management Center, Wright-Patterson Air Force Base, July 12, 1967.

A very comprehensive and useful paper. Includes a review of defense procurement history since Civil War, general review of characteristics of defense industry, effects of specialization, TPPC, lack of control of market fate, prime vs. sub-contracting, cooperation and competition in industry, motivation for contracting, negotiation, attitudes toward incentives, profit, risk, R&D. (12,13,15,24,33, 34,51,52,61,62,63,64,71,74,81,91,103,111,121,124).

Contract Accounting

Devejian, A. G. Post-period adjustments peculiar to CPFF contracts. N.A.A. Bulletin, 1961 (January), 42, 77-86.

Variances between costs billed at predetermined provisional billing rates for the prompt reimbursements and costs computed on the basis of the final negotiated rate call for adjustments of under or over-recovered costs. The procedure applied for this, as described by the author, is deemed necessary in order to arrive at figures which would truly reflect the result of the operation. (71,75,125).

Flanagan, R. M. Fixed-price contracts may reduce return on investment. N.A.A. Bulletin, 1961 (January), 42, 63-70.

Profitwise a fixed-price contract may appear advantageous, yet it often results in a lower return on investment than could have been earned under a cost-plus contract. Comparative evaluation given in the article also brings out key variables which govern profitability. (15,71,122,124).

Gilroy, W. M. Investment control in fixed price defense contracting. N.A.A. Management Accounting, 1967 (April), 48, 38-42.

A discussion of some considerations which most directly affect the investment of the defense contractor under a fixed price contract. (63,71,122).

Huggins, E. V. Pitfalls in government contracts. Credit and Financial Management, 1962, 64, 14-15ff.

Comments on the financial problems and pitfalls of military work. (62,63,71,121).

Rautio, A. A. Reminders on cost-type government contracts. N.A.A. Bulletin, 1961, (October), 43, 86.

A few specific suggestions are outlined for industrial accountants which will avoid problems when the government auditors call, upon completion of the contract. (71,125).

Wenholz. C. R. Keeping track of performance on fixed-price incentive contracts. N.A.A. Bulletin, 1963 (August), 44 21-28.

A discussion of the problems involved in determining the most realistic sales and costs for fixed-price incentive and other types of contracts. A procedure is described for recording and verifying these values in the accounting records during and at the end of contracts. (71,72,73,75,125).

Wright, W. W. A contract is a contract is a contract -- or is it? Financial Executive, 1965 (October), pp. 37-46.

The interpretation of applicable laws by the General Accounting Office, apparently based on that agency's audit objectives and desires, today threaten the validity and integrity of government contracts. (33,34,71).

Public Reaction and News Media Reports

Aviation Week and Space Technology. House plan calls for accurate cost data. 1960 (June 20), 72, 75.

Legislation requiring defense contractors working on fixed price incentive contracts to certify that their cost data is accurate has been unanimously approved by the House Armed Services Committee, headed by Rep. Carl Vinson. (25,61,71, 73,75).

Aviation Week and Space Technology. Defense proposes incentive plan to cut CPFF contract volume. 1961 (June 26), 74, 31.

A plan is under consideration to have a board of experts not directly involved in a contract determine how much profit or loss a contractor should get. The proposal for fee determination met with some criticism, and also a counter-proposal by P. E. Haggerty, president of Texas Instruments, who suggested "price" orientation rather than "cost." (33,34,71,72,73).

Aviation Week and Space Technology. Incentive contracts may multiply controls. 1963 (July 1), 79, 98-99.

Greater use of incentive-type contracts is not likely to reduce government administrative controls on aerospace companies, and may in the long run tend to increase them. Contractor efforts will no doubt be stimulated to meet incentive criteria, Erle Martin of United Aircraft Corp. believes, but there is no evidence that government is sufficiently convinced of this to relax any administrative cost controls. (33,71,72,73).

Aviation Week and Space Technology. Incentives prove useful, but no cure-all. 1964 (July 13), 81, 64.

Incentive-type contracts appear to have their intended beneficial effect, but they require more careful negotiation and are not suitable for all types of programs, according to reports by industry and government spokesmen at the American Institute of Aeronautics and Astronautics annual meeting and the Aerospace Reliability and Maintainability Conference. (33,71,72,73,74).

Aviation Week and Space Technology. USAF seeks tighter pre-contracting work. 1964 (October 26), 81, 71.

Air Force and industry must increase efforts in pre-contracting phase of all procurements, as well as R&D work, to define minutely performance, reliability, delivery schedules and prices, according to Lt. Gen. T. P. Gerrity, USAF deputy chief of staff for systems and logistics. (71,72,73,74).

Aviation Week and Space Technology. NASA tightens Marshall contracts. 1964 (December 28), 81, 22.

Streamlining of contractor assignment procedures has begun at NASA's Marshall Space Flight Center with the selection of 14 aerospace firms for negotiations on support service prime contracts. Cost-plus-incentive-fee contracts will be renewable and are scheduled to go into effect, pending negotiations, next March 1. (33,71,72,73).

Aviation Week and Space Technology. Incentive basis set for NAA Apollo work. 1965 (November 29), 83, 79.

North American Aviation's contracts for the Apollo command module and its escape system, service module and lunar excursion module adapter will be placed on an incentive basis. R. A. Lambeth, treasurer and a senior vice president of the company said he expects the shift to improve rather than harm the company's earning. (15,33,71,72,73).

Aviation Week and Space Technology. NASA Tightening incentive fee system. 1966 (August 15), 85, 150-153.

The "independent" multiple incentive contracts of the past few years are giving way to the "interdependent" contract. The possibilities are illustrated with the Gemini project. (61,71,72,73).

Aviation Week and Space Technology. $25.6-million Gemini incentive seen for near-perfect effort. 1967. (January 16), 86, 32.

The Gemini CPFF arrangement was converted into a planned interdependency incentive contract in 1964. NASA said that the arrangement and the results from the Gemini program under it "indicate almost total perfection." (71,72,73)

Backe, B. Low fees may undermine incentive goal. Aviation Week and Space Technology, 1965 (January 11), 82, 69-72.

CPIF contracts, devised by the government to reward cost efficiency with higher profits, actually have a built-in temptation to many contractors to increase costs to the government rather than decrease them. In practice, the contractor can often earn more on an over-all basis by keeping the costs high, even though it means a decrease in his fee. The reason for this is to be found in the different viewpoints from which government and business look at costs and profits. (15,71,72,73).

Bannerman, G. C. DoD guide stresses incentive fee goals. Aviation Week and Space Technology, 1965 (March 1), 82, 67-68.

Comments on the Backe article (Jan. 11 issue of AW&ST) by Deputy Assistant Secretary of Defense for Procurement and essentially agrees. Some steps are being taken by DoD to prevent serious damage to the Cost Reduction Program by uncontrolled cost overruns under CPIF contracts. (33,34 63,71,72,73).

Blickstein, S. Buying influences: shifts in the offing? Printers' Ink, 1964, (March), 286, 80.

The advertising market could be affected by a broad change over in government procurement methods from CPFF to incentive-type contracts. Industrial advertisers and business paper publishers are watching the projected change closely. (42,63,71).

Business Week. For contractors, carrots and stick. June 24, 1961, p. 40.

Defense Secretary McNamara is beginning to look with more favor on higher profit allowances, but will crack down harder than ever on contractors' costs. He is also taking a sharper look at the high cost of technological changes in weapons. (33,63,71,72,73).

Business Week. Pentagon moves away from cost-plus. March 24, 1962, p. 78.

New procurement rules are designed to reward high-performance contractors and put penalties on those who do not perform satisfactorily. (61,71,72,73).

Business Week. Putting profit spur back into contracts. May 25, 1963, p. 107.

The Pentagon is working on a way to systematize the incentive factor in its non-competitive procurement. Past performance will play an important part in this scheme. (22,34,61,63,73).

Business Week. Management tightens its aerospace reins. September 14, 1963, pp. 96-98.

Defense contractors are keenly aware of the change in contract climate. The major defense companies are attempting to create a new approach to their work under the incentive contract scheme. (31,34,73).

Chemical Week. New squeeze on subcontractors. 1965 (August 14), 97, 24.

New government procurement practices are putting an indirect squeeze on many chemical companies that have small subcontracted shares in DoD work. To the few chemical concerns having major defense contracts, the new incentive program is a mixed blessing. (62,63,71,73).

Crosby, R. W. U.S. uses government contracts to put the screws on industry. Iron Age, 1962 (December 6), 190, 74-75.

Companies who want contracts find U.S. government has ways to bend them to its thinking on wage levels, hiring, and profits. Restrictions in contracts are one method, but there are also other more subtle measures used. (33,63,71,72,73).

Engineering News-Record. Switch from cost-plus to fixed-price could mean base price goes up $9.4 million. 1961 (January 19), 166, 21.

Conversion of a Navy construction contract with a joint venture of Brown-Raymond-Walsh from a cost-plus-fixed-fee to a fixed-price basis "may have added as much as $9.4 million" to costs for building military bases in Spain, said the General Accounting Office. (71,72,73,121).

Gregory, W. H. Industry mixed on DoD's profit system. Aviation Week and Space Technology, 1963 (September 2), 79, 60-67.

Reaction to DoD's weighted guideline profit system, which incorporates incentives and past performance evaluation, is partly elation within industry at the time of the basic policy statement and partly skepticism as to its translation into reality. (15,34,63).

Industrial Research. (Washington Report) Incentive contract changes imminent. 1966 (October), 8, 35-36.

While NASA is doubling its use of incentives, and the DoD is cutting back, both are closely scrutinizing their incentive contracting methods and procedures and are studying early incentive-type contracts now completed. The end results of these studies will produce new policies and procedures that may mean greater rewards for well-executed contracts. (61,71,72,73).

Johnsen, K. House group ask procurement changes. Aviation Week and Space Technology, 1960 (May 16), 72, 129-131.

House Armed Services Committee, following a week of hearings on military contracting highlighted by sharp criticism of the incentive-type contracts used by Air Force and Navy, has requested the General Accounting Office to draft new defense procurement legislation. A number of recommendations were suggested. (61,62,73,122).

Johnsen K. Defense opposes bill to tighten incentive contracting practices. Aviation Week and Space Technology, 1960 (June 6), 72, 34.

DoD strongly opposed legislation which would ban incentive payments on its contracts unless the manufacturer can "completely demonstrate" that he has earned them. Opposition was expressed at hearings before the House Armed Services Committee. (33,62,71,73).

Johnsen, K. McClellan airs incentive contract issue. Aviation Week and Space Technology, 1962 (May 28), 76, 36-37.

Strong congressional movement to discourage incentive-type contracting for new weapons systems, in cases where neither design specifications or costs are known with accuracy, was launched last week at hearings of the Senate Permanent Investigative Subcommittee, headed by Sen. John McClellan. When these factors are unknown, the contractor may set the target price as high as possible, and earn a high profit by reducing this unrealistic price in performance. (15,51, 62,71,72,73,75).

Johnsen, K. NASA sole judge in incentive plan. Aviation Week and Space Technology, 1962 (June 25), 76, 28-29.

NASA plans to retain complete discretionary power to decide whether its contractors should be paid merit profits of fees under its new incentive-type contracting program. Even the criteria by which contractors' performance will be judged will be discretionary with NASA. (15,34,71,72,73).

Johnsen, K. Higher incentive rewards, penalties due. Aviation Week and Space Technology, 1963 (June 3), 78, 84-85.

DoD intends to increase both rewards for good performance and penalties for poor performance under incentive-type contracts. This is one result of a comprehensive review of incentive negotiations by the staff of T. D. Morris, assistant secretary of defense for installations and logistics. (71,72,73,74).

Loomis, C. J. New profits for the prime. Fortune, 1965 (April), 71, 75-82.

The new shift toward incentive contracts has bright implications for some of the large aerospace companies. A few cases are illustrated. (15,71,73).

Mihlon, L. F. The dangerous business of defense contracting. Factory, 1961 (August), 119, 92-97.

Argues whether U.S. plant or the Pentagon is falling down on the defense job. Says defense business is a dangerous business -- entailing production, quality control, overall management, customer (DoD) relations, personnel, and paperwork. Malfunction of any one of these can cripple the whole. (33, 34,61,71,72,73).

O'Lone, R. G. Orbiter is first big NASA incentive job. Aviation Week and Space Technology, 1963 (October 7), 79, 32-33.

Lunar photographic orbiter is the first major NASA project that will include cost, delivery and technical performance incentives as part of its contract. (71,72,73).

Ramo, S. New incentive contract plan advanced. Aviation Week and Space Technology, 1962 (January 8), 76, 99.

Excerpts from a speech by S. Ramo, vice president of Thompson Ramo Wooldridge. Since DoD intends to broaden its use of incentive type contracts and has been critical of industry for its failure to provide specific contract formulas that would reward above average performance and penalize poor performance, S. Ramo offers a proposal for such a system. (63,71, 72,73).

Russell, J. R. Attack on incentive system seen in rising debate on contracting. Aviation Week and Space Technology, 1966 (May 23), 84, 119-122.

An excerpt of a speech given by J. R. Russell. Gives warning that a new debate over the value of incentive type contracts is impending. But criticisms leveled legitimately at past practices are not necessarily adequate reasons for abandoning the incentive principle altogether. (71,72,73).

Steel Air Force zeros in on its cost-plus contracts. 1962 (December 31). 151, 16-17.

Greater use of incentive and fixed price contracts is being emphasized by DoD. In fiscal 1962, 47 per cent of DoD's contracts were the CPFF type, and DoD wants to get the total down to 18 per cent in fiscal 1965. (71,72,73).

Steel Know the pitfalls of government contracts. 1963 (December 9), 153, 49.

Excerpts of a speech by G. A. Cuneo, at the American Marketing Association meeting, outlining the legal pitfalls of government contracting. (71).

Steel What Defense cost cutting effort means. 1963 (December 9), 153, 43-44.

The first major move of the Johnson administration directly affecting industry is an intensification of cost cutting procedures at DoD. Value engineering program is briefly reviewed. (71).

Wilson, G. C. Defense to emphasize incentive contracts. Aviation Week and Space Technology, 1961 (November 20), 75, 26-27.

DoD is now ready to write a wide variety of incentive-penalty contracts with industry. This decision will revolutionize traditional defense-industry relationships at the bargaining table by shifting the initial cost estimates to means for measuring and rewarding the contractor's performance. (33, 34,63,73).

Wilson, G. C. Defense to stress incentive, competition. Aviation Week and Space Technology, 1962 (April 30), 76, 26-27.

DoD procurement officials have mapped an ambitious economy campaign featuring the broadest use yet of incentive contracts as well as a series of actions designed to increase competition among military contractors. Key elements in the over-all strategy are more emphasis on the reward or penalty approach in writing the DoD contracts in the first place and closer administration of the work after it is started to determine if economies can be introduced along the way. (22, 33,71,72,73).

Incentive Contracts: Evaluation

Booz, Allen & Hamilton, Inc. Study of the effectiveness of NASA incentive contracts. Vols. 1 & 2. Washington: NASA Headquarters, 1966.

A final report on the effectiveness of NASA incentive contracting. The key findings, conclusions, and recommendations resulting from 15 case studies are presented in volume 1. A series of appendixes are provided in volume 2, covering study methods and procedures, including a procedure for updating the case studies. (71,72,73,102,103,107,112,113).

Cherian, Edward J. "The Design and Use of Multidimensional Incentives for Government Contracts." Unpublished Ph.D. dissertation, Rensselaer Polytechnic Institute, Troy, New York, November 1965.

Exhaustive empirical (statistical) study of multidimensional contracts in the Air Force Systems Command and NASA. Major findings were: contractors receive additional incentive profits under multidimensional incentive contracts; there was no significant relationship between incentive fees and most contract dimensions; and factors other than profit appear to provide substantial contractor motivation for improved contract results. (13,71,73,112).

Cross, J. A reappraisal of cost incentives in defense contracts. Research paper P-282. Institute for Defense Analyses, Economic and Political Studies Division. September, 1966 (Defense Documentation Center, AD 641-021).

Results show cost sharing necessitates payment for risk bearing that exceeds possible savings. (13,22,24,25,61,62,73, 74,75,103,112).

Deavers, K. L., & McCall, J. J. Notes on incentive contracting. Santa Monica, Calif.: Rand Corporation, 1966. (Defense Documentation Center, AD 641-336).

Finds relation between sharing rate and change from initial cost not significant. Neither is the change significantly related to contract size. (25,71,72,73,74,75,103,112).

Department of Defense. Defense Science Board Task Group. Incentive-type contracting in the procurement of RDT & E. November 1, 1966.

Includes review of purposes and principles in incentive contracts as well as evaluations of them in RDT & E (coordinate with Booz-Allen). A survey of 11 contractors (51,73,102,112).

Egan, D. M. Experimentation in government procurement: The award-fee concept. Journal of Purchasing, 1968, 4, 14-28.

A review of the experience of contractors with award-fee contracts. Outlines the pitfalls firms should seek to avoid if the award-fee concept is to be beneficial to both industry and government. (63,71,72,73,103,112).

Fisher, I. N. Cost incentives and contract outcomes: An empirical analysis. Santa Monica, Calif.: Rand Corporation, 1966 (Defense Documentation Center, AD 813-866).

The study was undertaken to identify and clarify several aspects of incentive contracts that influence contract cost outcomes, and to provide an empirical analysis of cost incentive contracts. The results obtained indicate that a statistically significant relationship exists between the negotiated profit rate and the sharing rate. (24,73,103, 112,124).

Fisher, I. N. Improving the effectiveness of incentive contracting. Santa Monica, Calif.: Rand Corporation, 1968 (Defense Documentation Center, AD 673-332).

This paper identifies the various effects that incentive contracts may have on contract costs, and questions the validity of the cost savings commonly attributed to these contracts. Several possible strategies for improving their effectiveness are also discussed. (71,73,108,113).

Fisher, I. N. A reappraisal of incentive contracting experience. Santa Monica, Calif.: Rand Corporation, 1968 (Defense Documentation Center, AD 673-343).

Statistical analysis of 1,007 Air Force contracts for major weapon systems indicates that while incentive contracts may motivate contractors to reduce actual costs, they also encourage them to overstate target costs. The evidence indicates that the underruns commonly associated with incentive contracts are not related to the incentive features of the contract or to improved cost control and efficiency on the part of the contractor. (12,71,73,107,112).

Glennan, T. K., Jr. Incentives and R&D contracting. Santa Monica, Calif.: Rand Corporation, 1964.

Examines whether or not it is valid to assume that incentive contracts sensitizes the contractor to short run profits. Suggests that procurement personnel should try to harness the long term profit motives of the contractor. (51,52,72, 103,113).

Hill, W. Observations on incentive contracting. Syracuse: College of Business Administration, Syracuse University, 1966.

A general evaluative discussion of problems and effects of incentive contracts. Essentially an anecdotal summary of procurement theory and experience. (13,73,108,111).

Jones, T. H., Jr. A study of selected aspects of the use of incentive contracts in United States Air Force procurement management. Unpublished doctoral dissertation, Ohio State University, 1967.

A study to determine whether incentives have any statistically discernible effect on contract outcomes. Quantitative analyses are supplemented by qualitative analyses based on case studies. (61,62,73,102,103,107,112).

Marcus, S. Studies of the defense contracting process. Law and Contemporary Problems, 1964, 29, 19-31.

Some previous studies of the defense contracting process are analyzed. The areas covered include: law and procedure; actual operations (e.g., CPFF); economic impact; political implications. (31,41,6 ,71,72,108,111).

National Aeronautics and Space Administration. Summary report: 1965-1966 study of NASA incentive contracts. September 15, 1966.

A report of data collected by Booz, Allen & Hamilton. (73).

National Aeronautics and Space Administration. Cost plus award fee contracting study. August, 22, 1967. (Mimeo).

An interpretative summary of a Booz, Allen & Hamilton study prepared by the Procurement Office, NASA Headquarters. (73,107,112).

Pettit, W. F. The defective pricing law and implementing regulations -- a year and a half later. Law and Contemporary Problems, 1964, 29, 552-565.

Examines the law and implementing regulations; discusses the manifold problems that have been generated; and suggests certain avenues of relief which may, over time, make the new regulations more palatable to government contractors. (33, 34,71,72,108,111).

St. John's Law Review. Government contract: Its burdens and benefit. 1965, 40, 82-88.

Comments on the government's ability to modify its contracts through a "change clause," and the effects of this clause upon the government and the private contractor. (63,71, 108,111).

Williamson, O. E. Defense contracts: An analysis of adaptive response. Santa Monica, Calif.: Rand Corporation, 1965.

A study of the methods by which government departments can keep development contract costs within bounds. The analysis indicates that the most effective way to strengthen cost controls is to reduce the task uncertainty. (71,75,103,112,113).

Simulations & Experimental Studies: Illustrative Exhibits

Berhold, M. H. An analysis of contractual incentives. Unpublished doctoral dissertation. Los Angeles: University of California, 1967. (Defense Documentation Center, AD 665-276).

A simulation model of contracting between the government and a contractor. Government contracts are characterized by the sharing ratio which indicates the proportion of the cost reduction which the contractor will receive. The model shows that under certainty the optimal sharing ratio is 1. (71,73,105,106,113).

Feeney, G. J., McGlothlin, W. H., & Wolfson, R. J. Risk-aversion in incentive contracting: an experiment. Santa Monica, Calif.: Rand Corporation, 1964.

Description of an experimental measurement of risk-taking behavior in a design which approximates certain features of incentive contracts. It is a preliminary exploration of the effect of risk on competitive bids. (13,24,25,26,73,75, 100,105,112).

Gumpert, P., Deutsch, M., & Epstein, Y. The effect of incentive magnitude on cooperation in the prisoner's dilemma game. Technical Report #7, October 15, 1967.

The present study varied the magnitude of incentives. The results showed that cooperation tended to decrease over time in all conditions. The results were interpreted as failing to support the "insufficient-incentive-to-cooperate criticisms. (11,22,100,112).

Hagen, O. Risk aversion and incentive contracting. Economic Record. 1966. 42. 416-429.

A model of incentive contract negotiation is presented in which each party is assumed to desire maximization of a utility based on fee or price and its variance. This can lead to cost sharing contracts that are non-Pareto optimal. Suggestions are made for achieving Pareto optimality. (13,24,25,26,73,74,75,106,108,113,115).

Hagen, W. A. The structure of a predirected motivation model: Quantifying government objectives to a research and development contractor. Unpublished master's thesis, University of Alabama, 1967.

Presents a motivational model which relates all incentivized schedule and performance criteria, in incentive contracts, to equivalent savings rather than to fee. In this way the government can more clearly decide and communicate the desired trade-offs among objectives to the contractor. (51, 61,71,72,73,106,113).

Hunt, R. G., Hoogerman, D. P., Perry, F. A., Jr. Development and evaluation of an experimental contracting simulation: Effects of competition and ability on risk-taking in proposals. Working paper, October 1968 (Prepared under NASA Grant NGR 33-015-061).

A simulation model was developed to deal with a wide range of contracting problems, situations, formats and personnel. The demonstration provides some evidence of the practical success of these endeavors. (11,22,23,71,105,112).

Livingston, J., & Cravens, J. E. The observatory satellite system (A mock negotiation case study). Case study prepared for the Workshops in Government Contract Management, National Contract Management Association, Washington, D.C., March 19, 1968.

The case problem reflects current experience of industry and government departments and agencies in dealing with various negotiation situations. The practices exhibited in the mock negotiation case utilize the knowledge and expertise with techniques gained in previous workshops which have reviewed contracting principles, contract law, and pricing overview. (74,107,111).

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