

THE COMPETITION TRIBUNAL

(Original)  
CT-89/4

IN THE MATTER OF an Application by the Director of Investigation and Research for an order pursuant to section 75 of the Competition Act, R.S. 1985, c. C-34, as amended, requiring that the Respondent accept the Exdos Corporation as a customer for the supply of a product

BETWEEN:

THE DIRECTOR OF INVESTIGATION AND RESEARCH

Applicant

- and -

XEROX CANADA INC.

Respondent

COMPETITION TRIBUNAL TRIBUNAL DE LA CONCURRENCE	
MAY 14 1990	<i>ml</i>
REGISTRAR - REGISTRAIRE	
OTTAWA, ONT.	<i># 46</i>

AFFIDAVIT OF THOMAS A. WILSON

I, THOMAS A. WILSON, of the City of Toronto in the Judicial District of York, make oath and say as follows:

1. I am a professor of economics at the University of Toronto. Currently, I am also director of the Policy and Economic Analysis Programme at the Institute for Policy Analysis, and am the area coordinator for Business Economics at the Faculty of Management.

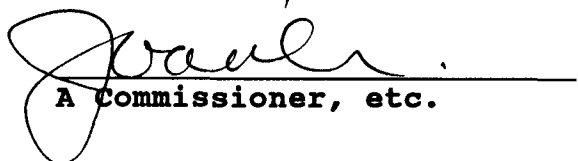
2. I have been retained by counsel for the Director of Investigation and Research to respond to the evidence raised in the Affidavit of Leonard Waverman relating to the possible efficiency effects of the refusal to supply by Xerox.

3. Attached hereto and marked as Exhibit "A" is a true copy of my report. The contents of Exhibit "A" and the findings expressed therein are true to the best of my knowledge, information and belief.

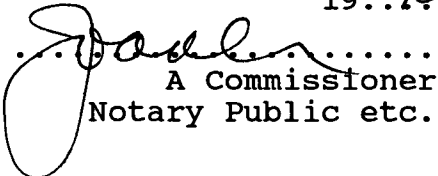
4. Attached hereto and marked as Exhibit "B" is a true copy of my curriculum vitae. As an addendum, I would add that I have taught courses and conducted research in the areas of industrial organization, public finance, macro-economics and the economic environment of business. I have been qualified as an expert economics witness before the CRTC, the Ontario Joint Board (OMB and Environmental Board), and the Competition Tribunal.

5. I make this affidavit pursuant to Rule 42(1) of the Competition Tribunal Rules.

SWORN BEFORE ME at the City )  
of Toronto in the Judicial )  
District of York, this 14<sup>th</sup> )  
day of May, 1990. )

  
A Commissioner, etc. )

  
Thomas A. Wilson

This is Exhibit "A"  
to the affidavit of  
Thomas A. Wilson  
sworn before me this  
..14<sup>th</sup>... day of May..  
19..90  
  
A Commissioner  
Notary Public etc.

Report prepared by  
Thomas A. Wilson  
Professor of Economics  
Department of Economics and  
Faculty of Management  
University of Toronto  
Toronto, Canada  
for

The Director of Investigation & Research

Introduction

1. The purpose of this Report is to respond to the evidence raised in the Affidavit of Leonard Waverman relating to the possible efficiency effects of the refusal to supply by Xerox. My Report and opinions are based on my professional training as an economist, my review of relevant learned literature and my review of documents and information provided by the Director. Documents I was provided included the pleadings, documents produced on discovery, correspondence between the parties, the expert reports filed to date in this case, and a case summary (minus conclusions) prepared by the Bureau of Competition Policy, the discovery transcripts and responses to undertakings given on discovery.

Economic Efficiency and Its Relevance

2. The first task is to define what is meant by efficiency. An economic system is efficient when:
  - a) Unit costs are minimized at the volumes of outputs produced (Technical Efficiency).
  - b) Relative prices equal relative incremental social costs of production (Allocative Efficiency).Complete efficiency requires both conditions to be met. When complete efficiency is achieved, the situation is described as a "Pareto optimum", in which it is impossible to make any individual better off without making at least one other individual worse off.
3. If an economic system has not achieved complete efficiency, a change which improves one or more individuals' welfare

without harming any other individuals is "Pareto improving". A change which improves the welfare of one or more individuals but makes some other individuals worse off is "potentially Pareto improving", if it is possible for the winners to compensate the losers such that at least one individual is better off and no one is worse off. I define both such changes as "efficiency enhancing".

4. For an industry or firm, the criteria for efficiency therefore include cost minimization and pricing at an appropriate level in relation to costs. A normal rate of return on investments (including investments in intangible capital, such as advertising and research and development (R&D)) is another criterion of an efficient market. For an industry or firm producing several products relative prices should reflect the relative costs of producing the products (including the normal return on capital).
5. A change in a business practice by a firm may be efficiency enhancing if it either reduces unit costs or moves relative prices closer to relative costs. If the change in practice involves changes in products (including service) it is efficiency enhancing if the quality-adjusted cost of products is reduced.
6. A firm will have an incentive to change a business practice if the change increases its profits. An increase in profits could well be generated by a change which is efficiency enhancing. However, it is also possible that a change which profits the firm would either not improve or indeed worsen economic efficiency.
7. For example, if a dominant firm is able to adopt a practice which raises its rivals' costs, the firm would have a profit incentive to do so even though the practice is inefficient

from a social standpoint. Such a firm could even have a profit incentive to adopt a practice which increased its own costs if the impact on actual and potential competitors' costs is larger.

8. In the case before the Tribunal, it is important to ascertain whether the change in business practice by Xerox enhanced or diminished economic efficiency in determining whether the Tribunal should exercise its discretion not to make an order to supply. If Xerox's refusal to supply parts for Series 10 copiers to Exdos and other ISO's significantly enhances economic efficiency, this would be a factor suggesting that the Tribunal should exercise its discretion, even though the ISO's and their customers are harmed by the change in Xerox's business practice.
9. On the other hand if the refusal to supply, although presumably profitable for Xerox, reduces economic efficiency, an order to supply is clearly warranted, provided of course that the various provisions of Section 75 are met.

#### Market Power and Efficiency

10. The second task is to define what is meant by market power. The concept of market power was the centrepiece of a paper by Carl Kaysen in The Corporation in Modern Society (Cambridge, Harvard University Press 1961). In "The Corporation: How Much Power? What Scope?", Kaysen defined power as follows:

"The power of any actor on the social stage I define as the scope of significant choice open to him. Accordingly, his power over others is the scope of his choices which affect them significantly." (p.85).

In his "Introduction " to the same volume, Edward S. Mason stated:

"But all markets that have ever existed inevitably contain certain buyers and sellers with some degree of

market power. Consequently the search is for that degree of market power which is necessary to an efficient conduct of business but beyond which there is an inevitable divergence between the particular and the general interest." (p.6).

More recently William M. Landes and Richard Posner, ("Market Power in Antitrust Cases", 94 Harvard Law Review March 1981) define it as follows:

"the term 'market power' refers to the ability of a firm (or a group of firms, acting jointly) to raise price above the competitive level without losing so many sales so rapidly that the price increase is unprofitable and must be rescinded." (p.937)

11. A firm possesses significant market power if it has the ability to maintain prices above long-run costs (including a normal return on invested capital) for a significant period of time without losing substantial market share. Persistent above-normal returns on capital, maintained over a period of time, would indicate that a firm had market power and had exercised it. However, the absence of above-normal returns does not indicate that market power is also absent. The firm may have chosen other objectives than profit maximization, or potential profits may have been dissipated in management perquisites or through management slack. It has been said that one of the greatest benefits of monopoly is the quiet life.
12. Market power is generally incompatible with complete economic efficiency. And the existence of market power may provide incentives for firms to adopt business practices which protect or extend their market power. Such practices may raise costs, and will lead to further distortions of price-cost relationships.
13. However, the absence of market power, in the sense defined above, does not mean that all business practices in a market

are efficient, or that firms only have incentives to adopt efficiency-enhancing changes in business practices. Firms are guided by prospective profitability, and in imperfectly competitive markets, what is profitable and what is efficient are not synonymous. For example, in geographically differentiated markets, there may be an excessive number of retail outlets, and excessive bunching of outlets at particular locations.

14. Furthermore a firm typically operates in more than one market. It may sell several products (both bundled and unbundled) and it must buy supplies and hire, rent or buy its factor inputs. A firm could have little market power in its largest end product market, yet have significant market power in one or more of the other markets in which it participates.
15. In the case before the Tribunal, it has been asserted that "Xerox has little market power in the Canadian market for reprographic services". (Waverman, pa.21.) Waverman reaches this conclusion by analyzing the end product market for reprographic services, including an examination of market shares and of the introduction of new products. In my opinion, while the evidence presented indicates that there obviously is competition in the end product market, it is insufficient to warrant the conclusion that Xerox has little market power.
16. I would describe the end product market as a differentiated oligopoly with an active competitive fringe. How much market power an individual firm has in such a market will depend on factors including:
  - a) The extent to which its products are differentiated from those of its rivals within the market (cross price elasticities of demand).
  - b) Its comparative cost performance vis a vis its rivals.



- c) Entry barriers.
  - d) Cross price elasticities of supply with the products of its rivals.
17. In the absence of this information, we cannot conclude that Xerox has little market power. Xerox would appear to have a dominant position (90% market share) in the high end of the market, and produces almost half of the output in the medium range. Since the products are differentiated and R & D is an important element of competition, I would anticipate that a producer with a large share in this market would possess non-trivial market power.
18. As noted above, a firm typically operates in more than one relevant market. In this case, as is documented in the Affidavit of David Gillen, it is reasonable to view Xerox copier parts as constituting a relevant product market within the reprographic industry. Within this sub-market Xerox appears to possess market power, for the reasons stated by Gillen.

#### Effects of Refusal to Supply on Efficiency

19. My analysis is predicated on the assumption that there was an established supply relationship between Xerox and Exdos, in which parts for series 10 copiers as well as for pre-1983 copiers were purchased for use in refurbished machines sold or leased or serviced by Exdos.
20. Given this assumption, Xerox's refusal in 1988 to supply series 10 parts to ISO's including Exdos amounts to a change in a business practice. I shall first review the probable consequences of this change on the operating efficiency of Exdos and its customers, and then assess the probable impact on the operating efficiency of Xerox. Finally I shall review

the issues related to future performance and investment incentives.

Impact of Refusal to Supply on the Operating Efficiency of Exdos and its Customers

21. As is clear from the Deloitte & Touche study, the refusal to supply Exdos with parts for series 10 copiers has raised Exdos' operating costs. Indeed, the study concludes that Exdos is unlikely to survive in the market place under the current supply practices of Xerox.
22. The refusal to supply will also likely have an adverse affect on the operating costs of many of Exdos clients. Even if Exdos manages to survive, its customers face a choice between a degraded level of service from Exdos, switching to Xerox, or switching to one of Xerox's competitors in the end product market.
23. Since Exdos' customers had the option of selecting either Xerox or one of its end product competitors, but freely chose Exdos, none of these customers will be better off as a result of the refusal to supply. Indeed, except for those who were indifferent between Exdos and the next best alternative, they will be worse off once the full effects of the refusal to supply have occurred.
24. One way Exdos' customers could possibly benefit in the long run from the refusal to supply would be through favourable incentive effects which are discussed below.

Impact of Refusal to Supply on Xerox's Operating Costs

25. It has been alleged that the refusal to supply would reduce Xerox's operating costs by:

- a) Improving the flow of information to Xerox, thereby permitting better planning of R & D (Waverman, pa. 33)
  - b) Reducing inventory costs due to "lumpy" ordering of parts by Exdos and other ISO's (Waverman, pa. 32)
26. It is also alleged that vertical integration facilitates preventive maintenance (Waverman pa. 17 & 31).
27. The latter may indeed represent an advantage to vertical integration - an advantage which, if not offset by advantages of the ISO's, would enable Xerox to drive the ISO's from the service market. However, it provides no justification for the refusal to supply, which handicaps the ISO's in competing with Xerox.
28. As to the flow of useful information, relevant to R & D, surely an adequate flow would be generated by some degree of vertical integration. But it does not require that all Xerox machines be serviced by Xerox itself. An adequate random sample would be sufficient. The fact that Xerox handles the servicing of the overwhelming majority of Xerox copiers means that the necessary information will be obtained.
29. As to maintenance, I note that Exdos must bear the cost of stocking its own inventory of parts. The "noise" introduced by lumpy orders from ISO's could be eliminated - if economies of scale in handling large orders of parts are less important than the economies obtained from planning and scheduling manufacturing - by providing pricing incentives for ISO's to order parts on an a more continuous basis. Furthermore, any problems created by ISO "noise" could be bounced back to the ISO's by wait-listing their parts orders in the event of supply shortages.

30. Parenthetically I would note that the total cost of inventory maintenance by Xerox will be lower if the backup parts stock for part of the client base is maintained by the ISO's.
31. I conclude that the evidence I have reviewed does not indicate that the refusal to supply will reduce Xerox's operating costs.

Implication of Refusal to Deal for Incentives to Provide Adequate Service and for Incentives for Future Investment in R & D and Product Promotion

32. Exdos has been accused of "free riding on Xerox's huge investment in technology and in a brand name ..." (Waverman pa. 27).
33. However, no evidence is provided to indicate that Exdos has enjoyed a "free ride". Presumably, when Xerox makes an outright sale of a machine, and does not tie the sale of the machine to the sale of Xerox-authorized service, it must view the sale of the machine - and subsequent sale of non-interchangeable parts - as providing an adequate return on its investment in R&D.
34. Exdos has carved out a niche in the market which is created by Xerox's past sales of machines to end users. By purchasing and reconditioning used Xerox machines, and offering a full service package on a competitive basis, Exdos has developed a market through its own initiative and investments.
35. A firm which makes its way by reconditioning and servicing used equipment of any type is highly dependent on its own reputation for quality of service, and cannot easily "free ride" on the service reputation of the branded manufacturer.

36. It is argued that Exdos would not maintain the same "standard of care that Xerox would. Brand loyalty and recognition would likely be impaired with less than satisfactory service" (Waverman, pa. 34).

But Exdos has invested in its own reputation as a service provider. Given that used equipment is more likely to suffer breakdown and require repairs than new equipment, Exdos would suffer more, in relative terms, than Xerox from providing an inadequate "standard of care" in service. Note further that, since Exdos concentrates on the servicing of used Xerox equipment, it does have an interest in maintaining Xerox equipment's reputation for durability and reliability.

37. Exdos has been accused of exploiting Xerox as a provider of service of last resort. (Waverman pa. 30) It is also argued that an order to supply "would allow Exdos to free ride and cream skim ....." (Waverman pa. 38). I note first that no evidence is provided that Xerox does not recover the full cost of its service on a T & M basis, and that Exdos is not obtaining such service on more favourable terms than the end user. Hence, providing a service of last resort should not harm Xerox.

38. Cream skimming is a potential problem in regulated markets in which there is cross-subsidization of products which are not profitable. The markets for reprographic services and related products is not regulated, and no evidence has been introduced to indicate that some services or products are priced below cost. I therefore do not view cream skimming as an issue in these markets.

39. Waverman (pa. 34) points out that, when there is vertical separation of manufacturer and servicing, disputes may arise about who is at fault for poor performance.

40. Of course, this is a potential problem whenever there is vertical separation - eg. telephone interconnection of competitive services, servicing of automobiles by independent repair shops, interconnection of one brand of computer with another, etc. Yet we observe varying degrees of vertical integration, and in some industries, vertically integrated companies competing with less integrated ones (eg. automobile repair). Presumably there are advantages to vertical separation - eg. incentives - which offset the advantages of vertical integration. In the case at hand, integrated service may be more efficient for most of Xerox's machines - but ISO service may be more efficient for Exdos's clients.
41. If Xerox service were uniformly more efficient - taking into account both cost and quality - than ISO service, then every end user would freely choose Xerox service. Xerox should be able to out-compete the ISO's on a "level playing field".
42. It is argued that a supply order "to provide parts to ISO's severely constrains pricing and revenues, with the result that the provision of new technologies might be unsustainable against free riders". (Waverman pa. 36) However, Xerox has priced its packages such that Exdos can carve out a niche as a reconditioner-service provider of used Xerox equipment. It is difficult to understand how this constrains Xerox pricing of its packages in any way, other than by enhancing competition in the market. With the refusal to supply in effect, Xerox would be able to reduce the degree of competition it faces from used Xerox equipment owned by others.
43. Finally there is the important issue of the impact of an order to supply (or of a failure to order supply) on future industrial organization plans of firms. There is the risk, as stated by Waverman (pa. 38) that an order to supply could artificially encourage future vertical integration in cases

where firms expect that they would fall within the stringent requirements of section 75.

44. On the other hand, there is the risk that a failure to order supply would discourage smaller firms from entering into exclusive or near exclusive relationships with large manufacturers which are efficient, because they have no protection against an opportunistic future refusal to supply, once a formal contract expires.
45. In either event, the problems could perhaps be surmounted by appropriate long term contractual agreements between the parties; but such agreements may also involve non-trivial costs.

#### Conclusion

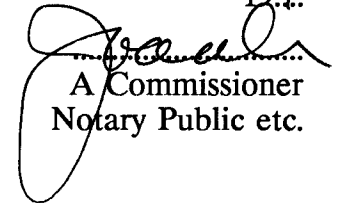
46. It is my opinion that the Tribunal will send the correct signals to market participants if it establishes clear criteria as to the applicability of section 75 and to its exercise of discretion. As noted above, persuasive evidence of economic efficiencies flowing from the refusal to supply would be a factor weighing against an order. Indeed, in its statement of "Reasons and Order" in the recent Chrysler case, (p.46) the Tribunal has recognized that the effects on competition and efficiency are considerations relevant to the exercise of its discretion.
47. In cases, such as the current one, where the evidence suggests that the increased costs imposed on buyers and their customers are not offset by actual or prospective efficiency gains to Xerox and others, the Tribunal should make an order. Such an order, coupled with a clear statement of the reason for it and a restatement of the criteria which would lead to the exercising of discretion, would indicate to all market

participants that they need not fear that entering into vertical business relationships which are efficient under current conditions will either trap them into a permanent marriage or leave them at risk of an arbitrary divorce.



This is Exhibit "B"  
to the Affidavit  
of Thomas A. Wilson  
sworn before me this

*14<sup>th</sup>* day of *May*  
19*90*

  
A Commissioner  
Notary Public etc.

**CURRICULUM VITAE**

**OF**

**Thomas A. Wilson**

June 1989

## CURRICULUM VITAE

Thomas Arthur Wilson

Date of Birth: August 5, 1935  
Place of Birth: Vancouver, British Columbia, Canada  
Citizenship: Canadian  
Married: to Julia D. Wilson, two children

Home Address	University Address
37 Lowther Avenue Toronto, Ontario Canada, M5R 1C5	Institute for Policy Analysis University of Toronto 150 St. George Street Toronto, Ontario Canada M5S 1A1

(Telephone: 416-962-5018) (Telephone: 416-978-5353  
978-6922)

### Education

Attended Public Schools in Vancouver, British Columbia, Canada.  
Entered University of British Columbia, September 1953. Graduated with Honours B.A. in Economics in May 1957.  
Entered Harvard Graduate School, September 1957. Received A.M. degree in June 1959, Ph.D. degree in June 1961.

### Academic Honours

Grandview Legion University Entrance Scholarship, 1953.  
Jonathan Rogers Award, 1954.  
Alaska Pine Company Scholarship in Economics, 1956.  
Woodrow Wilson Fellowship, 1957.  
Harvard University Scholarship, 1958.  
Ford Foundation pre-doctoral Fellowship, 1959.  
SSRC Faculty Research Grant, 1966.  
Isaak Walton Killam Award, 1969.  
McKenzie-King Visiting Professor, Harvard University, 1972-73.  
Visiting Ford Rotating Research Professor, University of California at Berkeley, 1975-76.

Elected Fellow of the Royal Society of Canada, 1980.  
 President, Canadian Economics Association, 1984-85.  
 Visiting Senior Fellow, Center for Business and Government,  
 John F. Kennedy School of Government, Harvard University, 1986.  
 Visiting Fellow, Wolfson College, University of Cambridge, 1987.

### **Teaching Experience**

Part-time Teaching Assistant in Economics at the University of British Columbia,  
 September 1955 - May 1957.  
 Teaching Fellow at Harvard University, September 1960 - June 1961.  
 Instructor at Harvard University, 1961-62.  
 Visiting Professor, University of Western Ontario, Spring 1966.  
 Assistant Professor at Harvard University, 1962-1967.  
 Associate Professor, University of Toronto, 1967-1968.  
 Visiting Professor, Harvard University, 1972-1973.  
 Member, University College, University of Toronto, 1986-  
 Professor of Economics, University of Toronto, June 1968 - present

### **Other Professional Experience**

Research Assistant at Bank of Canada in Ottawa, Summer 1957.  
 Research Assistant for Professor Guy Orcutt, Summer 1958.  
 Part-time Research Assistant at Littauer Statistical Laboratory,  
 September 1958 - May 1959.  
 Assistant Economist with the U.S. Congress, Joint Economic Committee project on  
 Employment, Growth and Price Levels, June 1959 - January 1960.  
 Consultant to the Commission on Money and Credit, September 1960 -  
 February 1961.  
 Consultant to the United States Treasury, 1961-1963.  
 Research Supervisor (October 1963 - September 1964) and Consultant (1964-1967),  
 Royal Commission on Taxation, Ottawa, Canada.  
 Director, Institute for Policy Analysis, University of Toronto, June 1969 -  
 June 1975.  
 Director, National Bureau of Economic Research, 1969 - 1974.  
 Consultant to Department of Consumer and Corporate Affairs, Ottawa, Canada,  
 1969-1974.  
 Coordinator, Econometric Forecasting Program, Institute for Policy Analysis,  
 University of Toronto, 1976-77.  
 Senior Research Associate, NBER, 1972-77.  
 Associate Editor, Review of Economics and Statistics, 1973-81.  
 Member of Editorial Board, Canadian Public Policy/Analyse de Politiques, 1974-80.  
 Director of Economics, Department of Political Economy, University of Toronto, July  
 1979 - August 1982.

Acting Chairman, Department of Economics, University of Toronto,  
September 1982 - December 1982.  
Chairman, Department of Economics, University of Toronto,  
January 1983 - June 1985.  
Advisor to the Minister of Finance, 1982-84.  
Member of Research Advisory Group (Macro-economics) for the Royal Commission  
on the Economic Union and Development Prospects for Canada, 1983-1985.  
Member of Executive Council, Canadian Economics Association, 1983-86.  
Member of Council of Advisors, C.D. Howe Research Institute, April 1983 -  
Member of Advisory Council, John Deutsch Institute of Economic Policy (Queen's  
University), 1985 -  
Associate Editor Review of Economics and Statistics, 1986 -  
Adviser to Thailand Development Research Institute, Bangkok, Thailand 1987.  
Adviser to Harvard Institute of International Development, Jakarta, Indonesia, 1987.  
Director, Policy and Economic Analysis Program, Institute for Policy Analysis,  
University of Toronto 1987 -  
Member, Academic Board, University of Toronto, 1988-

### **Publications**

1. "An Analysis of the Inflation of Machinery Prices," Study Paper No. 3,  
Study of Employment Growth and Price Levels, U.S. Congress, Joint  
Economic Committee, 1959.
2. Contributor to: Staff Report on Employment Growth and Price Levels,  
U.S. Congress, Joint Economic Committee, 1959.
3. "Productivity and Output in the Postwar Period," Technical Note No. 2,  
Study of Employment Growth and Price Levels, U.S. Congress, Joint  
Economic Committee, 1960.
4. (With Otto Eckstein) "The Determination of Money Wages in American  
Industry," Quarterly Journal of Economics, August 1962.
5. (With Otto Eckstein) "Short-run Productivity Behavior in U.S.  
Manufacturing," Review of Economics and Statistics, February 1964.
6. (With Lester Taylor) "Three Pass Least Squares: A Method for  
Estimating Models with a Lagged Dependent Variable," Review of  
Economics and Statistics, November 1964.
7. A Review of A Study of Cost and Demand Inflation by J.D. Pitchford, American  
Economic Review, December 1964.

8. (With Lawrence Officer) "Econometrics and Public Policy," a discussion paper published in Conference on Stabilization Policy, Economic Council of Canada, 1966.
9. "Comment" on "Postwar Production Relationships in Canada" by N.H. Lithwick, George Post and T.K. Rymes in Conference on Income and Wealth, National Bureau of Economic Research, October 1965.
10. Capital Investment and the Cost of Capital: A Dynamic Analysis, Royal Commission on Taxation, Study No. 30, Queen's Printer, 1967.
11. (With William S. Comanor) "Advertising, Market Structure and Performance," Review of Economics and Statistics, November 1967.
12. "Reply" to a "Comment" by McGuire and Rapping on "The Determination of Money Wages in American Industry," Quarterly Journal of Economics, November 1967.
13. (With N.H. Lithwick) The Sources of Economic Growth, Royal Commission on Taxation, Study No. 24, Ottawa, Queen's Printer, 1968.
14. (With William S. Comanor) "Advertising and the Advantages of Size," American Economic Review, May 1969.
15. (With A.R. Dobell) "The Effects of the White Paper on Saving, Investment and Economic Growth," Canadian Tax Foundation, Report of the Proceedings of the Twenty-Second Tax Conference, 1970.
16. "High Employment and Price Stability: Policy Options in an Open Economy," Proceedings of the Standing Senate Committee on National Finance, Senate of Canada, Third Session - Twenty-eighth Parliament, 1970-1971, June 8, 1971, pp. 17:5-17:23.
17. (With William S. Comanor) "On Advertising and Profitability," Review of Economics and Statistics, November 1971.
18. (With Gregory V. Jump) "Tax Policy Options for Increasing Employment Without Inflation," Canadian Tax Journal, March-April 1972.
19. (With A.R. Dobell) "The Impact of Taxation on Capital Flows and the Balance of Payments in Canada," in N.B.E.R., International Mobility and Movement of Capital, Columbia University Press, 1972.
20. (With William S. Comanor) "Advertising as a Source of Monopoly," in P.M. Chen (ed.), America's Changing Role in the 70's, Taipei, 1972, pp. 69-82.

21. "Taxes and Inflation," Canadian Tax Foundation, Proceedings of the Twenty-fourth Tax Conference, 1972.
22. (With John D. Bossons) "Adjusting Tax Rates for Inflation," Canadian Tax Journal, May-June 1973.
23. (With L.D. Taylor and S.J. Turnovsky) The Inflationary Process in North American Manufacturing, Ottawa, Information Canada, 1973.
24. (With G.V. Jump) "Canadian Fiscal Policy, 1973-74," Canadian Tax Journal, January/February, 1974.
25. (With W.S. Comanor) "Advertising and the Distribution of Consumer Demand," in S.F. Divita (ed.), Advertising and the Public Interest, American Marketing Association, Chicago, 1974, pp. 59-71.
26. (With W.S. Comanor) Advertising and Market Power, Harvard University Press, Cambridge, Mass., 1974.
27. (With G.V. Jump) "Macro-economic Effects of the Energy Crisis 1974-75," Canadian Public Policy/Analyse de Politiques, Winter 1975, pp. 30-38.
28. (With G.V. Jump) "Macro-economic Effects of Federal Fiscal Policies, 1974-75," Canadian Tax Journal, January/February 1975.
29. (With G.V. Jump) "Economic Effects of Provincial Fiscal Policies, 1975-76," Canadian Tax Journal, May/June 1975.
30. (With G.V. Jump) "Fiscal Policy in Recession and Recovery, 1975-76," Canadian Tax Journal, March/April, 1976.
31. "Commentary on Advertising and the Firm," in D.G. Tuerck (ed.), Issues in Advertising, American Enterprise Institute, 1978, pp. 124-30.
32. (With G.V. Jump) "Restrictive Fiscal Policies in Perspective, 1976-77," Canadian Tax Journal, May/June, 1977.
33. "The Province and Stabilization Policy," in Ontario Economic Council, Issues and Alternatives - 1977 Intergovernmental Relations, Toronto, 1977, pp. 123-136.
34. "Comments" on "Inflation in the United States" by Harold Shapiro, in L.B. Krause and W.S. Salant (Eds.) Worldwide Inflation, Washington, The Brookings Institution, 1977, pp. 294-97.
35. (With F.J. Reid) Wage and Price Behaviour in Canadian Manufacturing, Anti-Inflation Board, Ottawa, 1979.

36. (With W.S. Comanor) "The Effect of Advertising on Competition:" A Survey," Journal of Economic Literature, June, 1979.
37. (With G.V. Jump) The Influence of the Anti-Inflation Program on Aggregate Wages and Prices: A Simulation Analysis, Anti-Inflation Board, Ottawa, 1979.
38. (With J.R.S. Prichard and W.S. Stanbury, co-editors) Canadian Competition Policy: Essays in Law and Economics, Butterworths, Toronto, 1979.
39. (With G.L. Reuber) "The Merger Provisions: An Evaluation," in Prichard, Stanbury, and Wilson, op. cit., pp. 255-267.
40. "Energy Policy: Overview and Macroeconomic Implications," in Energy Policies for the 1980's, Ontario Economic Council, Toronto, 1980, Vol. 1, pp. 1-13.
41. (With W.S. Comanor) "On the Economics of Advertising: A Reply to Bloch and Simon," Journal of Economic Literature, September 1980, pp. 1075-78.
42. "Macroeconomic Trends and International Trade: General Overview," in Developments Abroad and the Domestic Economy, Vol. 1, Ontario Economic Council, Toronto, 1980.
43. "Comment" on "The Scope for Short-Run Fiscal Stabilization Policy Within Confederation" (D.A.L. Auld) in R.M. Bird (ed.), Fiscal Dimensions of Canadian Federalism, Canadian Tax Foundation, 1980, pp. 112-117.
44. "Forecasting vs. Policy Analysis and the Art of Economic Forecasting: Some Observations," Economic Policy Review, vol. 3, No. 2, pp. 13-30, Institute for Policy Analysis, University of Toronto, 1981.
45. (With G.V. Jump) "Inflation and the Taxation of Personal Investment Income: An Appraisal," in D.W. Conklin (ed.), Inflation and the Taxation of Personal Investment Income, Ontario Economic Council, 1982, pp. 71-106.
46. (With D.P. Dungan) Potential GNP: Performance and Prospects, Institute for Policy Analysis, Report No. 10, 1982.
47. "Medium-Term Fiscal Planning for Recovery" (with D.P. Dungan), Canadian Public Policy/Analyse de Politiques, Vol. IX, No.3 (Sept. 1983), pp. 390-97.
48. "Deficits and the Economy to 1990: Projections and Alternatives (with D.P. Dungan) in Ontario Economic Council, Deficits: How Big and How Bad?, Toronto, Ontario, 1983, pp. 116-148.

49. "Comment" (pp. 60-64) and "Wrap-up Discussion" (pp. 200-203) in D.D. Purvis, (ed.), Declining Productivity and Growth, Kingston, Queen's University, John Deutsch Institute for the Study of Economic Policy, July 1984.
50. "Stabilization Policy Issues: An Appraisal of Possible Roles of Flexible Fiscal Policies in Ontario," in D.W. Conklin (ed.), A Separate Personal Income Tax for Ontario: Background Studies, Toronto, Ontario Economic Council, 1984.
51. "Otto Eckstein: Applied Economist Par Excellence," Review of Economics and Statistics, November 1984.
52. "Altering the Fiscal Policy Mix: Credible Policies to Reduce the Federal Deficit" (with Peter Dungan), Canadian Tax Journal, 33, No. 2 March/April 1985, pp. 309-19.
53. "The Fiscal Stance and the Economic Outlook: The Short-term Impact," in D.D. Purvis, (ed.), Report of the Policy Forum on the May 1985 Federal Budget, Kingston, John Deutsch Institute for the Study of Economic Policy, July, 1985, pp. 1-5.
54. "The 1985 Federal Budget: Macroeconomic and Fiscal Effects" (with M.E. MacGregor) Canadian Public Policy/Analyse de Politiques, Vol. XI, No. 3, (Sept. 1985) pp. 602-616.
55. "Lessons of the Recession," Presidential Address delivered to the 1985 meetings of the Canadian Economics Association, Canadian Journal of Economics, XVIII, No. 4, November 1985, pp. 693-722.
56. "Savings in Canada: Retrospective and Prospective" (with G.V. Jump) in John Sargent, (ed.), Economic Growth: Prospects and Determinants, Toronto, University of Toronto Press, 1986, pp. 129-91.
57. "Impact of Public Sector Wage Controls on Budget Deficits and Inflation" (with D.P. Dungan), in D.W. Conklin, T.J. Courchene, and W. Jones, (eds.), Public Sector Compensation, Toronto, Ontario Economic Council Conference Volume, 1985, pp. 193-232.
58. "Macroeconomic Effects of the Budget" (with M.E. MacGregor), in M.F.J. Prachowny (ed) Policy Forum on the February 1986 Federal Budget, Kingston, John Deutsch Institute for the Study of Economic Policy, April 1985, pp. 46-60.
59. "The Macroeconomic Effects of the 1986 Budget" (with M.E. MacGregor), Canadian Tax Journal, 34, No.2, May-June 1986, pp. 563-587.



60. "The Corporate Income Tax Proposals: Reform or Retrogression" in Jack M. Mintz and Douglas D. Purvis (Eds.) Report of the Policy Forum on the Corporate Income Tax System, Kingston, John Deutsch Institute, November 1985, pp. 15-30 (Publication released early in 1987).
61. "Modelling Anticipated and Temporary Fiscal Policy Shocks in a Macro-Econometric Model of Canada" (with D.P. Dungan). Canadian Journal of Economics, February 1988.
62. "Macroeconomic Effects of Tax Reform in Canada" (with Peter Dungan) Canadian Tax Journal, January/February 1988.
63. "Canada and the Pacific Rim: Trade and Growth Prospects: (with Jack Carr, and Gregory Jump, in Bernard T.K. Joei, Canada in the Evolving Pacific Community Taipei, Tamkang University, 1988, pp. 197-262.
64. Co-editor (with L. Waverman) of a special issue of Canadian Public Policy - Analyse de Politiques on Macroeconomic Co-ordination and the Summit XV Supplement, February 1989 pp. 99.
65. "Introduction: Is the Process the Message?" (with L. Waverman) Ibid, pp. S1-S9.
66. "International Co-ordination of Macroeconomic Policies: A Review" (with M. Devereux, Ibid, pp. S20-S34.
67. "Canada's Economic Prospects Over the Medium Term", in K. Lorne Brownsey (Ed) Canada-Japan: Policy Issues for the Future, Halifax, Institute for Research on Public Policy 1989, pp. 85-120.
68. "The Proposed Federal Goods and Services Tax: Its Economic Effects Under Alternative Labour Market and Monetary Policy Conditions" (with Peter Dungan) Canadian Tax Journal, March-April, 1989.

#### **Unpublished Work and Working Papers**

1. The Inflationary Process in the Machinery Sector (Ph.D. Thesis, Harvard University, 1961).
2. "Implications of the Carter Corporate Reforms for Corporate Savings Behaviour," Institute for Policy Analysis, University of Toronto, Working Paper No. 6803.
3. (With G.V. Jump) "Policy Options for High Employment Without Inflation," Policy paper No. 9, Institute for Policy Analysis, University of Toronto, 1971.

4. Diversification and Profitability: An Analysis of Profit Rates of Businesses of Diversified Companies (Mimeo, July 1976).
5. "Applications of Macro-Econometric Models" presented to the joint symposium of the Canadian Economics Association and the Chinese Academy of Social Sciences, Beijing, China, May 1986.
6. "Regulated Competition in The Canadian Telecommunications Industry", Working Paper series, Center for Business and Government, John F. Kennedy School of Government, Harvard University, 1987.
7. "National Projection Through 2001: Base Scenario and Short-term Alternatives" (with Peter Dungan and David Fujimagari) PEAP Policy Study No. 87-3, December 1987.
8. "The Macroeconomic Effects of the Canada-U.S. Free Trade Agreement" (with Peter Dungan) International Economics Program, Department of Economics, DP 88-18, November, 1988.
9. "The Impact of U.S. Policy Shocks on the Canadian Economy - An Analysis with the FOCUS Model" (with J. Nightingale and P. Dungan) International Economics Program, Department of Economics, DP 88-17, October, 1988.
10. "National Projection Through 2013" (with P. Dungan and D. Fujimagari) Policy and Economic Analysis Program, Institute for Policy Analysis, Policy Study No. 89-1, January, 1989.