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CANADIAN DEFENCE TRADE WITH THE U.S.
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SUBSIDY PACTS
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THE BEHAVIOUR OF U.S. SUBSIDARIES IN CANADA:
IMPLICATIONS FOR TRADE AND INVESTMENTS
Alan M. Rugman
Dalhousie University

These papers contain preliminary findings from research still in progress and should not be quoted without prior approval of the author.

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of the Institute for Research in Public Policy.
The Canadian defence procurement process has served to enhance the country's independence and sovereignty, by providing the necessary capabilities to meet national security requirements. However, there are limitations to this process, particularly in relation to the procurement of advanced technology and capabilities. These limitations are often due to the size and scale of the Canadian market, which may not be able to support the development and production of certain high-technology systems.

For these reasons, Canada has entered into agreements with other countries, such as the United States, to acquire advanced technology and capabilities. These agreements have been facilitated through mechanisms such as the North American Free Trade Agreement (NAFTA), which aims to increase trade and investment between member countries.

In conclusion, the Canadian defence procurement process is an important aspect of the country's national security strategy, but it is also subject to limitations that require constant adaptation and innovation. Future strategies will need to take into account these challenges and work towards enhancing the capabilities of Canadian defence contractors. 
ONE OF THE DPSA OBJECTIVES IS A ROUGH BALANCE OF DEFENCE TRADE BETWEEN THE TWO COUNTRIES AND THE CUMULATIVE TOTALS FROM 1959 TO DATE (JUNE, 1983) SHOW $7.8 BILLION IN SALES FROM CANADA TO THE UNITED STATES, WHILE CANADIAN PROCUREMENT IN THE U.S. HAS AMOUNTED TO $8.9 BILLION RESULTING IN A 23 YEAR IMBALANCE OF $1.1 BILLION IN FAVOUR OF THE U.S. THE GROWTH IN THE PROGRAM IN RECENT YEARS, AS INDICATED BY THE INCREASE IN DOLLAR VALUE OF DEFENCE EXPORTS, THE NUMBER OF COMPANIES PARTICIPATING, AND THE AMOUNT OF NEW BUSINESS BEING WON, INDICATES THAT THE DPSA REMAINS A SOUND ECONOMIC EXPORT PROGRAM WHICH CONTINUES TO SUPPORT THE GROWTH OF HIGH TECHNOLOGY MANUFACTURING IN CANADA.


CANADIAN GOVERNMENT SUPPORT


THESE MECHANISMS ARE WELL DEFINED, WITH GOOD INTERFACES BETWEEN THE CANADIAN GOVERNMENT ORGANIZATIONS AND THEIR U.S. COUNTERPARTS. WELL ESTABLISHED PROCEDURES TO DEAL WITH IMPEDIMENTS TO THE SMOOTH OPERATION OF THE PROGRAM AND THE FREE ACCESS TO THE U.S. DEFENSE MARKET FOR CANADIAN INDUSTRY ARE IN PLACE. DIRECT FUNDING MECHANISMS AVAILABLE TO ASSIST INDUSTRY ARE THE PROGRAM FOR EXPORT MARKET DEVELOPMENT (PEMD) FOR MARKET SUPPORT, AND THE DEFENCE INDUSTRY PRODUCTIVITY PROGRAM (DIPP) FOR RESEARCH, SOURCE ESTABLISHMENT AND CAPITAL ASSISTANCE, WHICH HAS PUT OVER $180 MILLION INTO CANADIAN HIGH TECH INDUSTRY IN THE PAST YEAR. CURRENT BILATERAL ISSUES WHICH HAVE PROVEN TO BE IMPEDIMENTS TO DEFENCE PRODUCTION SHARE ARE TECHNOLOGY TRANSFER, THE RECENTLY SOLVED SPECIALTY METALS RESTRICTION, AND A VARIETY OF CASE-BY-CASE PROCUREMENT ISSUES. THESE, HOWEVER, ARE BEING ADDRESSED AS PART OF THE ONGOING PROCESS OF MANAGING THE PROGRAM BY EXTERNAL AFFAIRS AND OTHER GOVERNMENT DEPARTMENTS.

THE TECHNOLOGY TRANSFER PROBLEM IS SERIOUS AND COULD HAVE A LONG RANGE IMPACT THAT WOULD PRODUCE VASTLY DIFFERENT CONDITIONS FOR CANADIAN INDUSTRY IN THE NEXT FEW YEARS. THIS COULD HAVE SERIOUS EFFECTS ON CANADIAN HIGH TECHNOLOGY INDUSTRY AS MOST OF THIS INDUSTRY HAS A RELATED COMMERCIAL PRODUCTS SEGMENT WHICH IS DEPENDENT ON THE SPIN-OFF FROM THE DEFENCE SIDE. EXAMPLES OF THIS ARE MANY, AND CANADIAN INDUSTRY MUST RESPOND BY OFFERING NEW TECHNOLOGY AS WELL, IN ORDER TO COME TO THE TABLE WITH NEGOTIATING POWER.
Although Canadian defence trade with the U.S. currently exceeds by a large margin, the trade in this sector with any other country, European and other countries have been successful recently in selling major weapons systems to the U.S. based on indigenous technology which would have future significance to the continuance of the U.S.-Canadian relationship.

In conclusion, although defence trade between two countries is currently healthy and because of major U.S. defence programs, should continue, so in the short term, restrictions and limitations on the transfer of technology could limit Canadian participation in the North American defence base.

DEFENCE TRADE STATISTICS
1959 - JUNE, 1983
- $ CANADIAN MILLIONS -

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TOTAL U.S. EXPORTS

| U.S. | JAN/JUNE, 1983 |
| U.S. | 1982          |
| U.S. | 1981 - 1983   |

$ CANADIAN MILLIONS

DEFINITE EXPORTS BY INDUSTRY SECTOR
Introduction

Throughout the world, governments offer investment subsidies to encourage foreign direct investment. This is important to those nations that seek to attract foreign direct investment and are eager to increase their world commerce and economic growth.

David Cameron

Suggest Pacts
order to provide a basis for analyzing the economic implications of various types of subsidy pacts.

An investment by a private firm may provide benefits which cannot be appropriated by the firm but which are significant for others within the political entity where the investment is located. Such benefits which are external to the firm include employment opportunities, the sharing of government costs and the advancement of technology. These are often referred to as externalities. A central argument of this paper is that it is useful to regard such externalities as goods offered by potential investors for sale to governments. An international market exists for these externalities; and the prices governments offer to acquire them are quoted in the form of subsidies. Economists and others have devoted considerable thought to negative externalities such as pollution. In such analyses, the use of fines, special taxes, and regulation is seen as a means of introducing a firm's negative externalities into the firm's investment and production decisions. Such negative externalities are not the focus of this paper except in the following sense: where an investment or production decision results in negative as well as positive externalities, political entities seeking to maximize their welfare should offer a subsidy equal to net externalities. One particularly important type of negative externality results from the impact of a subsidized investment on existing manufacturers. Subsidized investment will expand the supply of a product, and existing manufacturers of that product may consequently suffer reductions in output, employment, and profits. The calculation of net externalities and subsidies should include such negative results.

The paper examines this externality-subsidy market in the following sequence. Many types of subsidies are offered by governments, and so negotiators of a subsidy pact will have to decide upon the definition of subsidies to be dealt with, a problem made more difficult by the ability of signatories to switch their financial assistance to firms that have not been included in the pact. The paper considers why the competition for externalities has intensified and consequently, why the analysis of this market has grown in importance. The perfectly competitive model for an externality-subsidy market is presented, where a large number of governments compete to obtain the investment and production of a large number of firms. Analysis of such a market structure indicates that a pact which seeks to reduce subsidy levels may actually diminish, rather than increase, the welfare of the signatories. Important characteristics of a subsidy pact in a perfectly competitive market include the ceilings established for subsidies, the provisions for adjusting these ceilings, the relationships with non-signatories, the degree to which firms can choose to locate in non-pact countries, and the opportunity for signatories to shift their assistance to forms not included in the pact.

The paper then considers the case where perfect competition in the externality - subsidy market fails because there are too few firms, such that a location decision may alter the terms of trade. In such a market, it is suggested that a series of pacts may be necessary, with one for each type of product. The externality - subsidy market may also fail because the information available to governments is imperfect. In such circumstances, it is suggested that a pact for the sharing of information may improve the welfare of all signatories. The competitive model may fail because externalities may spill over into other jurisdictions. In this case, a pact under which subsidies are pooled could rationalize subsidy offers, allocate costs in accordance with externalities, and so make all participants better off than if the investments went elsewhere. The reduction of political barriers can serve as an alternative to subsidy pacts. Finally, the enforcement issue is considered and several concerns are raised, particularly the independence of state and provincial governments and the ability to retaliate against the subsidies of non-signatories. Throughout the paper, it is suggested that analysis of the externality-subsidy market

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2 See, for example, Ron Saunders, Aid to Workers in Declining Industries, Ontario Economic Council, forthcoming.

3 It is not clear whether a government will focus only on externalities as they affect government revenue and expenditures or whether the government will also consider the impact of externalities on other individuals within the political entity. Recently, a substantial literature has developed concerning the ability of individuals to influence a government's decision so as to benefit themselves. See Nutter, Trebicko, and Dewees, The Choice of Governing Instrument, Economic Council of Canada. The extent to which a government includes externality effects on third parties will depend upon the society's political power structure. See J.R. Melvin, "Political Structure and the Pursuit of Economic Objectives," in Trebicko, et. al., Federalism and the Canadian Economic Union, Ontario Economic Council, 1983. For example, private costs of unemployment caused by a plant closing may or may not be included in a government's calculations. Economists would argue that at least some private costs should be included; such as loss of income due to job search and retraining, if the political entity's overall welfare is to be maximized. See Ron Saunders, Op. Cit.

It should be noted that in one or more cases there may be other government forms of control or regulation that must be considered.

The problem of defining subsidies is for the purpose of a part of the government.

The following examples illustrate this point:...

The subsidies and the discussion above will have to deal with the definition of a subsidy.

The government's collection of economic evidence, international investment cooperation, national fees, economic union, central bank.

The results of the government's collection will have to deal with the definition of a subsidy.

Any of these issues are relevant for all levels of government.

To make a case for or against subsidies, a subsidy is a part of the government's collection of economic evidence, international investment cooperation, national fees, economic union, central bank.

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To make a case for or against subsidies, a subsidy is a part of the government's collection of economic evidence, international investment cooperation, national fees, economic union, central bank.
examples of this, where Canadian government-owned hydro and oil companies may compete with private U.S. corporations. Aircraft manufacturing may be particularly important in the near future, as government-owned Canadair competes internationally, with its Dash-7, a 50 seat commuter aircraft with STOL capacity, with its Dash-8, a 36-seat aircraft, and with its new executive jet. The Ontario government's Urban Transportation Development Corporation is actively competing across Canada and in other nations to sell rail passenger vehicles, subway cars, and integrated urban transit systems. Government marketing agencies may subsidize private domestic producers in a manner that affects international trade. This has particularly been the case with agricultural marketing agencies, and the EEC's common agricultural policy (CAP) has had serious effects on world trade, recently, for example, involving disputes with the U.S. over exports to Egypt and China. For its own part, of course, the U.S. government price-support programmes have a major effect on the prices and quantities of traded agricultural products. Government corporations may provide subsidized inputs, such as cheap energy or petrochemicals, that give private firms an advantage in international competition.

Of particular interest are manufacturing firms which initially received explicit subsidies but which later were taken over by government. In Canada, Consolidated Computer Incorporated and Canadair both became government-owned, after a period of receiving explicit subsidies. With the change to government ownership, however, calculation of the value of the implicit subsidies becomes much more difficult.

Communist and other non-market nations present special difficulties in that a substantial proportion of their prices do not reflect production costs. Implicit subsidies may provide many of their products with special advantages in international competition, and yet it may not be possible to calculate the extent of such subsidies. How such nations could participate in a subsidy pact is a most perplexing issue. Yet to establish subsidy pacts without their involvement, while still permitting trade with them, would jeopardize particular firms within the signatories.

Government Provision of Goods and Services. All levels of government provide goods and services at less than market prices. Many municipalities offer commercial land at subsidized prices, often in specially developed industrial parks. A vast array of government programs reduces the costs of private corporations below the level they would otherwise pay.

At the one extreme, programs aimed at improving the education and skills of the labor force are unlikely to be subject to subsidy pacts in spite of their importance. Yet many recently instituted programs aimed at stimulating R & D may well be the subject for international negotiation, particularly when these take the form of linkages between government-funded universities, research laboratories, or technology centres, on the one hand, and private corporations on the other.

Of major significance are the provision of government capital at interest rates below those prevailing in the market and the provision of government guarantees for corporate loans from the private sector. Most dramatic, perhaps, are government subsidies for the purpose of bailing-out firms considered to be in such severe distress that they will close some or all of their operations if not granted financial assistance. Capital assistance can be directed at many objectives other than bail-outs. A 1962 study by the Economic Council of Canada has documented dozens of Canadian government programs - both federal and provincial - which provide loans and loan guarantees. This study uses the government bond yield to estimate the amount of subsidy involved in the special interest rates charged for these loans. To calculate the subsidy component of such assistance and to relate that component to a particular firm at a particular time is extremely difficult and results in imprecise estimates. Even the calculations of the Economic Council as they relate to subsidy estimates by program can be subjected to criticism.

Government Tax Concessions. Special tax concessions can reduce a private firm's costs and provide a competitive advantage to much the same extent as direct subsidies can. Consequently, it is likely that governments negotiating a subsidy pact will wish to include special tax concessions in such discussions.

On a general level, some countries have relied on a value-added tax which is not payable on exports. In countries that impose corporate income taxes instead of value-added taxes, the argument can be made that foreign competitors' firms are being subsidized by the VAT export-related programs.

government's role in the economy, and the need for governments to be proactive in addressing economic challenges. These have grown substantially in importance over a variety of reasons:

- The growth of government investment in various sectors, which has been driven by changes in government policies and the need for economic stimulation.
- The role of governments in providing infrastructure and services, which has increased due to population growth and urbanization.
- The need for governments to respond to global challenges, such as climate change and economic instability, that require collective action and investment.

The government's role in these areas has expanded significantly, with a focus on creating a more efficient and effective economic environment. This has led to a greater emphasis on fiscal policies, regulatory frameworks, and strategic investments in key sectors such as transportation, energy, and technology.

Overall, the growth of government investment and the role of governments in the economy reflect a shift towards a more active and interventionist approach in managing economic affairs.
level of scientific knowledge and skill and can assist other firms and individuals in their adoption of new technology. The Economic Council of Canada has recently published The Bottom Line: Technology Trade and Income Growth, which describes current government assistance programs that seek to stimulate R&D, and which advocates extensions and modifications to improve their effectiveness.  

As a result of these trends, the externality - subsidy market has become increasingly active. Hence analysis of this market has grown in importance, particularly in regard to the question of whether unlimited competition among governments will result in efficient location decisions, or whether a pact that limits subsidies might be more appropriate.

The Perfectly Competitive Solution

A government should be prepared to offer a subsidy equal to the present discounted value of the future stream of externalities associated with any investment. To offer less would mean that the firm would locate elsewhere, to the detriment of the local economy. A government should calculate the appropriate subsidy for each potential investment, offering such subsidies as long as its well-being could be enhanced by more investment. Since a very large number of investment possibilities exist, with a very wide range of sizes, no government is noticeably affected by the subsidy offers of any other government, except insofar as all such offers influence the market price of externalities. A particular externality may not be of the same value to all governments. For example, the social cost of unemployment or the presence of underutilized government services may vary among political entities. Similarly, the projected internal profitability will vary among political regions. Consequently, each firm locates in the particular territory where its combination of externalities, plus its internal profitability, is highest.

A Pact for the Sole Purpose of Reducing Subsidy Levels

Suppose that a subsidy pact provides for a maximum permissible subsidy level. Those governments for whom particular externalities would be worth more than this level will not be able to purchase as much investment or production as they would under the perfectly competitive approach. Overall efficiency is reduced, since non-price elements will become a determining factor in location decisions. Investments and production will not be drawn to the political territory where they are valued the most. The lower the maximum permissible subsidy level the greater will be this distortion. Externalities will be of most value to those political territories with the highest rates of unemployment, and so these will be the territories most hurt by such a non-competition pact.

In recognition of this likelihood, the E.E.C. has established three different subsidy levels to reduce distortions caused by its non-competition subsidy pact:

economies of scale mean that the first nation to 'target' a particular product for special subsidies and protection may gain a comparative advantage.

Is a subsidy pact of any use in this type of market failure? If so, what type of pact would be most appropriate? A subsidy pact may not be in the interests of the political entity expecting to win, but it may be of substantial benefit to the political entity expecting to lose. An interesting question concerns the ability to predict beforehand what the results of such competition would be, in particular whether a small open economy like Canada would be able to compete effectively or whether the larger nations would consistently be victorious. Furthermore, especially in cases involving R & D subsidies, it is not clear even what subsidy pact could be established that would have an economic rationale. The most that could be hoped for would be a separate pact for each such situation, with the pact subject to revision as circumstances change. The objective of each pact would be to replace the market result with a political result, negotiated between the governments concerned. The uncertainty of the market result, together with its unknown threat of extreme outcomes, would be replaced with a political result, probably based on a compromise.

Three Canadian examples illustrate different aspects of the uncertainty of market results and the role of political involvement when subsidies and trade involve few producers. First, Canadian political leaders must decide whether to join the Airbus Industrie consortium, with an up-front subsidy-investment of some $500 million and perhaps the expectation that Air Canada will purchase its airplanes from the consortium. The United States and Boeing may be a significant decision, and so they may be prepared to negotiate special concessions for Canada as an alternative to the European connection. The details of such possible concessions, the process of negotiation, and the ultimate outcome cannot be predicted with much certainty.

Second, the Canada-U.S. Defence Production Sharing Agreement provides for trade in defense products to be 'in rough balance'. This agreement which has been in effect for twenty years represents a political compromise concerning trade. The 'rough balance' concept has no appara-

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ent basis in comparative production costs. In both nations, defense industries have been given substantial subsidies, and one may regard this agreement as a political means for dealing with the competitive subsidy problem when few producers exist.

Third, when Canadians were recently considering the oil industry mega-projects, Canadian content in the provision of the mega-projects became a political issue. A major concern was that imports not take over too much of the subcontracting. The media discussion at the time and the appointment by the government of a Task Force to provide recommendations concerning mega-project procurement policy illustrated the political nature of this issue.

In cases such as these, economic analysis is limited in its predictive insights; the outcomes have an added element of uncertainty; and political considerations and compromise are important. Special intergovernmental negotiations may be necessary on a case-by-case basis. In the future this will likely be important for aircraft, automobiles, energy, petrochemicals, and defense equipment.

**Market Failure Due to Imperfect Information**

The economic information on which governments base their decisions is far from perfect. Information necessary for a perfectly competitive externality-subsidy market has several special characteristics, each of which complicates the government's task.

First, much of the relevant information must come from the individual firm requesting the subsidy. This involves the moral hazard problem that the firm has an incentive to present imperfect information in an attempt to maximize its subsidy.

Second, some externalities are particularly difficult to estimate. For example, the extent to which a new investment will be able to bear some of the cost of existing government services will depend upon the investment's profitability--hence its ability to pay taxes--and also upon the extra burden it will place on those government services. Employment estimates may differ substantially from actual employment simply because the investment's success cannot be predicted with a high degree of accuracy. The firm's success will depend upon developments in a wide range of factors, many of which will be beyond the control of the individual firm.
different levels of government participate together in providing\ninformation sharing to occur. Privacy within mechanisms at\nsuch policies are based on a variety of factors, including the\nfreedom to make decisions about what information is shared.\n
The second factor is the impact of the process of\ninformation sharing on the privacy of individuals who\nparticipate. For this reason, both reasons reflect a government\npolicy that recognizes the importance of maintaining a balance\nbetween the need for information sharing for public policy and\nindividual privacy.

The third factor is the use of information sharing for public\npolicy. This factor is important because it reflects the nature of\nthe relationship between the government and the public. The\nuse of information sharing for public policy reflects the need\nto balance the interests of the public with the interests of the\nindividual.

The fourth factor is the impact of the process of\ninformation sharing on the privacy of individuals who\nparticipate. This factor is important because it reflects the nature of\nthe relationship between the government and the public. The\nuse of information sharing for public policy reflects the need\nto balance the interests of the public with the interests of the\nindividual.
levels of government surrender the right to grant subsidies to a higher level of government. The latter can raise revenue across all subordinate political entities and grant a subsidy which may benefit all the subordinates.

To minimize administrative costs, governments may enter a subsidy pact of this type for all potential investments. Subordinate governments may surrender their right to grant subsidies. Their willingness to enter such a pact will depend upon the confidence they have that the senior government will perform subsidy calculations and will raise revenue in an efficient and equitable manner. Their willingness will also depend upon the strength of their common interests - the degree to which they regard each other's success as being interdependent - and the ability of their residents to migrate or otherwise share in any exceptional winnings of the others.

Not surprisingly, political entities have been reluctant to enter a permanent, all-inclusive subsidy pact of this type. American states and Canadian provinces have avoided such a pact, as have the EEC nations. Nevertheless, it is possible that such a pact may be in potential signatories' best interests for a particular range of investments. For example, it is conceivable that EEC countries will develop joint subsidy proposals in order to ensure that a particular investment will occur in Western Europe. At the present time, these nations are considering the joint funding of a $1.5 billion research program, called Esprit, for semiconductor and computer technologies. It may even be in the interests of sub-national governments to develop single-industry pacts. Michigan, Ohio, and Ontario are so intimately linked in terms of the automobile industry that new automobile investments in any one of the three may provide some benefits to the other two. In such a case, a pact to rationalize subsidy offers and allocate costs in accordance with externalities could make all participants better off than if the investments went elsewhere. The Chrysler bail-out situation illustrated this interdependence, as both Canada and the U.S. stood to lose if Chrysler failed and so both were prepared to offer assistance. Explicit recognition of this interdependence would improve the overall allocation of subsidies.

(b) **Net Negative Spillovers**

Subsidized investment will expand the supply of a product, and existing manufacturers of that product may consequently suffer reductions in output, employment, and profits. While a government should include these negative externalities in its subsidy calculations, it may omit them to the extent that existing manufacturers are located in another political entity. A pact may oblige its signatories to consider such effects in its subsidy calculations. This is a central purpose of recent GATT agreements concerning subsidies.

Negative spillovers can take three distinct forms. Foreign firms may find their sales hurt in their own country, since the subsidized firm can export at a lower cost than otherwise. Foreign firms may find their own export sales hurt as they compete abroad against subsidized products. Foreigners may be discouraged from undertaking new investments or making new products if they know that the subsidies will put them at a competitive disadvantage. While the last two forms of negative spillovers may be extremely important, it is the first form that has generally elicited most response. The GATT provisions seek to guard against all three forms of negative spillovers, but, since formal complaints are required to start GATT procedures, foreign firms finding their sales hurt in their own country will remain the principal focus of concern. The need to demonstrate "material injury" in order to impose countervailing duties will also tend to focus on such domestic sales where the injury can be seen most clearly.

**Reduction of political barriers as an alternative to subsidy pacts**

The analysis of this paper has rested upon the existence of discrete political entities. Each government seeks to maximize the well-being of its particular individuals and firms, and an important instrument is the ability to attract new investment through subsidy offers. Pacts have been shown to be capable, in some circumstances, of increasing the welfare of all signatories. It should be noted that the reduction of political barriers can serve as an alternative to subsidy pacts.

In the extreme, if two separate political entities decide to merge, then the new government can examine investment potentials throughout the two areas and can allocate subsidies in the same pattern as would be achieved

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different connectors. The portion of the antenna that is connected to the earth grounding conductors and the portion that is connected to the ground must be connected to the same grounding system.

The portion of the antenna that is connected to the earth grounding conductors and the portion that is connected to the ground must be connected to the same grounding system.

In summary, the EEC 1982 rules require that all connector parts of the connector be connected to the same grounding system. This ensures that the connector is properly grounded and that it meets the requirements of the EEC 1982 rules.
In order to encourage consistent, multilaterally accepted interpretations of key GATT terms and concepts and to ensure that these emerge by way of negotiation and agreement between signatories, rather than primarily by the weight of U.S. practice, Canada should be seeking further clarification of these codes at the multilateral level. With such a dependence on exports, Canada has a particular interest in ensuring that the threshold of pain, the criteria for material, serious and regional injury and the required causal link between imports and injury are not overly loose. Ontario, therefore, recommends that:

- Agreement be sought to review and clarify definitions of injury in existing GATT codes with a view to laying the basis for more consistent multilateral interpretations of these codes.

The ability of the GATT system to establish appropriate mechanisms and procedures for dispute settlement between signatories is a central element of the system and the basis of much of its legitimacy and credibility. This credibility is undermined if dispute settlement procedures are not adhered to and results of these procedures not respected. Ontario, therefore, recommends that:

- Canada commit itself to 'support and respect the results that emerge from the GATT dispute settlement procedures' and firmly encourage similar adherence by other signatories, such as the United States, which continues to try to negotiate out of having to accept the fact that DISC is a breach of its GATT most-favoured-nation obligations.

'Canada should also come forward with some constructive criticism of GATT dispute settlement mechanisms (notifications, consultation, surveillance, dispute settlement) with a view to encouraging 'review and improvement' of certain aspects of the mechanisms. This would include proposals for examination of such issues as delays in adopting terms of reference of panels, delays in forming panels, time limits and enforcement of decisions.'

Observations

A series of observations can be made concerning intergovernmental subsidy negotiations:

- The subsidy negotiations will be extremely complex, more so than traditional tariff negotiations. In particular, they will have to deal with problems of definition and with the ability of signatories to switch their financial assistance to forms that have not been prohibited, and they will have to cope with novel enforcement problems.

- Simple agreements to reduce the levels of subsidies may conceivably reduce the welfare of the signatories.

- Sharing information in regard to the subsidy-investment-externality process may reduce errors in estimation and, consequently, may improve the well-being of all participants.

- An optimal subsidy pact will likely involve a set of pacts, some dealing with specific types of subsidies, and some dealing with specific firms. In particular, subsidies to firms possessing market power and considering large investment or production decisions may require special intergovernmental negotiations on a case-by-case basis. This will likely be true for aircraft, automobiles, energy, petrochemicals, and defense equipment.

- An optimal set of pacts will have to provide for review and adjustments to its provisions on a frequent or continual basis. A permanent structure for such review may deserve consideration.

- In negotiations, all levels of government will have to be involved. This contrasts in fundamental ways with traditional tariff negotiations, which have involved only national governments.

- Negotiations will have to consider the impact of a subsidy pact on trade with non-signatories. Pursuant to tariff negotiations, concessions can be extended to other governments whenever the latter chose to participate in the agreements. With a subsidy pact, non-signatories may automatically benefit from signatories’ reductions of subsidies without themselves providing any concessions. This factor alone is a sufficient condition to necessitate review and flexibility within a subsidy pact, as experience accumulates and as circumstances change.

- Externalities may spill over into other jurisdictions. In this case, a pact to pool subsidies and rationalize subsidy offers could make all participants better off than if the investments went elsewhere.

- Reductions of political barriers can serve as an alternative to subsidy pacts.

- Analysis of the externality-subsidy market and the process of negotiating subsidy pacts will rely heavily on studies of specific firms,
Dahlhoステル University
Centre for International Business Studies
Alan M. Hugman

IMPLICATIONS FOR TRADE AND INVESTMENTS
THE BEHAVIOUR OF U.S. SUBSIDIARIES IN CANADA
Bernard Wolf, Dan Ry SG, Harvey Bate, and Steven Glazer.

Helpful comments have been received from Don Lacerson.

Gratefully acknowledged.

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U.S.-Canadian Relations, University of Western Ontario,

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Malta, M. M. Scotta 38 H 125
Datamuse, University of Western Ontario
Business School
Center for International
Professor and Director

Alan M. Rugman

By

IMPLICATIONS FOR TRADE AND INVESTMENTS

THE BEHAVIOR OF U.S. SUBSIDIARIES IN CANADA

2nd draft: November 1983
The larger, U.S.-based Canadian subsidiaries are
subsequently, and second the consolidation of such
become decentralised by U.S. parent to other Canadian
subsidiaries. These are, in effect, the parent to which a and d can
investment or other critical aspects of the parent or U.S.
section, which illustrate the implications of trade and
investment in Canada.

The second major theme of the paper is developed in
provincial government's.
the extra-fiscal parameters imposed by Canadian federal
revenue Canada policy towards the policy and which
research. From U.S. perspectives, it has evolved and changed
determined and related to the behaviour of U.S. parent firms and
doing it. The nature of subsidiary performance is thus
greater than Canadian market by P. In other than alternative modes
departed to the larger, U.S. subsidiaries. These data are used to interpret
firms, by the parent, complement the parent's domestic output. and to create
their primary characteristics of the Canadian subsidiaries of the
stage three processes in summary form details of
Importance
Importance for Trade and Investment
The Behaviour of U.S. Subsidiaries in Canada:

Canada

Introduction

The significance of foreign direct investment (FDI) in

Investigation and size of the larger, U.S. Subsidiaries in

Export Subsidiaries and Performance, and the Reasons for their

Export performance of subsidiaries and the reasons for their

export performance of subsidiaries, and the reasons for their

Export Performance of Canadian Exporters. Other important topics, such

Export Performance of Canadian Exporters. Other important topics, such

Export Performance of Canadian Exporters. Other important topics, such
Table 1
Size of 22 Large Canadian Subsidiaries
of U.S. Multinationals

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Parent</th>
<th>1982 Sales (US $ 000's)</th>
<th>Subsidiary</th>
<th>Parent</th>
<th>Sales (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM</td>
<td>GM</td>
<td>7,752</td>
<td>60,026</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td>Imperial</td>
<td>Exxon</td>
<td>6,981</td>
<td>97,173</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Ford</td>
<td>Ford</td>
<td>5,942</td>
<td>37,067</td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>Texaco</td>
<td>Texaco</td>
<td>3,862</td>
<td>46,986</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>Gulf</td>
<td>Gulf</td>
<td>3,752</td>
<td>28,427</td>
<td>13.3</td>
<td></td>
</tr>
<tr>
<td>Chrysler</td>
<td>Chrysler</td>
<td>2,962</td>
<td>10,065</td>
<td>29.5</td>
<td></td>
</tr>
<tr>
<td>Safeway</td>
<td>Safeway</td>
<td>2,673</td>
<td>17,633</td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>Simpson Sears</td>
<td>S. Roebuck</td>
<td>2,541</td>
<td>30,020</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>ISN</td>
<td>ISN</td>
<td>1,785</td>
<td>34,364</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Woolworth</td>
<td>Woolworth</td>
<td>1,353</td>
<td>6,590</td>
<td>20.5</td>
<td></td>
</tr>
<tr>
<td>CGE</td>
<td>GE</td>
<td>1,324</td>
<td>26,500</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Suncor</td>
<td>Sun</td>
<td>1,250</td>
<td>13,519</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>GE</td>
<td>1,139</td>
<td>12,066</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>Mobil</td>
<td>Mobil</td>
<td>1,005</td>
<td>59,946</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Ancoo</td>
<td>Standard (Ind.)</td>
<td>981</td>
<td>28,073</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Dow</td>
<td>Dow</td>
<td>872</td>
<td>10,618</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>DuPont</td>
<td>DuPont</td>
<td>794</td>
<td>33,331</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>K-Mart</td>
<td>K-Mart</td>
<td>765</td>
<td>18,772</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>I. Harvester</td>
<td>I. Harvester</td>
<td>712</td>
<td>4,725</td>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>P and G</td>
<td>P and G</td>
<td>670</td>
<td>11,994</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Chevron</td>
<td>Standard (Ca.)</td>
<td>580</td>
<td>34,362</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Westinghouse</td>
<td>W.E.</td>
<td>573</td>
<td>9,745</td>
<td>5.9</td>
<td></td>
</tr>
</tbody>
</table>

MEAN  9.67


Motors of Canada, ranks at number two on the Financial Post 500 list for 1982. The twenty-second, Westinghouse Canada, ranks at number 104.

One problem with the population of firms in Table 1 is that it is too small to control for industry effects. Given the heavy concentration of foreign ownership in fuels and manufacturing, it is not surprising to find seven and nine firms in these categories respectively. The interpretation of the results in this paper should be qualified by this limitation.

In Canada there is a popular yardstick that everything is 10 percent of the size of its American counterpart. Thus it is not unexpected that the mean percentage contribution to parent company sales by Canadian subsidiaries is nearly 10 percent (shown in the last column of Table 1). Individual subsidiary contributions to parent sales range from 29.5 percent (Chrysler) to 1.7 percent (Mobil and Chevron).

Evidence on the Performance of U.S. Subsidiaries in Canada

The performance of the Canadian subsidiaries and their American parents over the last decade is reported in summary form in Table 2. The conventional measure of performance used is the return on equity (ROE). Return is defined as the net income after taxes and equity is the year end value of stockholders' equity. The standard deviation (S.D.) about the mean of the 10 year ROE is used as a proxy measure for risk.

When interpreting these results it is useful to keep in
more drammatically U.S. economy. Canadian businesses operate
experience more risk than European countries in the larger and
smaller firms of the Canadian economy in over 90% of the
major industries in the country. Probably these are the
result of the greater competition in the range that
5 of the subsidiaries over 50 percent of total annual net
while the level of profits is the same way is the mean
profitability has decreased.

Few data over the last 20 years, while the rate of earnings of
work that the mean return on all subsidiaries has no
productivity and material resources investments were reported.
but for earlier time periods, and especially for ticks in the
returns on ticks, the subsidiaries have
increased.

In 1975-1980, the average years of the subsidiaries
return on sales is 1.59 percent on average, the subsidiaries

In the years of 1975-1980, the 5.88 percent return on sales of the
and the subsidiaries are 1.24 percent higher than the average.
the subsidiaries, the reported average of profit margin and
the profit margin of 90 percent and subsidiaries (4.2 percent) on average.
The profit margin of 90 percent and subsidiaries is lower than the average,
and the subsidiaries are 5.88 percent higher than the average.

Performance of 22 large Canadian subsidiaries

of 22 large Canadian subsidiaries

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit</th>
<th>Revenue</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>1.24%</td>
<td>5.88%</td>
<td>1.59%</td>
</tr>
</tbody>
</table>

Source: Financial Post, "The Canadian Business 2000"
typically more pronounced than U.S. ones, reflecting the thin nature of the economy and its dependence on resources. In addition, some of the subsidiaries may be in more specialized activities than their diversified parents, for example some of the fuels subsidiaries may be engaged in upstream activities. The difference also partly reflects the degree of multinationality of the parent MNEs, who are active in more foreign markets than the subsidiaries. The benefits of international diversification for parent MNEs, where offsetting national covariances tend to stabilize returns were demonstrated for these U.S. MNEs in Rugman (1979).

The data in Table 2 also help to dispel another popular misconception about the power of MNEs. It is sometimes argued that the parent MNEs can use transfer prices to squeeze the profits of their Canadian subsidiaries. If this were being done then we would expect to observe the Canadian ROE being lower than that of their parent ROE. However, as the mean ROEs are roughly equivalent, such an argument cannot be supported. This point was developed in more detail in Chapter 7 of Rugman (1990), for data on the mining industry.

Evidence on R and D and Exports by Canadian Subsidiaries

The 1970s have been characterized by increasing government regulation of the Canadian economy. In the area of FDI much of the nationalistic case for regulation of foreign ownership has been summarized, if not embellished, by the Gray Report (1972). Policy instruments such as the National Energy Policy (NEP) and the Foreign Investment Review Agency (FIRA) have sought to increase the Canadian ownership of the economy and to increase the "net benefits" of FDI, however these are defined. In the context of government support for research and development (R and D) recently a world product mandate (WPM) policy has been advocated by the Science Council of Canada (1980). Under this policy only subsidiaries which have a WPM are to receive R and D grants, whereas present research policy does not discriminate in this manner. With a WPM the subsidiary of an MNE acquires full responsibility for the development, production and marketing of a single product on a worldwide scale.

The Science Council of Canada views increased R and D as the primary means to increase exports of technologically intensive products. The advanced nations of the world are moving to specialize in more research intensive goods, leaving the production of standardized product lines to newly industrialized nations such as the four dragons of East Asia. Canada, as a high income nation, is apparently not making the high-technology transition as rapidly as the others. R and D expenditure in Canada is less than one percent of GNP, compared to well over two percent for the United States and most European countries. The Science Council, by recommending policies to encourage WPMs, are assigning part of the blame for the relatively low level of R and D in Canada to foreign subsidiaries.
Tuning from expert performance to 9 and 12 performance.

The expert performance of the participants, 

are the expert performance of the participants.

percentages for these conditions in. Notice, the same percentages in scenario 1. The mean score for cases

where tested in scenario 2. However, the largest Canada-canadian

indicate that the main measure to the group of participants is

the expert performance of the group of participants is a

as the criterion marker, so expected to a known.

ancomparability knowledge and other areas to service

instead, more of the 22 participants have been expected to

expert from Canada, similarly to provide the protocol.

By measuring the extent to which, more have been expected to

record that the larger 22's expected are not contained.

perceivable and 12's measured correctly. It is expected that the

recorded strengths are expected to improve at 9.5

Canada's, these position. It can be observed that

Canada's, these position. It can be observed that there

is no clear conclusion made for the other cases. Canada's

to effective on average. In Table 2, it is difficult to use

Canada is not the same, the protocol, from that time.

Canada is not the same, the protocol, from that time.

It is to be expected that more, U's, substitutions in

attributions are executed from other works.

Canada were not antithetical, so there is a comparison

which, Canada Test, performance, Winnipeg-M in.

Karn, F-W.

presented in Table 2 for the 22 substitutions. Data for

substitutions, data for 9 and 12 substitutions and expert scales are

are the expert performance of the participants.

the 22 participants. As the criterion marker, the number of participants.

for July a good, for no better, than domestic capabilities.

This is the criterion marker, the number of participants, which is a

promotion, the 9 and 12 performance of participants, which would be

both doomed to failure. 1

and 9 and 12 expert performance and more received, but based on expert.

The two primary sources of the 9 and 12 promotions. These are

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Table 3
Research and Export Performance
of Canadian Subsidiaries
(Percent)

<table>
<thead>
<tr>
<th>Canadian Subsidiary (percent owned)</th>
<th>R&amp;D to Sales ²</th>
<th>Exports to Sales ³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sub</td>
<td>Parent</td>
</tr>
<tr>
<td>General Motors of Canada (100)</td>
<td>0.25</td>
<td>3.47</td>
</tr>
<tr>
<td>Imperial Oil (76)</td>
<td>0.65</td>
<td>0.53</td>
</tr>
<tr>
<td>Ford Motor of Canada (92)</td>
<td>na</td>
<td>4.30</td>
</tr>
<tr>
<td>Texaco Canada (90)</td>
<td>0.37</td>
<td>2.33</td>
</tr>
<tr>
<td>Gulf Canada (73)</td>
<td>1.27</td>
<td>0.55</td>
</tr>
<tr>
<td>Chrysler Canada (100)</td>
<td>na</td>
<td>2.60</td>
</tr>
<tr>
<td>Canada Safeway (96)</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>IBM Canada (100)</td>
<td>1.23</td>
<td>5.73</td>
</tr>
<tr>
<td>Canadian General Electric (92)</td>
<td>1.53</td>
<td>2.97</td>
</tr>
<tr>
<td>Suncor (75)</td>
<td>0.45</td>
<td>0.30</td>
</tr>
<tr>
<td>Mobil Oil Canada (91)</td>
<td>0.35</td>
<td>0.30</td>
</tr>
<tr>
<td>Amoco (100)</td>
<td>na</td>
<td>4.67</td>
</tr>
<tr>
<td>Dow Chemical Canada (100)</td>
<td>1.00</td>
<td>3.10</td>
</tr>
<tr>
<td>DuPont of Canada (75)</td>
<td>0.90</td>
<td>3.20</td>
</tr>
<tr>
<td>International Harvester Canada (100)</td>
<td>na</td>
<td>3.37</td>
</tr>
<tr>
<td>Proctor and Gamble (100)</td>
<td>na</td>
<td>2.17</td>
</tr>
<tr>
<td>Chevron Canada (100)</td>
<td>na</td>
<td>3.33</td>
</tr>
<tr>
<td>Westinghouse Canada (95)</td>
<td>na</td>
<td>2.30</td>
</tr>
<tr>
<td></td>
<td><strong>0.80</strong></td>
<td><strong>2.25</strong></td>
</tr>
</tbody>
</table>

Notes:
1. Foreign Sales to Total Sales, where foreign sales includes both exports of the parent firm plus production by overseas subsidiaries
3. Figure shown is for the most recent available period: 1980, 81 or 82.
4. Mean shown is for those ten parent companies for which a comparative subsidiary figure is available. The actual mean for 17 parents is 2.66.
5. Mean export sales only, foreign to total sales excluded from computation.

Sources: Financial Post, March 12, 1983 and November 28, 1981 (R&D), Corporate Annual Reports.

the mean R and D to sales percentages in Table 3 show that these subsidiaries undertake less R and D than their parents at 0.8 and 2.25 percent respectively. Less R and D in the subsidiaries is to be expected given that the initial reasons for FDI in Canada are either horizontal integration to service the Canadian market from within, thereby avoiding the tariff, or vertical integration to seek resources unobtainable or less attractive in the home country. Compounding these reasons is the need for the MNE to retain property rights over its firm-specific advantage, which requires propriety of R and D knowledge. The parent MNE risks dissipation of its firm-specific advantage in technology when it decentralizes its R and D function. There is a loss of control and a possibility of the subsidiary becoming too autonomous within the organizational structure of the MNE.

Despite these problems, foreign subsidiaries in Canada are observed to at least contribute to the level of R and D performed and their R and D performance is no worse than Canadian-owned firms. Data on R and D at the firm level are limited and few of the comparative studies have been at the firm level. Safarian (1968) did not find any difference in R and D between resident and non-resident firms in his survey. Rugman (1981) confirmed this finding and also found that subsidiaries had more R and D than other Canadian firms; the mean R and D to sales percentages for groups of the largest 12 parents, subsidiaries and domestic firms were 3.12, 2.07 and
canadian-nominated firms, and 21% of foreign subsidiaries.22 This is consistent with the financial post's central argument of redressing a long-run underrepresentation of foreign firms in the Canadian market.23

<table>
<thead>
<tr>
<th>Financial Post, 1986</th>
</tr>
</thead>
</table>

In Table 4, the mean and standard deviation of the financial post's core argument is illustrated. The financial post's core argument is to redress the underrepresentation of foreign firms in the Canadian market.24 This is consistent with the financial post's central argument of redressing a long-run underrepresentation of foreign firms in the Canadian market.25

219 Regretfully.

22

23

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25

26
Table 4 also reveals the trends in the ratios of R and D expenditures to sales over recent years. Of the 18 subsidiaries for which data are listed, nine are increasing their R and D to sales ratios, six are maintaining their R and D at stable levels, two are fluctuating and only one is in decline. Thus one-half of the subsidiaries are increasing their R and D to sales ratios while another third are maintaining theirs. It is ironic that the WPM initiative is occurring at a time when these subsidiaries are already achieving the Science Council’s objective of increased R and D in Canada.

Based on this evidence it can be concluded that foreign subsidiaries in Canada do as much R and D as domestically-owned firms. A policy to encourage R and D in Canada by focusing on any particular so-called deficient group is misdirected. Instead, a non-discriminatory policy which provides all interested parties with the same incentives for R and D is likely to be beneficial in terms of the number of participants and efficiency of R and D expenditures.

Some Conclusions on Canadian Policy Towards MNEs

As discussed at length in Rugman (1980), and confirmed here, the high degree of FDI in Canada has not resulted in an unsatisfactory performance by the subsidiaries themselves. In terms of profitability, R and D capacity and exporting, foreign subsidiaries of U.S. MNEs perform as well as domestic Canadian firms. FDI itself can be largely attributed to two factors:

tariffs and the nature of the Canadian country-specific advantage (CSA).

Since Confederation, to protect manufacturing (and now high-tech industries), Canada has erected tariff (and non-tariff) barriers to imports. U.S. MNEs, with close proximity to Canadian markets, have usually regarded Canada as one of the earliest foreign markets to enter, due to the perceived low information costs of exporting to a neighbouring country. As MNEs vied for market shares in import competing sectors in Canada, some found it necessary to keep down their costs by avoiding the Canadian tariff. Thus they switched to Canadian production by FDI. The tariff, while attempting to promote and protect domestically-owned industry, has actually encouraged FDI in Canada by these types of horizontally integrated MNEs.

The second major reason for FDI in Canada is to exploit the country’s CSAs in raw materials and resources. Vertical integration has been a factor since resource based MNEs need to acquire control over raw material inputs in order to reduce interruptions in supply, operate capital intensive plants at as near full capacity as possible, and ensure orderly marketing of narrow product lines.

The nature of horizontal and vertical integration by MNEs in Canada has been fostered by inappropriate Canadian policies. Horizontally integrated MNEs can be discouraged by removal of tariffs. Then many U.S.-based MNEs would export rather than engage in FDI in Canada. Of course, this would now
The government's objective is to foster an environment where Canadian firms can thrive. This involves promoting policies that encourage domestic innovation and investment. The government also aims to attract foreign direct investment to leverage expertise and technology from abroad.

In terms of international trade, Canada has been successful in diversifying its market and reducing its dependence on the US. This diversification strategy has contributed to the growth of the Canadian economy. The country has been able to negotiate free trade agreements with countries such as the US and the EU, which have significantly increased trade volumes.

However, the Canadian economy is not entirely immune to global market forces. Volatility in commodity prices and fluctuations in the US dollar have had a direct impact on the Canadian economy. The government has been proactive in developing policies to mitigate these effects. For example, it has implemented measures to support the agriculture sector, which is heavily reliant on commodity prices.

The Canadian government has also been active in promoting sustainable practices and innovation in the energy sector. This includes investments in renewable energy and the development of new technologies for the extraction and processing of natural gas and oil.

In conclusion, the Canadian economy has been able to adapt to global market forces by implementing a comprehensive strategy that includes promoting domestic innovation, diversifying its market, and responding to external shocks. This strategy has contributed to the economic stability and growth of the country.

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